

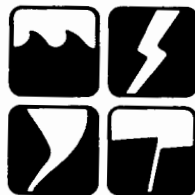
Natural Hazard Research

**THE SOUTHERN CALIFORNIA FIRES OF 1993:
COPING IN ORANGE COUNTY**

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Preface

This paper is part of a series on research in progress in the field of human adjustments to natural hazards. The Natural Hazards Working Paper Series is intended to aid the rapid distribution of research findings and information. Publication in the series is open to all hazards researchers and does not preclude more formal publication. Indeed, reader response to a publication in this series can be used to improve papers for submission to journal or book publishers.

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The Southern California Fires of 1993: Coping in Orange County

Introduction

From late October to early November in 1993, wildfires burned over 175,000 acres, destroyed more than 700 homes and structures, and killed three people in southern California. In a 10-day period, 26 fires burned from Poway, just north of San Diego, to Ojai, north of Los Angeles, and east to Banning in the Inland Empire. Six counties—Ventura, Los Angeles, San Bernardino, Riverside, Orange and San Diego—and the Governor's Office of Emergency Services mobilized and coordinated resources from cities, the California Department of Forestry, the United States Forest Service, the California National Guard, the U.S. Marine Corps, and scores of other agencies. The area was declared a national disaster by President Clinton, and private structure damage in the Laguna Beach fire alone reached \$435 million (Mulligan, 1993). While the destruction did not approach the 3,000 homes, 25 lives, and \$1.75 billion in insured losses of the Oakland fire of 1991 (Mulligan, 1993), the 1993 fires did create losses of about \$1 billion.

Nineteen of the 26 fires were set by arson (Newton and Hubler, 1993), but the real causes of the fires were:

- the wildland/urban interface, which juxtaposes dense residential housing on narrow, twisting streets abutting wilderness;
- the nature of chaparral, which depends on fire for rejuvenation and growth;
- a meteorological system that combined 92-mile-per-hour Santa Ana winds with

5% humidity;

- six seasons of drought followed by one of heavy rainfall that resulted in unusually dense vegetative growth; and
- housing materials that are not fire-resistant, and a housing stock that contains a sizeable number highly flammable wood shake roofs.

The fires were inevitable. Given the conditions that year, a firestorm was predictable (Holms, 1994, p. 5). The resulting destruction was also inevitable due to the vast geographic area covered by the fires, their number, and their intensity, despite rapid implementation of well-practiced and tested mutual aid agreements. In his first formal statement following the fires, Orange County Fire Division Chief Larry Holms said, "Even an army of firefighters with the most advanced equipment could not have prevented destruction in Orange County. Some areas were simply indefensible. This was the worst fire disaster in Orange County's history" (Holms, 1993, p.9; Weston, Milbourn, and Smith, 1993).

The 155 victims of the Laguna Beach fire contacted by *Los Angeles Times* pollsters shortly after the fire generally agreed with Chief Holms' assessment. Most blamed the destruction on the arsonists (43%), the Santa Ana conditions (27%), and "no one" or "Mother Nature" (15%) (Leshner, 1993). However, some echoed questions about specific public policies that were raised immediately after the Laguna fires by local critics, including the Freedom Newspapers daily, the *Orange County Register*, Laguna Beach Fire Chief Rich Dewberry, and United Laguna, a local civic group. The critics charged there were three specific policies that exacerbated the destruction:

- 1) failure by the Laguna Beach city council to authorize the construction of a

three-million-gallon reservoir,

- 2) opposition by environmental groups to a controlled burn, and
- 3) inability to use available military fire-fighting apparatus and personnel.

This paper will focus on the fires in Orange County and examine the claims of a failure in public policy. The research also addresses issues of coordination, control, and command during the course of the fires, and examines the county's emergency management structure. State mandates play a role in determining the future direction of emergency management in Orange County and elsewhere, and these changes will provide a reference point for future research.

Methodology

Data for this paper were collected through interviews of officials involved with the fire and with the emergency management system in Orange County, as well as written reports issued by the county about the fires. Additional data were assembled from local news media accounts of the fires and their aftermath, particularly two daily newspapers in Orange County, the *Los Angeles Times* and the *Orange County Register*.

The paper is primarily descriptive. During the data collection process, the working hypothesis centered around the relationship between the Incident Command System (ICS) at the field level and the coordination responsibilities of the county's Emergency Management Division (EMD) operating the remote site Emergency Operations Center (EOC). This hypothesis, exploratory in nature, asked whether resources might have been better deployed if the county's EOC had escalated from Level II to Level III (see definitions below), and if the

specific location of the EMD within the county administrative organization played a factor in the level of preparedness and response.

Gratifyingly¹, the recommendation that would have emerged from this exercise was already anticipated by county officials. The EMD was moved by the Board of Supervisors from the Orange County Fire Department into the Office of the County Administrative Officer several months after the fires.

The Fires

Ventura

The fires began on October 26 in Ventura County, northwest of Los Angeles, when a golfer reported an arson fire near Los Robles Golf Course in Thousand Oaks. In support of the Los Angeles County Fire Department, Orange County Fire Department dispatched two strike teams (two battalion chiefs, 42 firefighters, and 10 engines) to protect the Thousand Oaks Mall (Reed, 1993; Holms, 1994). By nightfall, the fire had consumed 900 acres, destroyed two homes, and forced the evacuation of scores of residents. More than 400 fire fighters were involved, supported by air tanker drops supplied by the United States Forest Service (USFS). With Santa Ana winds of 35 to 45 miles per hour predicted for the following day, fire officials began moving personnel and equipment to high risk areas in the San Fernando Valley (Reed, 1993, p. A17).

1. As a marginal "participant-observer" in emergency management issues in the county, and certainly an observer more than a practitioner, I was pleased to see the political process produce an administrative change that was a positive statement about the county's commitment to emergency management. Somehow, when public administration theory gets tested and works, I am always a little bit surprised.

Chatsworth

The Chatsworth fire began later that day in an area near the border between Ventura and Los Angeles counties. By early morning, it had consumed 1,500 acres and seriously injured four fire fighters who were trapped in their truck when the winds shifted, leaving them unable to evacuate. This fire was also of "suspicious origin" (later determined to be arson) and involved over 700 firefighters (Kennedy and Lopez, 1993).

Altadena

Meanwhile, a third major fire began near dawn in Los Angeles County in the community of Altadena in the San Gabriel Valley. That fire, eventually determined to be set accidentally by a transient's camping fire, burned over 4,000 acres by noon. One thousand fire fighters were committed to the Altadena blaze, and they were severely hampered by a power outage that shut down electric water pumps. Eventually, the fire destroyed 115 homes and an additional 1,000 acres in the Altadena-Sierra Madre area (Leshner, Lynch, and Nalick, 1993; Trounson, Brazil, and Reyes, 1993).

Orange County

The fires in Orange County began around 11:00 p.m. on the evening of October 26 in the Anaheim Hills area. Firefighters were responding to a structure fire in Yorba Linda when they spotted a vegetation fire near the community of Villa Park. Located near Stagecoach Road, the area is designated a mutual threat zone involving the cities of Orange and Anaheim and Orange County. By 11:30 p.m., the Orange County Fire Department dispatched 104

personnel to the scene, including a paramedic unit, five engines, and a water tender.

By the morning of October 27, the blaze had destroyed two homes and damaged 27 others. Two-hundred-and-forty-three fire fighters, including eight strike teams, were committed to the fire, which was eventually contained by 8:00 p.m. The ability of the teams to control the fire swiftly was hampered by winds gusting up to 75 miles per hour, shake roofs on 99% percent of the homes in the area, and numerous spectators wandering in to obtain a better view (Holms, 1994).

Before the Stagecoach fire was under control, the Orange County Fire Department (OCFD) received five 911 calls about a small brush blaze on Laguna Canyon Road at 11:50 a.m. "Two Southern California Edison workers tried to stamp it out as it grew. They almost succeeded" (Weber and Legon, 1993). OCFD dispatched three engines, including one that had just returned from the Stagecoach fire, and reached the scene at 11:56 a.m. A fourth engine, which heard the dispatch, also responded. The city of Laguna sent two engines and a battalion chief at 11:53 a.m. By the time the first county engine arrived, the fire had consumed about two acres. The engine's captain requested a water tender because of the inaccessible terrain and police support to protect the traffic on Laguna Canyon Road. At this point, the winds increased.

The fire began on the north side of the canyon where no structures were threatened. The goal was to keep the fire contained to the north side, below the crest of the hill, beyond which it threatened homes. At 12:08 p.m., the incident commander radioed a request for eight air tankers in order to hold the fire to the north side of the canyon. However, the tankers would not arrive until an hour and a half later when they could be released from the Ventura

and Los Angeles county fires. By now, fires were also burning in the surrounding counties of San Diego, Riverside, and San Bernardino. The incident commander at the Stagecoach fire was instructed to send all his available forces to Laguna, and by 12:09 p.m., 90 engines had been requested for the area.

At around 12:30 p.m., the fire split into three fronts, still on the north side of the canyon. Fires headed toward Emerald Bay, a gated community north of Pacific Coast Highway and separated from the beach, and El Morro, where the El Moro Mobile Home Park was located. Both areas lie in the unincorporated area of the county. The third front, still north of Laguna Canyon Road, headed toward the city of Laguna Beach, located largely to the south side of Laguna Canyon Road. The fire burned in canyons that were largely inaccessible to vehicles and contained chapparal that consisted primarily of coastal sage scrub, chamise, manzanita, and dry grasses.

Even before it was obvious that the fire could not be controlled, the superintendent of the Laguna Beach schools ordered the evacuation of all facilities. The city requested resources to assist in the evacuation of the El Morro elementary school at 12:36 p.m. The fire in Emerald Canyon breached the fire break cleared by firefighters at 1:37 p.m., minutes before air tankers arrived with retardant. But they were too late. The tankers could be used only on the flanks of the fire because of heavy smoke and the presence of structures.

Evacuation of Laguna Beach residents, particularly in the Emerald Bay and El Morro communities, had already begun. The county sheriff and local police directed evacuees south on Pacific Coast Highway, a two-lane road that is the only escape route out of the city, while emergency vehicles entered the city from the north. School children were bused south to sites

in Dana Point. Eventually, more than 27,000 residents were evacuated from the city and county areas.

The first homes were reported burning in Emerald Bay at 1:30 p.m. The wind was blowing at 40 miles per hour, the humidity was at 6-7%, and 60% of the homes in this area had shake roofs. The incident commander decentralized and delegated authority to strike team leaders and established a medical branch, activating the Hospital Emergency Administrative Radio system that alerts county hospitals. Ambulances and paramedic teams were staged at South Coast Hospital in South Laguna, where they awaited calls.

By the time the fire jumped Pacific Coast Highway, 49 homes and 4,000 acres had been lost in Emerald Bay. Forty-four trailers in the El Moro Mobile Home Park burned. On Laguna Canyon Road, fire fighters made a last stand to try to prevent the fire from crossing at the Big Bend area and entering the city. Fire fighters initiated a one-and-a-half-mile controlled burn along the west side of the road to protect the famous Art Festival site, and they were mostly successful. But, around 5:30 p.m., the fire jumped Big Bend in at least six spots and raced up the canyon walls to the areas known as Canyon Acres and Top of the World. The incident command post at Thurston School on Park Avenue had to be relocated to the Main Beach area on the other side of Pacific Coast Highway when the school was threatened and several classrooms burned.

Nothing could stop the fire at Top of the World. While air tankers dropped retardant at the ridge crest, they were unable to enter the canyons because of heavy smoke. The incident commander shifted priority to protecting the business center, located along Pacific Coast Highway, and the main body of the town. Lines were drawn along Park Avenue, while the

Top of the World area along Skyline Drive burned at the rate of four homes per minute. The fire jumped Park Avenue and destroyed 27 more homes.

Fire fighters were now confronted with unsolvable problems. Night was falling, drastically limiting the amount of help airborne assistance could provide. Air tankers from the Air National Guard, which might have helped earlier, remained on the ground as federal and state officials sorted out the regulations governing their use (Hurst, 1993). Fire fighters found no water pressure as fires destroyed the auxiliary pumping stations that pumped water from lower reservoirs to higher ones. Eventually, they would run out as the fire fighters pumped water at a rate of 1,500 gallons per minute, although the pumps could only deliver water to the reservoirs at 600 gallons per minute (Drake, 1994). Although Laguna Beach officials claimed there were back-up generators, power was not restored to the auxiliary station until three hours later when a neighboring water district supplied a mobile generator (Holms, 1994, p. 40; Drake, 1994). Fire fighters reported that local fire hydrants were incompatible with hose fittings in many areas (Trounson, Brazil and Reyes, 1993). Without power, fire fighters could not easily see their way through the narrow, twisting streets of the threatened neighborhoods, and stubborn citizens who refused to leave their homes further hampered their efforts. But mostly, it was the water, or rather the lack of it, that was the biggest problem.

More than 1,000 fire fighters were now involved in the Laguna incident, and nearly a 1,000 more would arrive as the fire burned into the night. A sudden wind shift began to blow the fire north toward the city of Irvine around 10:00 p.m. "Firing-out" operations (controlled burns) were conducted to protect the community of Turtle Rock in the Irvine area, and evacuations of the area began. Bulldozers continued to build firebreaks to the south along

Laguna Canyon Road and to the north near Irvine.

Meanwhile, a third fire hit Orange County along Ortega Highway, southeast of Laguna. Initially, there were no county resources to deploy to the area, and the county could send only two engines, one battalion chief, and one paramedic unit. (Eventually, nearly 2,000 fire fighters would keep the fire from reaching the communities of Cota de Caza and Dove Canyon, but not before another 19 structures and nearly 22,000 acres burned.) Because the area was sparsely populated, the fire was allowed to burn until more resources became available.

The Final Tally

The Stagecoach fire was finally under control by midnight of October 28, just more than 24 hours after it began. It burned 750 acres, destroyed two homes, caused major damage to seven more, and damaged 20 homes and structures. Five-hundred-and-six fire fighters were involved, and there were two minor injuries. The Laguna fire was contained at 6:00 p.m. on October 28, 30 hours after it began, but was not brought under control until 6:00 p.m. on October 31. It caused significant damage to or destroyed 441 homes and structures, burned 14,300 acres, and resulted in eight injuries (all minor). Thirty aircraft were employed, along with 345 engines, 17 bulldozers, 11 hand crews, and 1,968 fire fighters. The Ortega fire burned from 4:30 p.m. on October 27, was contained on November 1, and was brought under final control on November 3. It destroyed 19 structures, consumed over 21,000 acres, and, at its peak, involved 108 engines and 1,891 fire fighters. It caused 30 minor injuries.

Malibu

Orange County fire fighters were still involved in clean-up operations and containing the Ortega fire when another arson-caused fire began in Old Topanga Canyon near Calabasas in Los Angeles County, north of Los Angeles. The fire began at 10:46 a.m. on November 2, and the call for mutual aid went out. Orange County Fire Department contributed nine strike teams, including 180 fire fighters; nine battalion chiefs; 54 engines and other apparatuses, including bulldozers; and fuel and water tenders. Together with fire fighters from Laguna Beach, Anaheim, Fullerton, and other cities, more than 500 Orange County fire fighters joined the battle (Jolly, 1993; Pool and Russell, 1993).

Within four hours after the fire began in the Santa Monica mountains, it reached Pacific Coast Highway and threatened Malibu and the celebrity-studded Malibu Colony as well as a campus of Pepperdine University (Pool and Russell, 1993). Again, fire fighters were confronted with the same set of circumstances as the Laguna fire. The areas lay in canyons where the fire created its own "tornado" as the brush fire became "encircled by quickly rotating winds, such as an updraft in a steeply walled canyon" (Holms, 1994, p.5). As the winds swirled faster, creating their own patterns, the fire was also driven by the fierce Santa Ana winds. The dry chaparral conditions were the same as Laguna's; the narrow, twisting streets connecting the picturesque homes, perched high over canyon walls, were the same; and water pressure failed in the same way.

There was one difference—the orderly evacuation that took place in Laguna was not duplicated in Malibu. Pacific Coast Highway was jammed with residents and sightseers, as police attempted to clear the way for emergency and fire vehicles. Pick-up trucks pulling

horse trailers down narrow one-lane roads met fire engines coming up.

The fire in Malibu was finally contained five days after it began. It burned 18,000 acres, destroyed 323 homes, and damaged 112. Three persons died: a screenwriter who returned to the fire to save his cat (the cat was found, a bit charred but otherwise safe, under his home after the fire passed) and a couple in their late sixties who were trapped and burned in their pick-up truck as they attempted to escape. Fire fighters could not have reached the couple, who entered their property through a “[seven]-foot-wide dirt trail that was almost invisible beneath the canyon’s dense canopy of brush” (Pool and Katz, 1993). There were more than 150 injuries.

The Mudslides

On November 11, the rains began. They weren’t much—one-sixteenth of an inch, according to Laguna officials—but they were enough. As Laguna Police Chief Neil J. Purcell put it, “Right now we don’t need any rain of any degree” (Lichtblau and Earnest, 1993). There was no vegetation left on the hills to collect the rain, and the burned earth turned into a river of mud. Rockslides closed Laguna Canyon Road, and mud poured down Park Avenue and along Skyline Drive, burying some homes in debris four feet deep (Weston, Sforza, and Brennan, 1993). More than 25 homes were damaged, although no one was seriously injured.

The storm also forced the closure of Pacific Coast Highway in the Malibu area where mudslides blocked all four lanes. Altadena officials reported that mudslides had occurred but foresaw no great danger, although residents were sandbagging. Officials looking on the bright side said that the “light” rain helped by keeping down dust and germinating seeds prior to the

expected heavier rains later on (*Orange County Register*, 1993b).²

The Aftermath

In the immediate aftermath of the fires, the media reported stories of spectacular heroics on the part of citizens and fire fighters, of lives changed forever because of the great losses endured, of pets lost and pets found, and the usual human interest tales that turn an enormous disaster into a personal and moving experience. There were some quibbling exceptions: the people who refused to leave even after an evacuation order had been issued, thus frustrating the fire fighters' ability to turn their attention to the fires. The people who insisted on using their own hoses on their houses contributed to a lack of water pressure. There were also people in Malibu who asked fire fighters for a ride down the hill when they were close to being trapped, and then made them wait while they "packed a few things." Another couple, also in Malibu, nearly ran into fire fighters as they raced to their home (Kennedy and Daunt, 1993).

It was only a matter of days before significant criticism about the human decisions began to emerge. Laguna Beach is a somewhat liberal enclave in historically conservative Orange County. Its city council is dominated by environmentalists who have pushed for major conservation efforts and protection of wildlands, and its former mayor is the first "openly gay" elected official in the county. As a mecca for artists and writers, the city has a reputation for tolerant albeit "politically correct" thinking, making it open to attack from the

² The preceding account of the fires was assembled from accounts appearing in the *Los Angeles Times*, Orange County Edition, and the *Orange County Register*, from October 27 through November 7, and from *Firestorm 1993*, prepared by the Orange County Fire Department, Larry J. Holms, Director of Fire Services.

conservative right.

The day after the fire, the *Orange County Register's* lead story pinpointed the major areas that would precipitate controversy over a series of policy decisions. The story reported the following:

- Military aircraft, which could have been used to dump thousands of gallons of water and chemicals on the Laguna Beach fire . . . were not activated until Thursday . . . Acknowledging miscommunications, National Guard Lt. Col. David Woolsey said Thursday afternoon, "We still do not know for sure who is in charge."
- Marines at the Tustin Marine Corps Air Station and Camp Pendleton volunteered to send water-dropping helicopters, bulldozers, and battalions of fire fighters to Laguna Canyon immediately after the fire began on Wednesday. But Orange County fire officials rebuffed the offer because they had never trained with military fire-fighting units based in their own county.
- State emergency officials . . . equivocated on when to send state planes and helicopters to Laguna.
- Water flow slowed to a trickle and went dry for some fire fighters. . . because pumps stopped when power failed and there were no backup generators for the water system, which had not been significantly updated since 1955.
- A 3.5-million-gallon reservoir that fire fighters said would have significantly boosted water pressure had not been built on a ridgetop park because three key city council members opposed it. They have said it would be ugly and hurt wildlife.
- Almost all fire fighters were moved. . . to Emerald Canyon, thus leaving few, if any, fire fighters to stop the blaze from leaping Laguna Canyon Road and devastating Mystic Hills (Grimaldi, 1993a).

Editorials in the newspaper blamed "over-zealous environmentalism" for preventing the building of the reservoir and for stopping Orange County Fire Department (OCFD) plans for a controlled burn in Emerald Bay, which also happened to be the home of two endangered

species, the California gnatcatcher and the cactus wren, two small song birds (*Orange County Register*, 1993a). The paper quoted a 1991 memo from Rich Dewberry, the Laguna Beach fire chief, calling for greater water capacity. However, the *Register* was careful to point out that Dewberry had not taken a position on the reservoir and attributed opposition to its building to City Manager Ken Frank and the city council (Grimaldi, 1993b).

California Governor Pete Wilson was quoted in the *Register* as saying that his own "misunderstanding of procedures led to an 18-hour delay" in deploying National Guard troops to southland fires (Grimaldi and Lifsher, 1993). The newspaper reported that the Air National Guard had two military tankers capable of delivering 3,000 gallons of retardant ready to go, but they did not receive the necessary authorization from the governor. The governor, claimed the *Register*, indicated that he needed to contact federal authorities—specifically the Air Force—in order to issue the order (Grimaldi and Lifsher, 1993).

On the following day, the *Register* reported that fire fighters in Anaheim Hills (fighting the Stagecoach fire) were upset because they were "sitting idly by" while the fires were starting in Laguna. Quoting Anaheim Operations Chief Bob Hirst, the *Register* reported that Anaheim crews were involved in a "mopping up operation" and waiting to join the call to assist in Laguna, but were not called for several hours. OCFD spokesperson Dan Young explained that units were not called because the roads were too crowded with evacuees, but the *Register* reported that neighborhoods were not evacuated until several hours after the Anaheim crews were ready (Legon and Weston, 1993).

Eventually, major criticism about the response to the Laguna fire centered around four main points: the lack of water, the use of the military, the controlled burn, and the

management of resources.

Water

No one denied that a major problem in the Laguna fires lay in the failure of the water system to provide an adequate amount to support fire fighters. While Chief Dewberry maintained that "you can always use more water," (Dewberry, 1994), Chip Prather, assistant director of fire services for the county, said that "I never heard that anyone ran out of water . . . What we got there was a water pressure problem" (Platte and Brazil, 1993).

Identified by the *Times* as the "leading reservoir proponent," Laguna Councilmember Wayne L. Peterson said the reservoir would have saved "five to 10 homes" at the Top of the World.

The *Times'* analysis conflicted with the *Register's* on several major points. While the *Register* reported that three million more gallons of water would have added "2-1/2 to three hours of firefighting capacity" (Grimaldi, Weston, and Smith, 1993), the *Times* maintained that there were still 14.2 million gallons available (Platte and Brazil, 1993). While the *Register* reported that the two-hour power failure that prevented water pumps from operating cost fire fighters "only eight minutes worth of water" (Grimaldi, Weston and Smith, 1993), the *Times* maintained that for six hours, engineers had no idea how much water remained in reservoirs because of a breakdown in the monitoring system that significantly interfered with the water district's ability to distribute water where it was needed (Platte and Brazil, 1993).

The final report on the fire issued by the Orange County Fire Department recommended only that Laguna Water District incorporate on-site emergency power sources (backup generators) to replace power sources for water pumps destroyed by fire. Laguna

Beach's water supply is handled by tiers of reservoirs operating at different levels, with most of the water stored at lower levels (where the bulk of the population lives). The report indicated that open valves in burned homes diminished the water pressure and supply. The report also noted that exploding propane tanks in the El Moro Mobile Home Park were as great a hindrance to fire fighters as the lack of water in the Emerald Bay fire (Holms, 1994).

The Military

There are two major issues involved with the role the military played—or failed to play—in the southland fires. The first, a matter of some controversy, revolves around who was responsible for activating the military. The second involves the implementation of public policy relating to the use of military resources.

In its analysis of military problems, the *Register* described how delays on Governor Pete Wilson's part kept available aircraft from being deployed at early stages in the fire. According to the *Register*, Wilson waited because he believed he needed permission from the Air Force to activate the Air National Guard's two air tankers stationed at Point Magu (Grimaldi and Lifsher, 1993). Air Guard officials at Point Magu claimed they were ready to go at 8:30 a.m. on October 27, but they had to wait until afternoon to receive the governor's permission.

According to John Bryant, the assistant director of operations for the U.S. Forest Service (USFS), planes were fueled and crews ready when a second problem arose. Specialized technicians from Monsanto, the corporation who supplies the chemical fire retardant, had to be called in to set up a portable pump for loading the KC-130s, which are

capable of delivering 3,000 gallons of chemicals. A special pump was needed because the military uses a different pump than those commonly available for civilian aircraft. By the time the pumping problem was solved, night had fallen, and the planes did not join the fire fighting action until the following Thursday—a 24-hour delay (Grimaldi and Lifsher, 1993). Officials at nearby El Toro and Camp Pendleton also indicated that the Marines were ready to assist at any time.

Officials interviewed by the *Times* recounted a slightly different story. According to Colonel Anthony C. Volante, deputy commander of the Air Guard, Wilson's orders were received promptly, but the Air Guard was prohibited from participating until federal authorization was received. Volante claimed that he needed authorization from the National Interagency Fire Center in Boise before proceeding. (For a discussion of federal policy, see Moskow-McKenzie and Freemuth, 1990.) The *Times* also reported that officials in Boise claimed that permission was not necessary, but there was clear dispute about that claim (Hurst, 1993).

Some of the confusion arises out of the interpretation of the Economy Act of 1932, which states that "the federal government will not be in competition with private industry" (Hurst, 1993). What this means is that before any military equipment or personnel may be used, all available civilian and commercial capacity must be exhausted. The California Department of Forestry (CDF) and the USFS contract with private vendors for the use of helicopters and fixed-wing aircraft for fire fighting. For Orange County officials, the established protocol dictates that they ask CDF first, then the USFS, and then contact other counties for mutual aid (Drake, 1994). After all these resources are employed, they can

request assistance from the military. However, before that request can be honored, officials at Boise (who coordinate the efforts) must search nationwide for available commercial or civilian aircraft, which is clearly a time-consuming process. And, even though local officials knew that civilian and commercial resources were exhausted, others did not.

Coordination with the military is also complicated by the fact that military aircraft do not use the same radio frequencies for their communications as local law enforcement (Drake, 1994). Coordination of aircraft is done by Air Attack (now the Air Tactical Group Supervisor), which is a fixed-wing aircraft circling above fire-fighting craft and functioning as an air traffic controller. Air support was problematical at best in the Laguna fires because of the canyon terrain, the strength of the winds, and the heavy smoke. "Air tankers cannot fly safely at night and their drops become less effective when winds exceed 30 m.p.h." (Holms, 1994, p. 39). Because of the communication problem, the military had never trained with the Orange County Fire Department, and officials were also sure that the aircraft would have been most effective early in the fire, when they were not available. Immediately available resources included sheriff's department helicopters, but they carry only 108 gallons of water (probably closer to 80 gallons by the time the suspended container reaches the drop point [Drake, 1994]), compared to the 330-gallon capacity of a fire-fighting helicopter.

The county concluded that early use of aircraft in Laguna Canyon might have stopped the small fire from turning into a conflagration. Unquestionably, that was true in the first 15 minutes. But even if that fire had been stopped, one week later the wind and climate situation was exactly the same, and fire fighters were battling the Malibu blaze. What would it have been like if the Laguna Beach fire happened then?

The Controlled Burn

The Orange County Fire Department had long planned a prescribed (or controlled) burn for the Emerald Canyon area. "Emerald Canyon is pointed like a gun barrel at the community of Emerald Bay" (Holms, 1994, p. 43). Five-hundred-and-fifty acres were prescribed and burned in 1990 and another 550 acres were planned for later that year; yet, several factors intervened. Fire fighters prefer to conduct controlled burns in the spring, when winds are more stable and there is sufficient moisture in the fuel to keep the fire under control, but not enough to prevent the burn. Unfortunately, spring is also nesting time for the endangered gnatcatcher, so a compromise was reached for the fall. However, bad wind conditions and unexpected rains delayed the burn for two years. The burn was scheduled to take place in November, one month after the fires.

Would the controlled burn have helped? Again, there is some disagreement. Laguna Beach Fire Chief Rich Dewberry said the positive effects of the 1990 burn were obvious. In that area of the burn, the fire burned cooler and spread more slowly (Dewberry, 1994). In its report, the county claimed that by the time of the fire, "fuels within this site had regrown to enough density to contribute to the Laguna Fire" (Holms, 1994, p. 44). Still, the county admitted that the fire in Emerald Bay "could have been more severe" without the burn (Holms, 1994, p. 44).

It seems safe to conclude that a controlled burn would have helped fire fighters in Emerald Bay. However, the area around Mystic Hills and Top of the World, perched as they are over the canyons, do not lend themselves to a prescribed burn, and the greatest damage from the fire was there.

The Endangered Species Act

For the *Register* and the hundreds of citizens who showed up at the first city council meeting after the fire, demanding the resignation of Mayor Lida Lenney and threatening her recall, the issue became one of fanatic environmentalists risking the property of honest citizens. When this was added to the controversies over the reservoir and the controlled burn, many saw the pro-environmental stance of the Laguna Beach city council as the primary cause of their losses (Shaffer, 1993; Platte and Earnest, 1993).

A similar claim was made after the October fires in the neighboring county of Riverside, where 29 homes and mobile homes destroyed by fire were located in similar coastal sage scrub canyons populated by the Stephen's kangaroo rat, also an endangered species. Residents claimed that prohibitions by the Endangered Species Act against disking (uprooting and destroying vegetation) had prevented them from clearing their properties, thus causing their loss.

The federal General Accounting Office (GAO) investigated the claims and reported to Congress that a more direct cause of the losses was the failure of homeowners to fire-proof their homes. The GAO found that disking had been done around several homes anyway, and that around others, brush and debris had been allowed to accumulate. Homeowners stored trash and firewood close to their dwellings, and homes were not constructed of fireproof materials (i.e., they had wood shake roofs). The GAO concluded that wind conditions, inaccessible terrain, and a lack of water pressure were most responsible for the destruction. Echoing the sentiments of the supporters of the Laguna Beach city council, Representative Gerry Studds (Democrat-Massachusetts) said that the inquiry "should quiet those who, in the

aftermath of the fire, seized upon the personal tragedies of these California homeowners to advance their own agenda to eviscerate the Endangered Species Act" (Healy, 1994).

Fire Management

The Orange County Fire Department (OCFD) utilizes the Incident Command System.³ The fires originated in county territory, and so the initial incident commander was from the OCFD. As the fires traveled toward the city, a unified command was formed with the Laguna Beach Fire Department. The first structure damage lay in county territory (both Emerald Bay and El Morro are in unincorporated Laguna Beach), although the major damage was to the city. As the fire continued to escalate, the unified command was decentralized to division chiefs and others in the field, although major incident objectives were still determined at incident command headquarters (Dewberry, 1994; Drake, 1994).

But, Laguna Beach was not the only fire burning in Orange County at the time. The county had just finished building a brand new emergency operations center in a location 20 miles from Laguna (though, literally, within visual range of the earlier Anaheim Hills fire). The Emergency Management Division of the county was housed in the OCFD. It opened the Emergency Operations Center (EOC) on October 27 at 2:42 p.m., at Level I.⁴ The EOC also

3. The Incident Command system is a top-down "command and control" strategy coming out of FIREScope (Firefighting Resources of Southern California Organized for Potential Emergencies). Its use has spread to most fire jurisdictions since its creation in the early 1970s. Many other agencies, including most law enforcement agencies, operate on a variant of the model. For a brief description, see Drabek and Hoetmer, eds., *Emergency Management: Principles and Practice for Local Government* (Washington, D.C.: International City Management Association, 1991), *passim*.

4. EOC activation levels are as follows:

- Level I: The EOC is activated to gather information and establish liaison with the impacted jurisdiction or agency. It is staffed by Emergency Management Division (EMD) personnel.
- Level II: The EOC is activated to gather and disseminate information to the public and media, provide

utilizes the Incident Command System, and at Level I, its staff consisted of EMD personnel and volunteers from the county who served in rumor control. At 5:31 p.m., Level I status was upgraded to Level II. Representatives from the American Red Cross and RACES (Radio Amateur Civil Emergency Services), liaisons with other cities, and other emergency responders were now involved; however, there were no representatives from Laguna, and there were no EOC representatives at the field command post.

Until the repeater burned down, communications between the county EOC and the field were manageable. Problems arose when the Orange County Fire Department attempted to take a repeater "off-line" to dedicate it to the incident, and the "entire system failed because radio traffic was so intense" (Holms, 1994, p. 42). At that point, communications between the EOC and the field were next to impossible (Johnson, 1994; McNeill, 1994).

In the wake of the fire, citizen and media complaints about management were directed primarily toward the deployment of resources (see Legon and Weston, 1993, quoted above, with respect to fire fighters waiting in Anaheim Hills) and their allocation within the city. Fully 100 engines were at Emerald Bay when the fire jumped Big Bend in Laguna Canyon Road (Dewberry, 1994). More resources were quickly deployed to Laguna Canyon, but the fire had already spread up the canyon.

A local EOC was never opened in Laguna. According to Chief Dewberry, there was

necessary coordination, and respond to resource requests. The EOC is staffed by the EMD and representatives from the affected agencies.

Level III: The emergency condition requires heavy commitment of county resources for response. EOC staffing includes the same type of personnel required for Level I and II, as well as a policy group made up of emergency management representatives.

Level IV: The potential for widespread disaster, which threatens to impact or require commitment of all county resources, exists. The EOC is fully staffed to support the incident command system (Holms, 1994, p. 24).

no need: "What would they do?" he responded when asked (Dewberry, 1994). Similarly, the county EOC was never activated to Level III, despite the largest fire disaster in the county's history. According to Loletta Barrett, the newly appointed (after the fires) Emergency Management Division director, Acting Director Mark Johnson may not have felt he had the authority to go to a higher level (Barrett, 1994). Johnson agreed; no one asked for a higher level of deployment (1994).

What would EOCs have contributed to the management of the fire? According to Scanlon (1994), EOCs are widely endorsed by practitioners and theoreticians alike. They are prescribed by the Federal Emergency Management Agency and are employed here and abroad. Scanlon examined 19 incidents, 13 where EOCs were used and six where they were not, and concluded that EOCs assist communication, facilitate the delivery of resources, and provide better access for public information (1994).

Participating in an EOC is also an on-the-spot training exercise for all those involved. With luck, of course, emergency personnel have rehearsed their responses in desk-top exercises and, finances permitting, in full-scale simulations. There is probably no better preparation for large-scale disasters than participating in exercises and smaller-scale incidents. Further, if an EOC had been established in Laguna Beach, the incident commander would not have had to deal with the media, nor coordinate responses from agencies that were not emergency responders (such as parks and recreation personnel, animal control, and finance officers). Further, a policy group consisting of the mayor and other local officials would have been available for both public information purposes and planning. As Wolensky and Miller show, "local government was most often cited as the institution responsible for local disaster

preparedness" (1981), and without intimate involvement in disaster response, it is ill-equipped to plan for the future.

Similarly, had the county EOC status gone to Level III, a policy group would have been activated. The county administrative officer and members of the Board of Supervisors would have been directly involved, lending credibility and urgency to requests for resources. They also would have benefited in terms of gaining experience for the next (and perhaps larger) disaster.

On the whole, Chief Larry Holms concluded that management during the fires was the best possible. Destruction occurred because of uncontrollable situations, not because of tactical mistakes and errors in judgment that might have been alleviated by better coordination (Holms, 1994, vii).

The Ensuing Reorganization

Following the 1993 fires and the 1994 Northridge earthquake, the Emergency Management Division (EMD) was transferred out of the Orange County Fire Department and into the Office of the County Administrator. When asked why the change occurred, County Administrator Ernie Schneider said the reason was simple: "Nobody else wanted it!" (1994). Initially, EMD was housed in the General Service Agency of the county. It is not fair to say that "no one else wanted it," because certainly Sheriff Brad Gates would have been happy to add emergency management to his other functions. EMD was transferred, however, to Fire Services, where it remained until February 1994. The decision to transfer was not new: the suggestion had been around for at least a year, but unquestionably, the combination of the

fires and the nearby devastating earthquake precipitated the change.

While most agree that the transfer to the Office of the County Administrator will give EMD increased visibility and greater opportunity for support, a number questioned the appointment of Loletta Barrett as the new director. Barrett had no prior emergency management experience and was not trained in an emergency field. (Her training is in social work, which some would argue comes close enough to emergency experience). When asked about her appointment, Schneider and Eileen Walsh, finance director for the county, both agreed that management skills were the issue, not prior emergency experience (1994). Ellen McNeill of the Emergency Management Division generally agreed and said that Barrett's experience with the county and her close relationship with the Office of the County Administrator stood to benefit EMD (McNeill, 1994). In fact, McNeill said that improvements were already evident. The county's Emergency Council, which sets policy for emergency situations, was recently expanded to include a member of the county Board of Supervisors, in addition to the other agency heads from the county.

Indeed, shifting the EMD and involving members of the Board of Supervisors follows public administration theory, which suggests that such changes are more likely to promote implementation of specific goals. Grace Saltzstein found that when affirmative action officers were housed in the office of a municipal chief executive, a higher incidence of female employment parity existed (that is, affirmative action policies were apparently more diligently enforced and more widely accepted). Similarly, she found that the presence of African-American mayors was directly related to an increase in African-American police officers in a community, although that finding probably raises other issues not relevant here (Saltzstein,

1986a, 1986b, 1989). Given those patterns, one would expect to find much greater emphasis on emergency management now that the office had visibility and the support of the county administrator.

Other changes may also be helpful to increasing the role of emergency management within the county. Currently, 18 out of the 31 cities in the county contract with the Orange County Fire Department for fire protection. Last year, the county attempted to persuade the state legislature to create a fire district in order to finance fire protection by providing a district tax base. The legislation failed to pass (perhaps because Orange County's exceptionally conservative Republican assemblypersons do not enjoy much influence in the Democratically controlled legislature). Local efforts now focus on the creation of a joint-powers agreement among the cities and county to provide a governing structure for the new fire authority. Each city would have a voting member (Billiter, 1994).

New legislation from the state will also have an impact on the Emergency Management Division. Following the Oakland fires, the legislature passed the Petris Bill (S.B. 1841, now codified as Government Code 8607), which mandated that by December 1996, jurisdictions must establish a Standardized Emergency Management System (SEMS). While the "system" is still based on the Incident Command System, SEMS requires that each county become an "operational area" with coordination responsibilities between the California Office of Emergency Services and local governments (Office of Emergency Services, 1993). This mandate very much mirrors the recommendations made by Waugh, which specify county government as the logical regional organization in emergency management (1994). As Orange County cities attempt to comply with the Petris Bill, the Emergency Management Division

should play a pivotal role in new organizational activities.

Recommendations and Conclusions

Some recommendations are obvious. The military should adopt civilian radio frequencies so that military equipment can interface with civilian. The current law mandating private sector equipment be exhausted before military equipment is used also needs another look. In smaller incidents, the rules may be workable; in large-scale emergencies, they clearly are not.

If the Laguna Beach Water District has not obtained back-up generators for its water pumps, it should do so immediately.

Homeowners should concentrate on making their houses more fire-proof, including using nonflammable roofs, eliminating wood overhangs, and planting drought-tolerant and fire-resistant landscapes.

The county has taken the best step in moving EMD out of the fire department and into the Office of the County Administrator. The higher authority may mitigate interagency conflict and will certainly lend greater prestige to the office. While it is true that Sheriff Brad Gates is elected directly by the voters, and Chief Larry Holms is appointed by the Board of Supervisors, the Office of the County Administrator should prove neutral ground. Greater involvement by members of the board will also help.

In conclusion, writing this paper brings home to me the reality of being a Southern Californian. Wherever I have lived, even in the wildland/urban interface, the threat of fire is someone else's problem. The events of 1993 proved to me that it is only dumb luck that my

shake-roofed house has remained secure. And, it will be my responsibility if my "luck" runs out.

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