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NEWS RELEASE

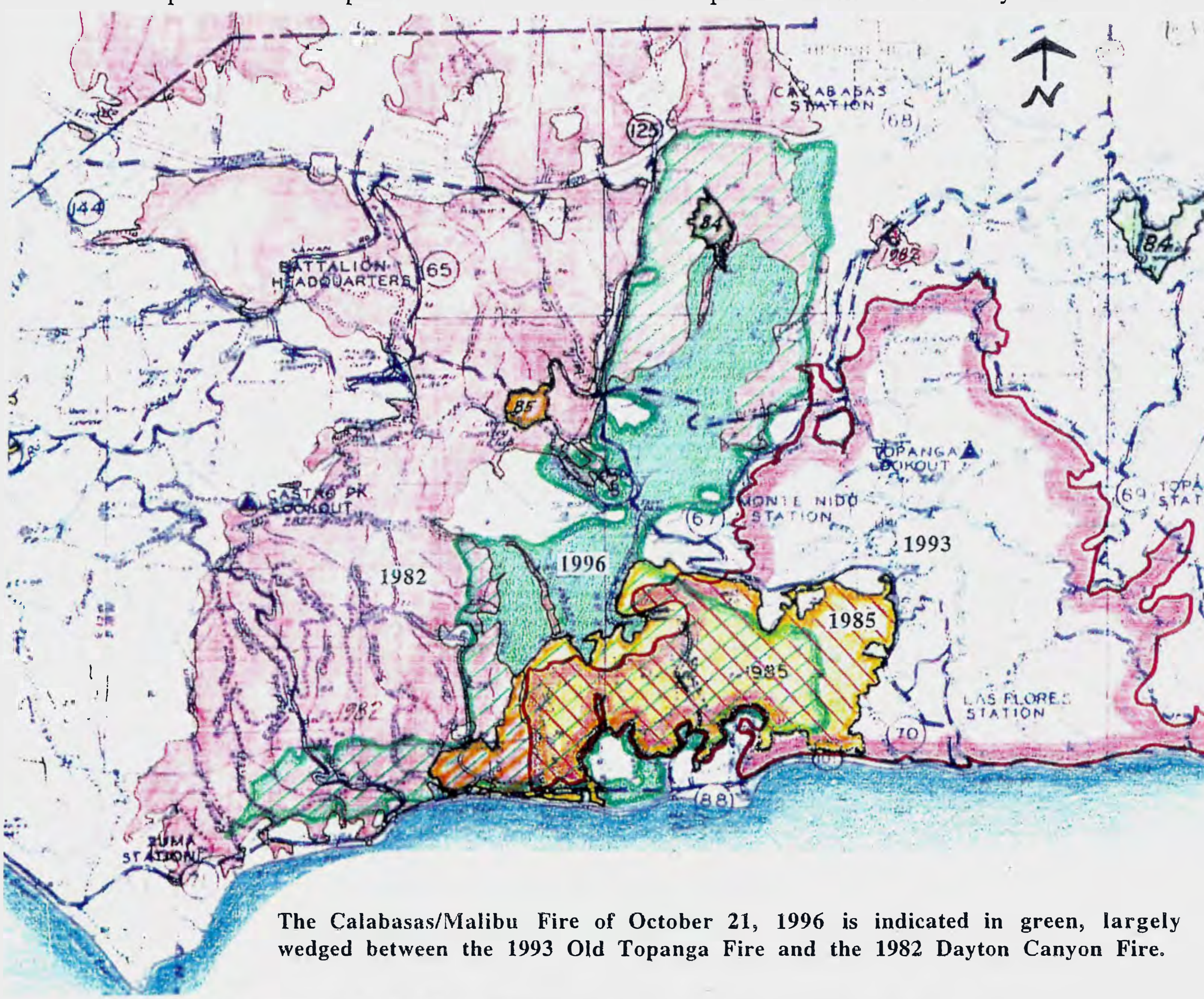
October 28, 1996

The Calabasas Fire

Another Natural or Man-Made Disaster?[1]

Overview

The Calabasas Fire was a predictable light-to-moderate intensity wildfire with an anticipated fire pattern dictated by wind (Northeasterly Santa Ana winds = southwesterly moving fire), topography and vegetative fuels, that was fought in textbook-like fashion. Locally, the fire was shaped by man-made and natural barriers and fire-fighting efforts to protect homes or developments, a good number of which should not have been allowed to be built in highly exposed and fire-prone locations where their protection requires a continuous input of scarce public dollars to protect them from nature's all too predictable fire and flood cycles.



The Calabasas/Malibu Fire of October 21, 1996 is indicated in green, largely wedged between the 1993 Old Topanga Fire and the 1982 Dayton Canyon Fire.

[1] For additional information and further references please refer to the publication "Living in the Chaparral of Southern California" (An Integrated Approach to Public Safety). Proceedings of the Conference and Public Workshop sponsored by the National Foundation for Environmental Safety and the National Park Service, 1985.

Fire Evaluation
The main path of the Calabasas Fire was wedged between the 1993 Old Topanga Fire which helped delineate its eastern boundary and the 1982 Dayton Canyon Fire which largely determined its western boundary in woody chaparral fuels, so that an out of control fire along these flanks was almost impossible.

The upper section of the fire between Ventura Freeway and Mulholland Highway mirrors the shape of the 1980 Las Virgenes Fire and consisted largely of flash fuel annual grassland that can support a low-intensity fire on an almost yearly basis. Las Virgenes Canyon Road therefore provided an effective fire barrier to the west. The fire was allowed to move to roads where it could be readily mopped up except where structural protection required that it be more aggressively confined, such as in the Monte Nido area.

Once the fire moved past Piuma Road it left behind the grassy flash fuels in more gentle terrain and encountered the woody chaparral fuels on the steep mountain slopes. Along the fire's east flanks these woody fuels had burned in 1993 so that a very light intensity (brown soil-black ash) fire skipped over or just scorched the basically non-flammable young woody chaparral, the small flames being fueled by the herbaceous post-fire flora and an occasional light cover of dead, weedy annual grasses as it moved along the east slopes of the Malibu watershed.

Along its west flank the fire encountered a pocket of older woody chaparral fuels in steep, inaccessible terrain that had not burned since the 1970 Wright (School) Fire and therefore provided a 26-year-old age class of fuels that burned with greater fire intensity (black ash with occasional extensive pockets of white ash) and that provided a more spectacular backdrop for television cameras trying to document this "inferno". Burning through this mature chaparral, the fire then encountered the 14-year young woody chaparral age classes of the 1982 Dayton Fire along the eastern ridges (westerly facing slopes) of the Corral Canyon watershed. This young woody chaparral generally burned with moderate fire intensity (black ash with pockets of white ash) and provided a moderate resistance to burning so that fixed wing aircraft and helicopters could readily control its spread along the western flank as it attempted to move west within the Corral Canyon watershed. Given the fire weather conditions, this would not have been likely in 30-year old woody chaparral and would have resulted in a much greater loss of "designed for disaster" homes (i.e., homes located on steep slopes along the western flank of Corral Canyon in the Malibu Bowl area and in adjacent steep, inaccessible terrain where it would not have been wise to make a stand to protect the homes with ground crews as was done effectively in this case).

Further south towards the City of Malibu, the woody chaparral vegetation type gives way to coastal sage brush vegetation type on still steep slopes and a mixture of weedy annual grasses on the historically grazed, more flatter areas. The coastal sage scrub is a vegetation type that is found on slopes with thinner soils and in areas of lower rainfall than chaparral vegetation and is therefore composed of a mixture of highly flammable shrubs of smaller stature, such as buckwheats and sages mixed with subshrubs and herbaceous plants. Coastal sage scrub can become mature within five to seven years after a previous fire and can already support a larger scale fire at this time. This important vegetation type and watershed cover has been largely decimated by housing development along the coastal strip in Southern California, and the City of Malibu is largely located within its former boundaries.

As has been pointed out in previous scientific papers on the fire history of the Santa Monica Mountains, fires will generally expand towards the east or west as they approach the coast and are released from the confines of the steep mountain drainages that generally parallel the firewinds (Radtke, Wakimoto, Arndt, 1981)[2]. In these areas they also generally

[2] Radtke, Klaus, Arthur M. Arndt, and Ronald H. Wakimoto. Fire History of the Santa Monica Mountains. In: Proceedings of the International Symposium on Dynamics and Management of Mediterranean-type

encounter coastal sage scrub, a more flashy fuel than woody chaparral but of lower fuel loading and therefore lower fire intensity. Predictably, the 1996 Calabasas Fire ran into these fuels within the City of Malibu boundaries and moved west towards Latigo Canyon Road, encountering "design for disaster homes" along its way in light fuels before it came to a halt in Escondido Canyon Park. The fire stopped short of the central Latigo Canyon Road area which has the highest fire frequency in the Santa Monica Mountains with eight different fires burning across a section of this area since 1919, when fire history data began being officially kept by the Los Angeles County Forestry Department (now known as the Fire Department). The nearby magnificent Escondido waterfalls, the sweeping views and the historic access through the Rindge Ranch via Escondido Canyon already attracted homesteaders and squatters to this area before the turn of the century.

Postfire Watershed Management (Man vs. Nature)

A. The Fire-Flood Cycle and Aerial Seeding

Effectively managing the fire-flood cycle and reducing the high erosion rates that can be expected after fires is of primary concern to public agencies as well as mountain residents. Unfortunately, the only immediate tools available to public agencies to reduce the damaging effects of expected flood and debris flows seems to be the (unfortunately misdirected) "bandaid" aerial seeding with annual grasses such as annual ryegrass. The aerial seeding is done not because it is effective but because public agencies are expected "to do something" and because annual ryegrass is relatively inexpensive and is available on short notice in large quantities.

Extensive research has shown that neither the seeded ryegrass nor the native herbaceous postfire flora and resprouting woody vegetation can reestablish itself quickly enough on wildland watersheds in the Santa Monica Mountains during the first year's winter rains to significantly reduce surface soil erosion. However, by the end of the winter rainy season the native vegetation will already provide a 50-75% cover on mountain slopes with or without the seeded ryegrasss; if ryegrass is also seeded to complement the native flora it will average no more than 5% of this total cover.

Seeding of annual ryegrass may also be detrimental to the long-term stability of the chaparral ecosystem, as the occasional successful postfire establishment of annual ryegrass at the end of the growing season can lead to a substantial reduction in total cover of the native vegetation because of competition for moisture and nutrients. This may also lead to a greatly depressed native postfire herbaceous flora (recognized by its abundance of wildflowers) and to a greatly reduced cover of postfire native herbaceous plants after the next fire, coupled with greater erosion and greater losses of the nutrient-rich ash.

It must be recognized that the fire-flood cycle is so damaging because even an effective postfire cover on wildland watershed slopes can affect only about 25% of the expected downstream debris flows, as even the most effective vegetative slope cover can only affect the erosion expected from hillsides and not the much greater amount of debris already resting at or near the base of slopes or in the streambed. It is therefore imperative that effective zoning ordinances preclude the building of homes in areas where they can be affected by the fire-flood cycle, or, if already built, that the homeowners, along with Flood Control Agencies, protect the development with flood control basins or temporary or permanent devices that control or redirect debris flows.

B. Wildland Fire Management

Fire management can be defined as "The integrating of fire-related biological, ecological, physical and technological information into land management to meet desired objectives."

Ecosystems: June 1981: 22-26: San Diego, CA PSW Forest & Range Exp. Sta., USDA Forest Service. Gen. Tech. Report PSW-58 1982: 438-443.

Ideally, the overall, desired objective is to live in the chaparral-covered mountains of the Santa Monica Mountains with limited social disruption due to wildfires and fire suppression activities and the inevitable fire-flood cycle and to receive the full protection of public agencies (with whatever public service subsidies that may periodically require). In the extreme, the objective is to exercise private property rights to the fullest without concerns about the impact on the land or understanding of its carrying capacity or interference by public agencies as to restrictions on use of the land in the interest of public safety or public welfare. This may explain why today development situations are still being created that could be called a "Design for Disaster" and may require public service subsidies for the life of such development.

Fire suppression evolved from "economic" suppression where minimum costs were achieved with fire control efforts matching the appraised forest value to total fire exclusion at almost any cost to protect private and public property at the wildland-urban interface or mingled within highly flammable wildland areas. Chaparral studies indicate that prior to the development of large fire suppression agencies, the mean fire interval ranged from 12 to 25 years for the bulk of the interior chaparral-covered lands. The greater length of time between fires allows for shrub growth and death and greater fuel accumulation. In addition, larger proportion of shrub biomes is in fine twigs and small diameter stems that dry out quickly and burn readily. The resulting fires display rapid spread and high intensity. The development of a large fire suppression organization and the "necessity" to protect (often poorly planned) development had greatly increased the average mean fire interval.

The size and scope of damage from modern day chaparral fires is in many ways due to man's effects on the natural fire regime. Historically, fires were started by lightning and moved across the Santa Monica Mountains from the interior or were started locally by native people. Such ignition occurred in late spring or summer and fires started by these ignitions were generally of limited intensity due to large amounts of moisture in the shrubs and herbs at this time of the year. Burning was very patchy, and under good burning conditions fire spread until coming in contact with a previously burned area.

Man-caused ignition by accident or arson during Santa Ana winds creates the huge, rapidly spreading, often high intensity fires that receive all the public attention and cause the greatest damage. The most effective way to combat and alleviate such situations is to develop strong fire management strategies that limit where a person can live through zoning and density regulations and how they can build through much more effective building codes so that the public as a whole does not have to shoulder the ever-accelerating cost of protecting politically directed unwise land development. But such regulations are unpopular and have been seldom supported in the past, reflecting the often brutal fire politics in Southern California that, during the 1960's, created the misleading term of "fire-resistant landscape plants" to allow, until recently, the continued development of wood shingle homes in disaster-prone areas.

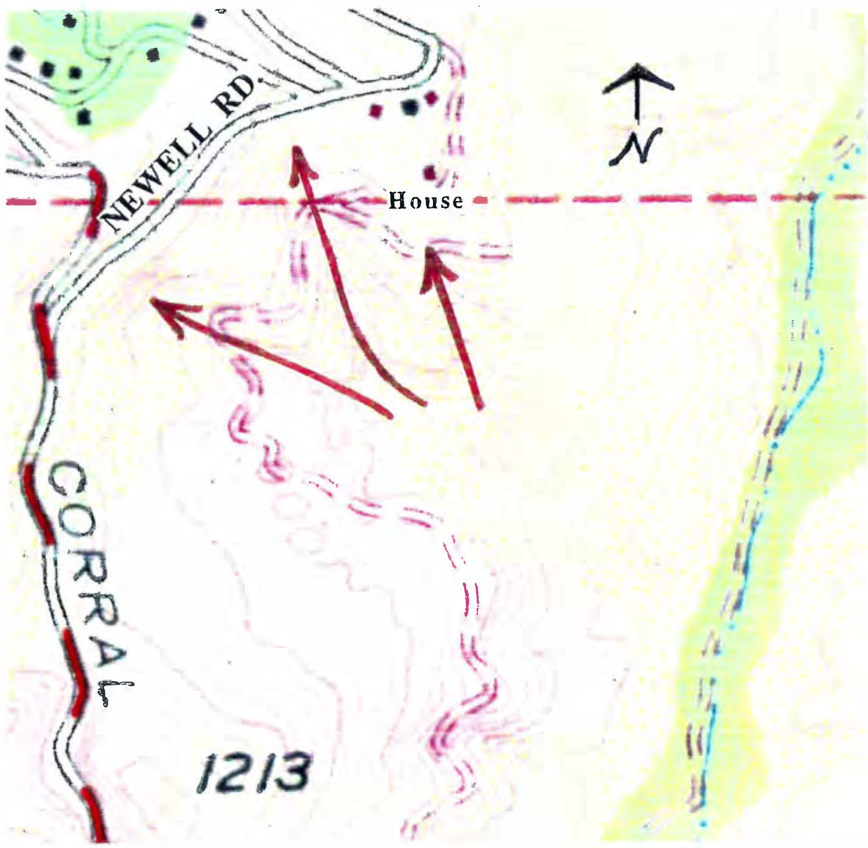
This cycle of brutal fire policies must be broken by involving the public everywhere in landuse policies and regulated development of disaster-prone areas that reflect the land's overall carrying capacity and nature-dicated landuse (i.e., a watershed should remain a watershed for flood protection). Finally, one must remember that the advance in fire technology such as the use of more advanced aerial fire-fighting fleets and more effective prescribed burn techniques should not be used for further justification of unacceptable development in disaster-prone wildlands.

Wildland Fire Safety
Between 1926 and 1990 over 400 firefighters died in the United States from fire-induced injuries in 100 fires. It is possible to identify some common denominators of fire behavior both in fatal fires and in near-miss fires that may spell disaster if not avoided.[3]

Besides fuel, terrain and wind are the most important factors determining fire behavior. For example, a fire spreading uphill resembles a fire spreading before a strong wind. Other factors being equal, a fire burning on level ground will spread twice as fast when it reaches a 30 percent slope with the rate of spread doubling again as the slope reaches 55 percent. Not only are the flames closer to the steep slopes but the movement of heated air (convection) is more likely to carry firebrands and start spot fires. Now change the topography slightly and add to it steep draws, narrow chimneys and box canyons. These tend to act like the chimney of a stove or stove pipe in that the convection heat is funneled and compressed into the draw and the uphill draft of superheated air is even accelerated further. When a fire is burning anywhere on a steep slope or within a natural chimney or draw (even if it is at the base and even if the fuels are light), a design for disaster exists if manpower and equipment are located anywhere uphill of the fire or along steep slopes affected by the chimney effect.

Similarities can be found between the fire fatalities of homeowners in the 1991 Oakland (Tunnel) Fire and the near fatalities of firefighters in the 1996 Calabasas Fire. In the former case, after their cars stalled out during the early phase of the re-ignited fire, homeowners attempted to run for safety sidehill along a narrow one lane bottleneck section of Charing Cross Road while spot fires moved below them and then flashed up a narrow draw through light, grassy fuels. Directly exposed to and finally overcome by the heat and flames of the fire, many dropped to the ground along with a courageous policeman who directed their escape, to be found dead hours later by police and firefighters.

In the Calabasas Fire, fire apparatus and properly equipped and experienced firefighters were caught by the fire as they moved sidehill along Corral Canyon Road onto Newell Road with the fire burning below them on steep slopes. As one approaches Newell Road the downhill topography becomes characterized by a steep and long natural chimney rising from Corral Canyon and fanning out into two smaller wind funnels terminating at Newell Road and covering the area from the corner of Corral Canyon/Newell Road to a nearby house protected by firemen stationed downhill below the house. Suddenly, with a shift in the winds, the fire flashed up the natural chimney, trapping fire apparatus and firemen in full view of the news media.



[3] Wilson, Carl and James C. Sorenson. Common Denominators of Fire Behavior on Tragedy and Near-Miss Forest Fires. 1978. Reprinted 1992 by National Wildfire Coordinating Group (sponsored by USDA, USDI, Natl. Association of State Foresters).