

SITE SPECIFIC FIRE BEHAVIOR ANALYSIS

1495 Spyglass Ridge Road

The Spyglass Ridge Road address was among the first areas to be impacted by the extreme fire behavior event that occurred on the afternoon of May 6th, 2009. According to video analysis, still photography and witness statements, the morning of the 6th was generally benign in regards to fire behavior. However, as the day progressed, the fire began to experience the combined effects of lowering relative humidity, increasing temperature and change in wind direction. At approximately 1430 the north wind effect began to overpower the traditional upslope, upcanyon wind pattern. This wind direction directly aligned the entrenched fire with the topography. By 1530 the fire was producing significant downrange spotting. This spotting component then led to a rapid blowup condition with exceptional convection dynamics; further increasing downrange spotting. Just prior to 1600 this convective energy ran upslope in the aligned drainage directly north of the Spyglass Ridge Road address. Low scorch height patterns and unburned 1 hour fuels in this drainage indicate very high wind speeds as the fire advanced through the property. Personal property, as well as the structure itself, contributed to the fire load and local intensity. By 1610 the fire was now deeply established in the "bowl" topographic feature directly to the south of the property and convective energy was now being funneled perpendicular to the initial impact. By this point, considerable heat energy still remained in the area; but the primary activity had moved on towards the south. It is worth mentioning that this property was closest in proximity to the fire when it changed direction and intensity as well as being topographically aligned with three separate drainages.

2850 Holly Road

The property at Holly Road was affected in rapid succession as the energy released from the chaparral fuel type provided solid lifting dynamics to send firebrands in the downwind direction and directly into the "bowl" feature directly to the west of the address. Due to the high probability of ignition, spot fire quickly became established in this feature. The fire then followed the path of least resistance up through the various drainages; releasing more energy and further propagating fire spread via spotting. Being centrally placed on a ridge running north to south and in the overall direction which the fire progressed; the Holly Road property is topographically aligned to several of the aforementioned "draw" features. Evidence suggests that significant heat coursed through the property. Consequently, spotting occurred into the "draw" towards the east side of the property and additional fire channeled upslope from the opposite direction of the main heat flow. This pinching type fire behavior, commonly reported during the incident as whole, was described as "the fire was everywhere". This process would repeat itself over and over as the event unfolded.

1433 Mission Canyon Road

The home on Mission Canyon Road is generally located in the shadows of Mission Canyon; a large, narrow feature running deep into the front coastal range of Santa Barbara. This topographic placement was instrumental in how the fire spread moved through the area in question. With the weather pattern which was in place during the first week of May, subsidence generated wind followed the same path as the erosion patterns in the canyon. At approximately 1530, the east flank of the fire perimeter from the previous days' burn period became increasingly active and large spot fires were noted outside of retardant lines. The fire was then spread further by strong erratic winds which were observed to blow in opposite directions within a short time span. Within moments, the fire was burning aggressively on the west side of Mission Canyon and soon spotted to the east side of the canyon and directly below the property. Once established in heavy fuels below the property, the fire was aligned with the upslope topography and the cross slope wind component coming adjacent the Spyglass Road location. Needle freeze and heat patterns indicate that fire quickly impacted the property. As seen in other locations, the fire spotted into a small gulley to the east of the property with Model (2) fuels and ran upslope to the home, contradictory to the main fire flow.

1165 E, G Tunnel Road

The homes on Tunnel Road are characterized by the rolling terrain on which they are placed. A central road bisects the ridgeline lengthwise with sloping terrain falling off to the east towards Mission Canyon and westward towards a small box canyon near Palomino Road. During the extreme fire behavior event, the Tunnel Road properties were primarily impacted by a significant spotting dynamic produced by robust energy release from the upwind fuel beds of model (4) chaparral. It appears that numerous fires were ignited in the highly receptive fuel bed composed primarily of annual grasses and considerable ornamental vegetation under a canopy of oak trees; fuel Model (2). It is important to note, that by this time, many homes upwind of the property were becoming well involved with fire, promoting further spotting and radiant heat spread. As reported by witnesses, the fire quickly spread in all directions under the influence of low relative humidity and erratic winds.

1170 Palomino Road

The 1170 Palomino Road property is the last residence on the street and is located along the same spur ridge that translates through the Holly Road address; eventually terminating at the Spyglass Road site. Like many of the sites, this Palomino Road address is topographically aligned with several "bowl" and "chimney" features. The small box canyon to the east is the same canyon which borders the Tunnel Road addresses to the west. This canyon is south facing and possesses brush and annual grasses consistent with a low load Model (4).

During the fire event, this Palomino address was also affected by the significant long range spotting as the fire behavior rapidly accelerated from the north. The south facing fuel bed of 1, 10, and 100 hour fuels quickly ignited and raced through the favorable topography. At some point it is estimated that products of combustion were focused from three separate directions. Several large homes in the immediate vicinity succumbed to the fire and further supplied heat and ember source for continued spread.

1125 Palomino Road

Lowest in elevation amongst the incident sites, 1125 Palomino Road was geographically furthest from the initiation of the extreme fire behavior event of May 6th, 2009. The property is located mid-slope along the eastern edge of a south facing bowl. The fuels in the area were generally classified as annual grasses with intermixed Mustard. This light loaded, but highly receptive fuel bed was directly adjacent to several working orchards of citrus and avocado. Site surveys and witness statements confirm that spotting from upwind ember source was the primary factor in fire initiation and spread. A north facing aspect located to the west of the site address was identified as one of the first locations in the vicinity to receive fire activity. Pushed by winds from the north, this area quickly spread fire over the top and into the bowl where the Palomino property is located. The fire rapidly advanced through the light, flashy fuel bed, focused by the topography towards the property. Sloping terrain behind the property to the east also contributed to the funneling of heat through traditional convection from the numerous spots fire which became established in a small valley to the east of the property. During this time period, numerous structures in the vicinity were well involved in fire, further increasing available embers for spot fire production downwind.