

THE SKY'S THE LIMIT: THE SOBERANES FIRE SUPPRESSION SIEGE OF 2016

*The Most Expensive Wildfire Suppression Incident In
U.S. History Demonstrates the Need for Fiscal Restraint and
Accountability in Forest Service Firefighting*



by

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with

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Firefighters United for Safety, Ethics, & Ecology
December 2018

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This report was produced and distributed with the generous support of the Leonardo DiCaprio Foundation, the Weeden Foundation, the Fund for Wild Nature, and other private donors.

*Cover photo: Airtanker dumps chemical fire retardant on the Soberanes Fire.
Photo by Noah Berger*

The Sky's The Limit: The Soberanes Fire Suppression Siege of 2016

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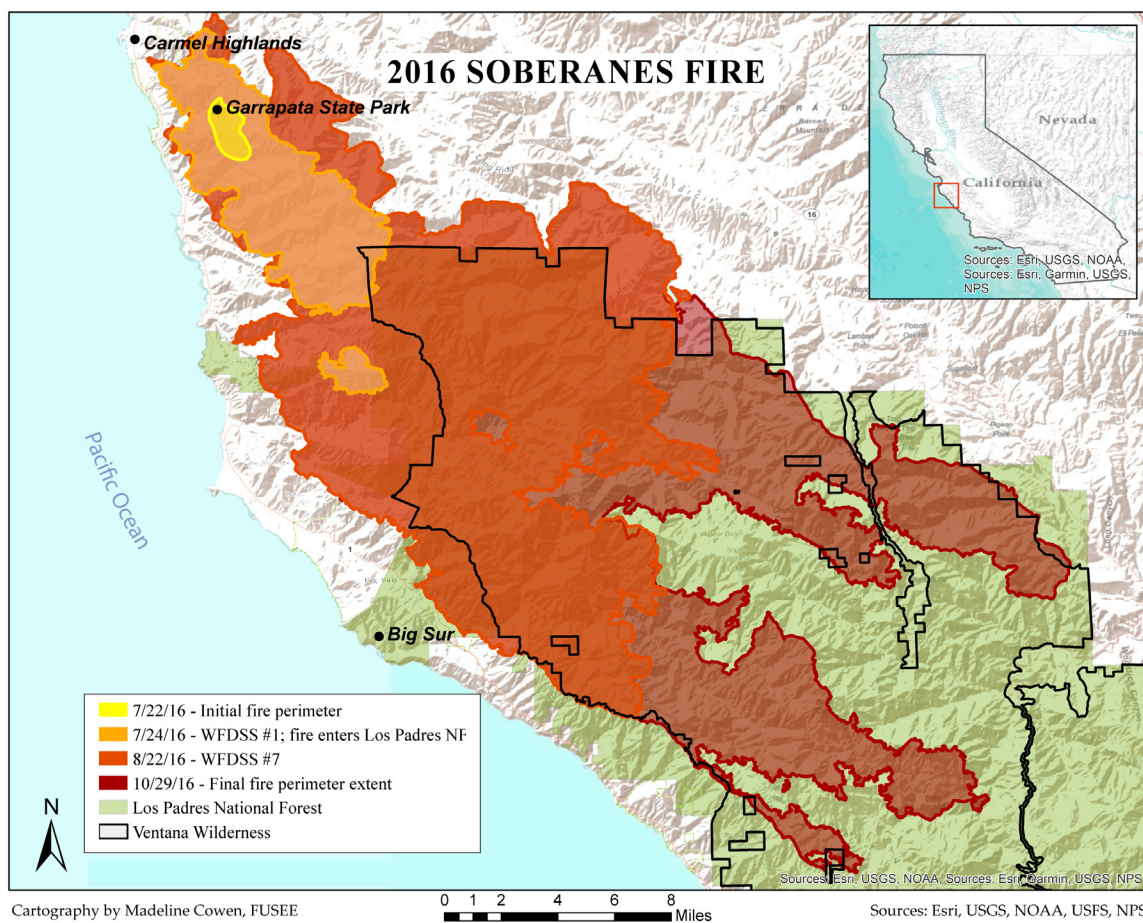
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EXECUTIVE SUMMARY

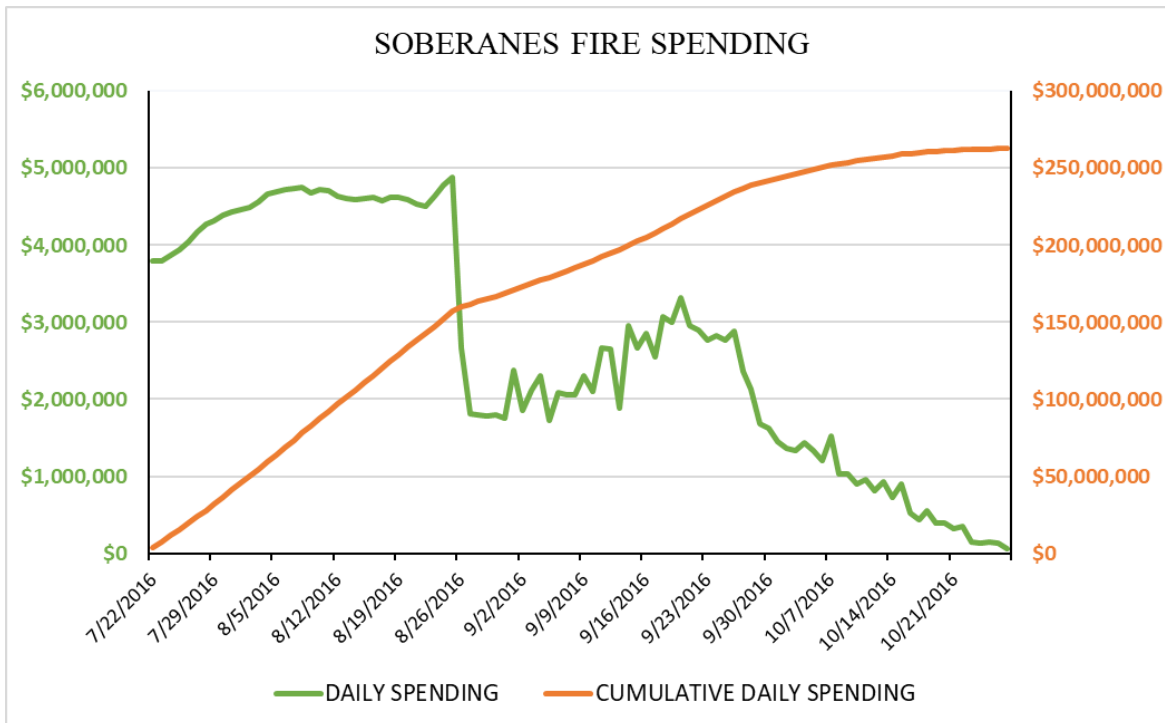
- The Forest Service spent a record \$262 million fighting the Soberanes Fire, spending several million dollars each day over the course of that three-month long fire which mostly burned in the Ventana Wilderness Area.
- Forest Service wildfire suppression spending lacks fiscal restraint and accountability, and Congress is failing to provide critical oversight of the agency's firefighting budget. An inflated firefighting budget in the Forest Service's FY2016 appropriations gave the agency the ability and perceived necessity to spend the extra money on the Soberanes.
- Use of "heavy metal" suppression resources--specifically large airtankers and dozers--were major cost drivers but they had very limited success in stopping fire spread.
- Significant amounts of retardant and dozerlines were used as indirect or contingency firelines located far away from the wildfire's perimeter, and never engaged the wildfire. These added extra risks to firefighters, costs to taxpayers, and impacts to the land.
- Fire managers failed to update their risk assessments of the costs and benefits of selected suppression strategy and tactics as the location and conditions of the Soberanes Fire changed over its three month duration. Aggressive firefighting actions continued long after the wildfire had moved away from communities or infrastructure, and the threat to structures had ceased.
- Suppression actions inside and adjacent to the Ventana Wilderness Area were inappropriate, excessive, and ineffective--causing significant and lasting damage to wilderness values.
- Federal fire managers must shift priorities from fighting fires in fire-adapted ecosystems in backcountry wildlands to protecting fire-vulnerable homes and communities.
- With Congress debating the Fiscal Year 2019 Omnibus Spending Bill at the time this report was issued, the Soberanes Fire Suppression Siege offers a cautionary tale prompting Congress to demand fiscal restraint and accountability for Forest Service suppression spending.

INTRODUCTION

On July 22, 2016, in Garrapata State Park near Big Sur, California, an illegal campfire ignited the Soberanes Fire. Over the next three months, it would spread onto the Los Padres National Forest and burn into the Ventana Wilderness area where it became the largest wildfire in the country that year (Map 1). The Soberanes Fire Suppression Siege also earned the distinction of being the most expensive wildfire suppression incident in U.S. history: the suppression siege totaled over \$262,000,000, with costs averaging \$2 million per day (Graph 1). At its peak, suppression costs were almost \$5 million per day (Graph 1). This incredible amount of taxpayer dollars was spent attacking what became primarily a wilderness fire burning in a fire-dependent ecosystem. Despite spending millions of dollars each day on suppression operations, success in containing and controlling the wildfire constantly eluded the Forest Service until the weather had significantly changed. Yet, the agency kept spending money long past the point of diminishing returns (Graph 2).

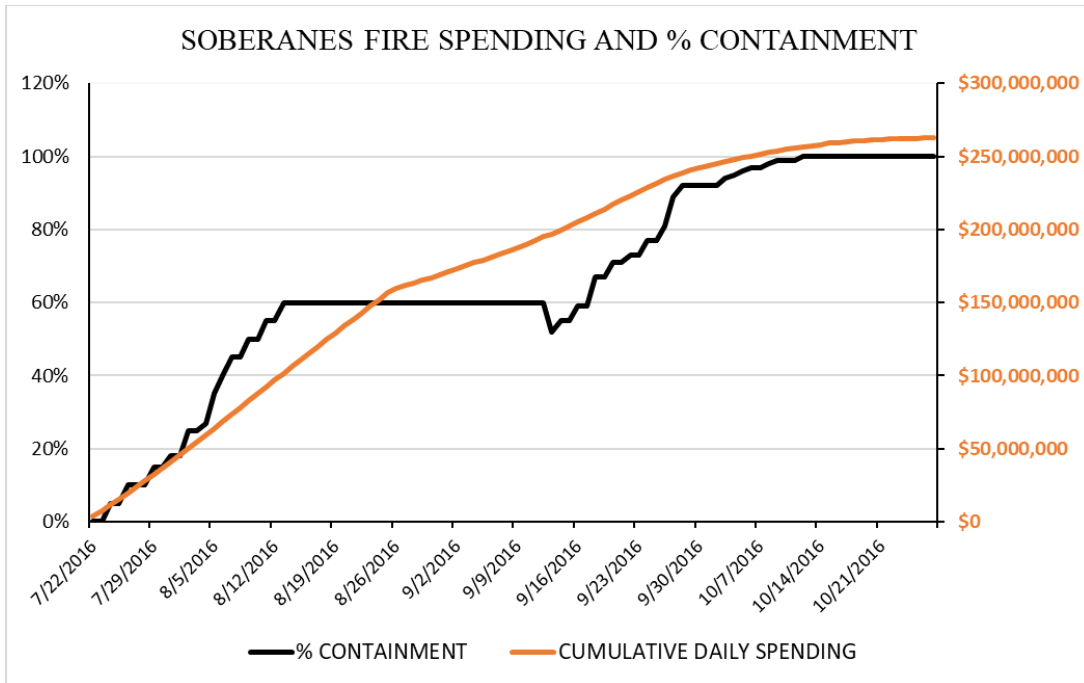


Map 1: Soberanes Fire Progression. Towards the end of the wildfire incident, the “fingers” of burned area in the Southeast and Southwest portions of the fire were the result of large-scale burnouts ignited in and along the edge of the wilderness. The smaller “middle finger” was an escaped fire from a burnout operation ignited to the North.

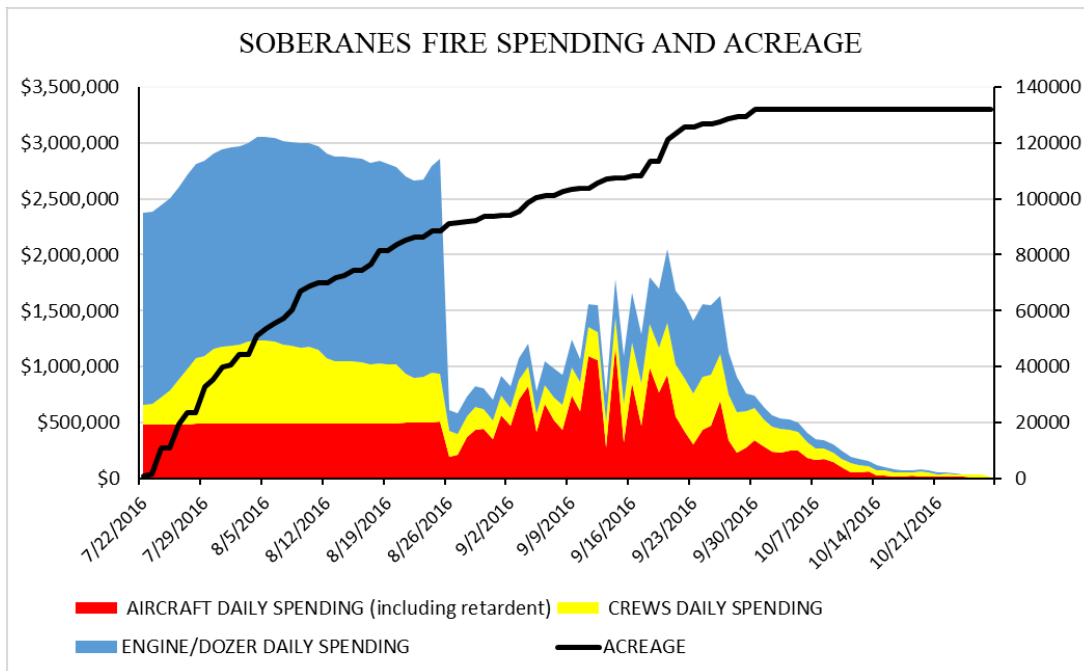


Graph 1: Soberanes Fire Spending. Daily and cumulative total spendings. The large dip on Aug. 25th marks the date that CalFire turned over the fire to the U.S. Forest Service, and sent its fleet of engines home. The USFS rapidly increased spending after that. *Data sourced from USFS.*

The Soberanes Fire Suppression Siege offers an extreme example of excessive, unaccountable, budget-busting suppression spending that is causing a fiscal crisis in the U.S. Forest Service. It demonstrates the chronic failure of Congress to perform critical oversight of wildfire suppression spending by federal agencies. It also alludes to what some critics have called the “Fire Industrial Complex” whereby a nexus of government agencies and private companies wage an endless and escalating war on wildfire in defiance of economic rationality and ecological sustainability. In particular, “heavy metal” suppression tools like bulldozers and airtankers--almost all of which were supplied by private contractors--were some of the most expensive but least effective tools in Soberanes suppression operations (Graph 3). At the time this report is being released (December 2018), Congress is preparing to vote on another Omnibus Spending Bill for Fiscal Year 2019 to fund federal suppression operations for the coming year, and federal agencies will soon acquire the ability to use federal disaster recovery funds to pay for firefighting expenditures. The Soberanes Fire suppression siege offers a cautionary tale about the social, economic, and ecological harms that ensue from near-limitless spending on fighting fires in wilderness wildlands that is diverting funding and focus from accomplishing community wildfire protection and ecosystem fire restoration goals.



Graph 2: Soberanes Fire Spending and Percent Containment. Cumulative cost overlaid on percent containment. Note that for much of the fire’s duration, increased suppression spending failed to aid containment efforts. Costs after September 15th from the large indirect burnout operation finally lifts percent containment above 60% after the wildfire had essentially stopped spreading for over a month. Sourced from USFS e-Isuite data [12].

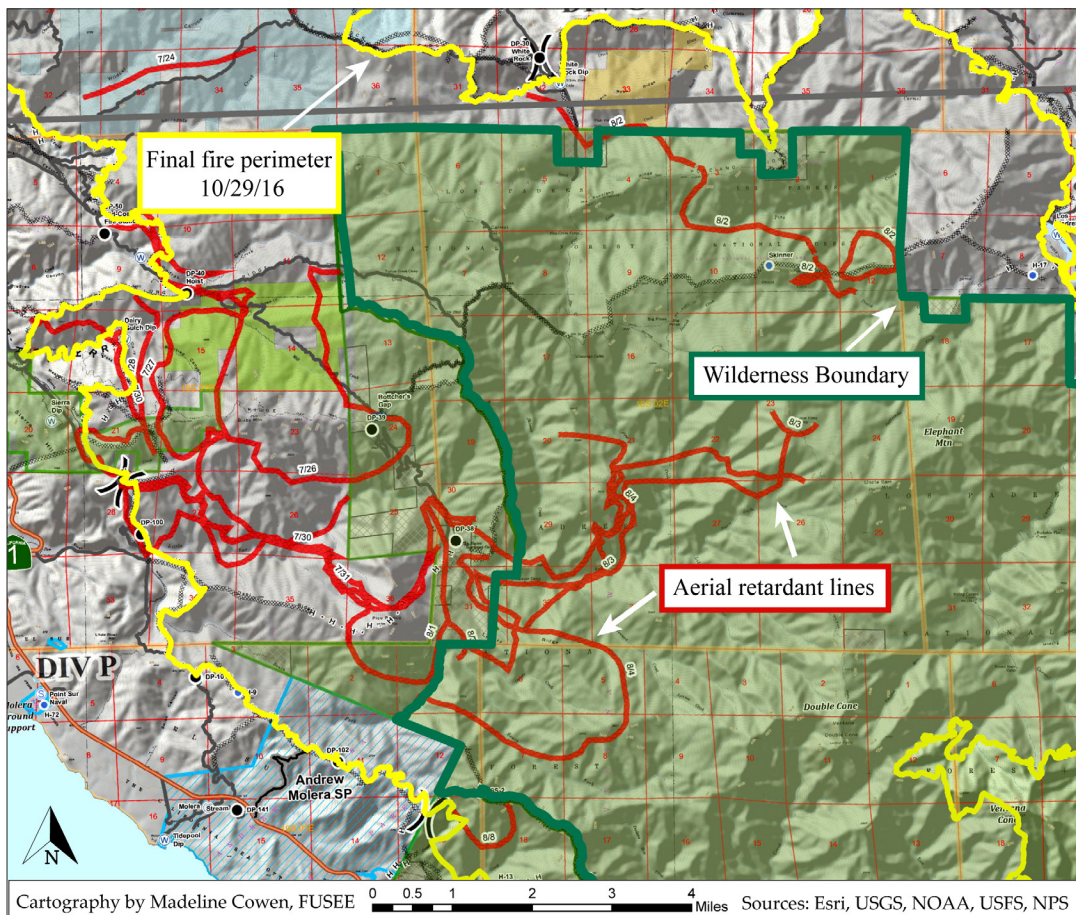


Graph 3: Soberanes Fire Spending and Acreage. Spending broken down by total daily cost allocations of “heavy metal” suppression tools, cross referenced with total daily acreage of the fire. Note that for most of the fire’s duration, the wildfire kept growing in size despite increasing suppression spending. Sourced from USFS e-Isuite.

LACK OF ACCOUNTABILITY AND RESTRAINT IN SUPPRESSION SPENDING

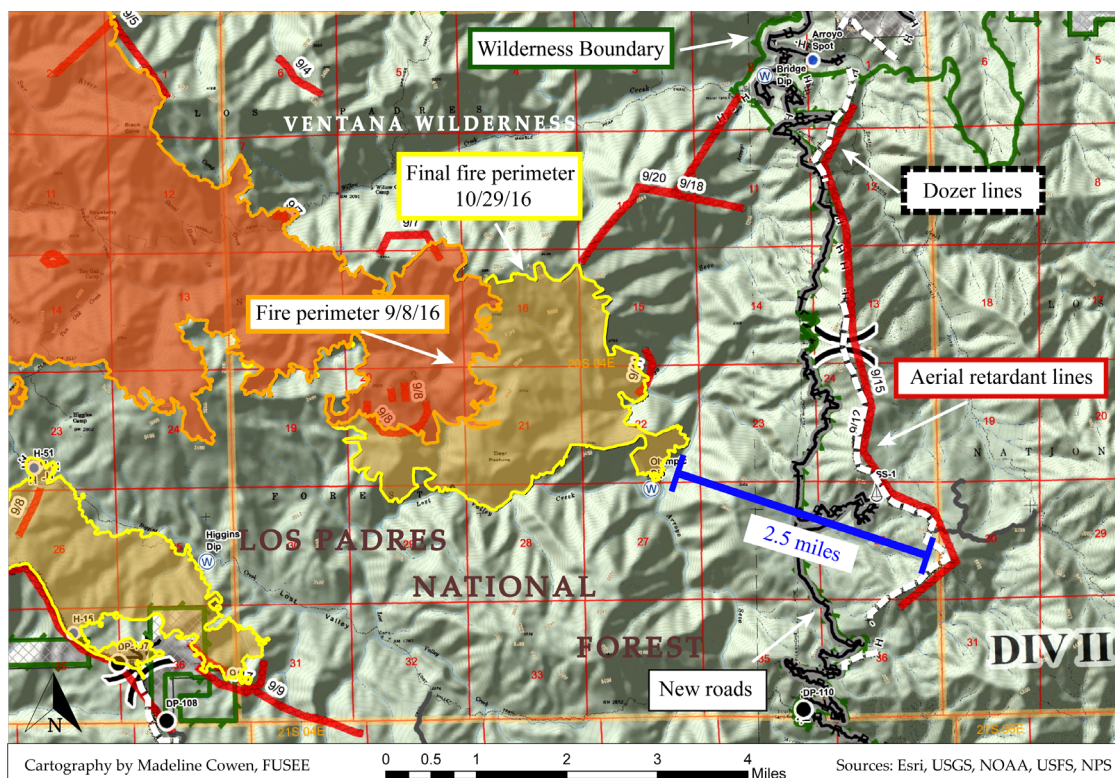
INAPPROPRIATE AND INEFFECTIVE USE OF AERIAL RETARDANT

One of the major cost centers of the Soberanes Suppression Siege was the “air show,” fleets of aircraft dumping water and retardant chemicals in steep-sloped, densely-vegetated, remote places in support of crews establishing containment lines and where it was too dangerous to put ground crews. As the fire spread into the Los Padres National Forest, including the Ventana Wilderness Area, large amounts of retardant were dropped that *were not* tied with fireline construction, and thus, did not stop the advance of the fire (Map 2). In fact, fire retardant chemicals are designed to slow the rate of ignition and spread of flames, but they cannot stop fire spread on their own without ground crews positioned nearby removing fuel in fire containment lines. Continuous lines of retardant, around 110 miles long, were dropped in looping patterns on the landscape, some deep inside the wilderness where no firefighters were sent due to extreme safety hazards. What “values” were these drops protecting? Other fixed wing retardant application occurred far from primary containment lines, ostensibly to pretreat various “contingency” lines. This raises questions as to why this costly but ineffective tactic was used so extensively throughout the duration of the wildfire, and whether there was adequate aerial supervision to limit unnecessary drops.



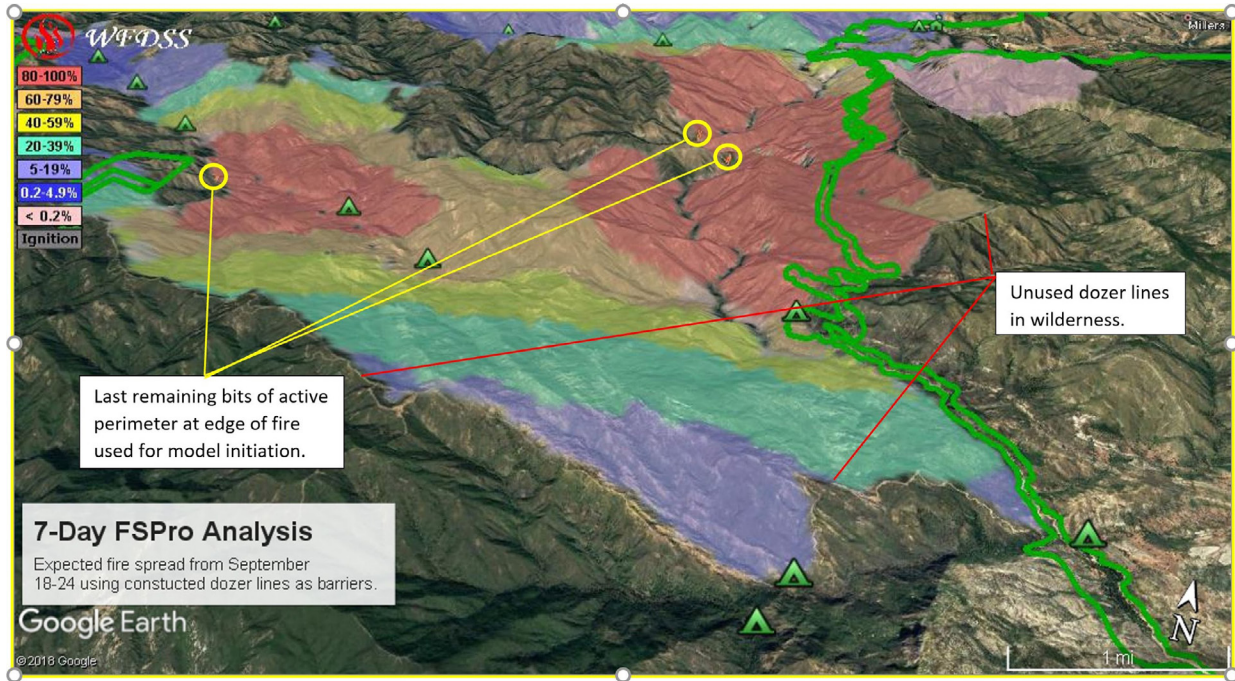
Map 2: Aerial Retardant Lines on the Soberanes Fire. Note the amount of retardant dropped within the wilderness, and the distance between retardant lines and the fire perimeter. See Map 7 for location context.

In several areas, retardant was dropped several miles and several days away from the wildfire’s flaming front, and the wildfire never did reach these treated areas. Moreover, a huge amount of retardant was laid down *outside* the support of fire containment lines where it could have never been reasonably expected to affect fire spread in any meaningful way. This occurred most prominently on the eastern and southern portions of the fire, late in the season after mid-September, where long lines of retardant were dropped far away from the wildfire’s edge and perimeter firelines (Map 3). Much of this was along a ridgeline in support of a huge dozerline just east of a narrow corridor slicing through the middle of the Ventana Wilderness. The dozerline is a long-lasting impact on the landscape and begs the question why, especially so late in the season? What was the purpose of keeping the fire from crossing the Indians Road into the rest of the wilderness? Apparently, this was the last line imagined to keep the fire out of Fort Hunter Liggett.



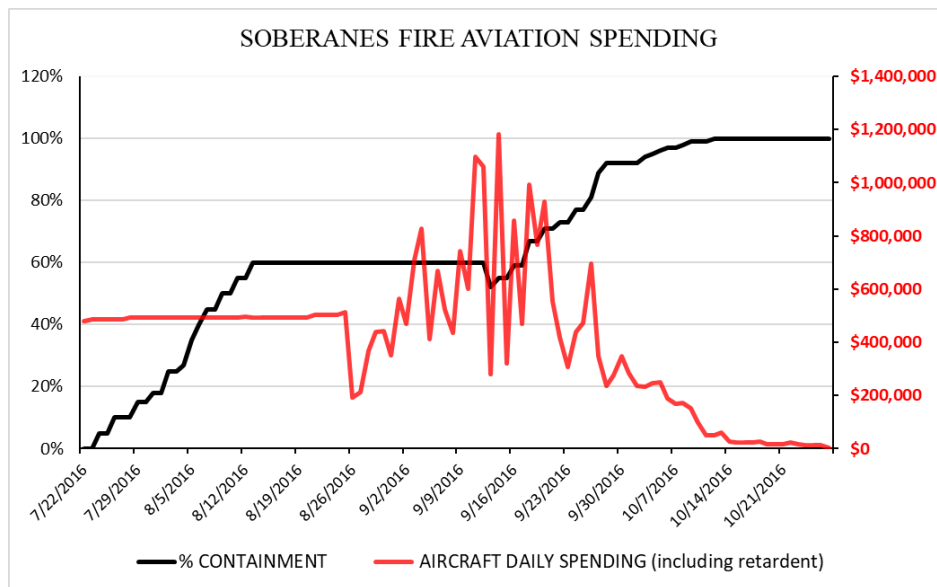
Map 3: Retardant and Dozerlines on Southern perimeter of Soberanes Fire. See Map 7 for location context.

An FSPro fire spread probability analysis in the September 12th Wildland Fire Decision Support System (WFDSS) Decision only showed a 5% chance of the fire reaching the edge of the military reservation in seven days. Just a few days later on September 18th a similar analysis found a zero percent chance of the fire reaching Hunter-Liggett when all the wilderness dozerline was utilized as a barrier in the model (Map 4). While that fire spread model did show the fire reaching the dozer line two miles to the east, the actual fire never really exhibited much additional growth, likely from constant bombardment with poorly managed retardant or helicopter bucket work. Meanwhile, attention had shifted to the miles of indirect line on the southeast side of the fire, where firefighters were lighting up twenty miles of indirect “blacklining.”



Map 4: Fire Spread Analysis from September 19. Indirect dozer line never utilized in containing fire spread, much supported with retardant, as seen from space. *Source: Wildland Fire Decision Support System (WFDSS).*

A total of 3,492,782 gallons of retardant were dropped by both air-tankers and helicopters on the Soberanes Fire [13]. While retardant runs may have effectively slowed fire spread in some portions of the wildfire, enabling ground crews to successfully build containment lines, elsewhere retardant was excessive and ineffectively used, resulting in a huge waste of money and resources while exposing aviation crews to extra risk. The graph below (Graph 4) shows that the high expenditures on aircraft and retardant had minimal or no influence in gaining fire containment, indicating a lack of monitoring of retardant use while managers poured it on.



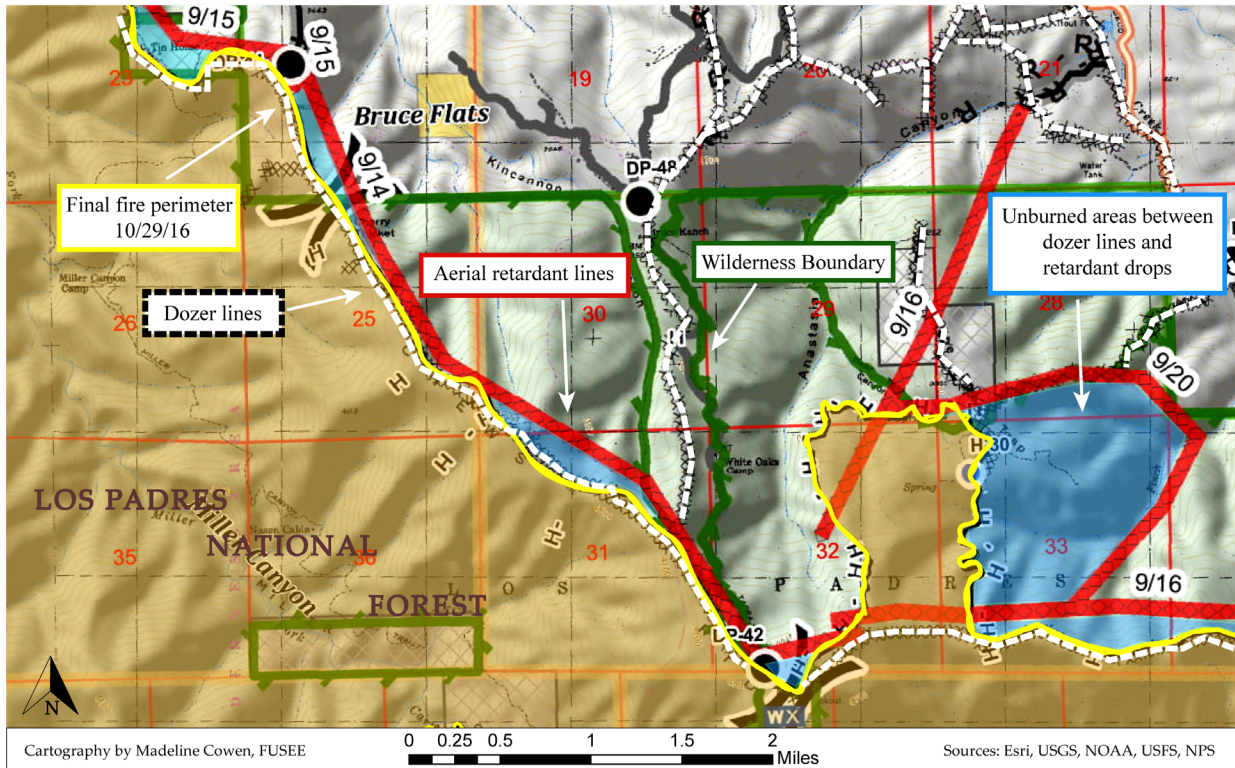
Graph 4: Soberanes Fire Aviation Spending. Daily spending on all aircraft and retardant use and the percentage of fire contained. Note that most of the aviation spending had minimal or no influence on improving wildfire containment. *Data sourced from the USFS.*

INAPPROPRIATE AND INEFFECTIVE USE OF BULLDOZERS

Firelines constructed by bulldozers were also used in places or conditions where they were inappropriate and/or ineffective in containing wildfire spread. The worst use of dozerlines was deep inside the Ventana Wilderness Area, where these machines and the damaging scars they left on the landscape caused major harm to wilderness values (Image 2). Approximately 60 miles of dozerlines were carved inside the wilderness, where they had mixed effectiveness in containment objectives. In some areas, these dozerlines stopped the fire spread, but in several other areas, they did not (Map 5). Regardless, the dozerlines left lasting scenic impacts on the land, not only from denuding vegetation and damaging soils, but also introducing potential for the spread of invasive weeds and illegal use by off-road vehicles. After the fire was contained, the Forest Service spent an estimated \$1,000,000 per day for weeks to repair wilderness hiking trails and other sites damaged by dozers (Image 3) [4].



Image 2: Fire burning on both sides of a breached dozerline along Dani Ridge in the Ventana Wilderness. *Image courtesy of Keith Vandevere (<https://xasauantoday.com>).*



Map 5: Retardant and Dozerlines on East side of Soberanes Fire. See Map 7 for location context.

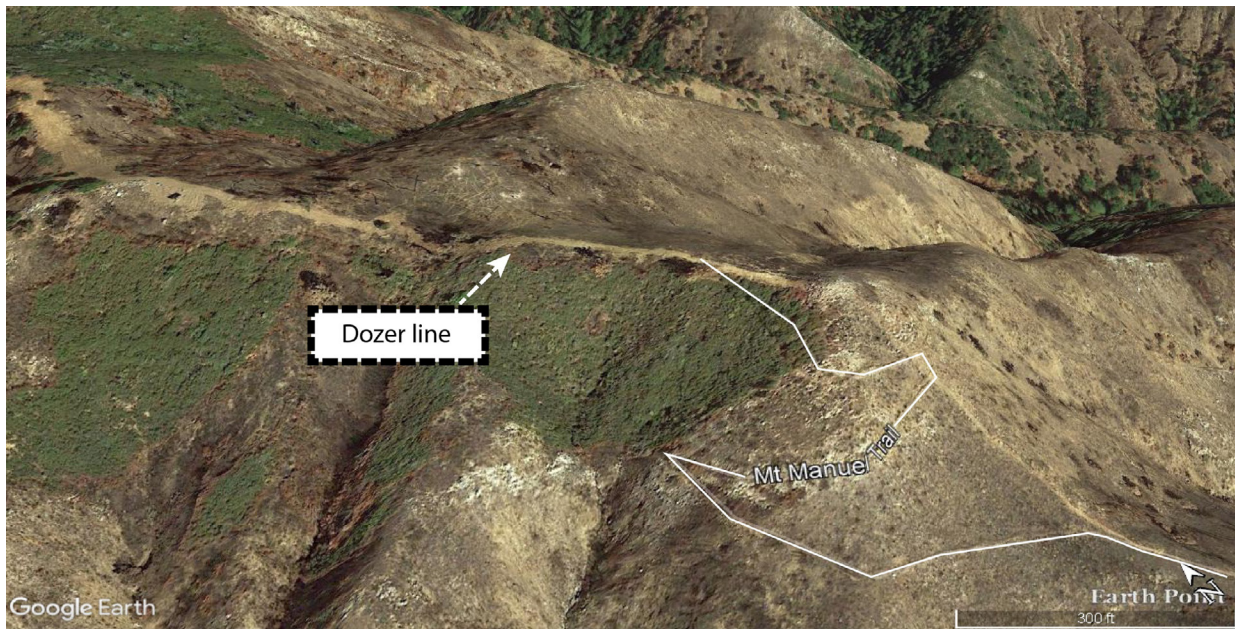
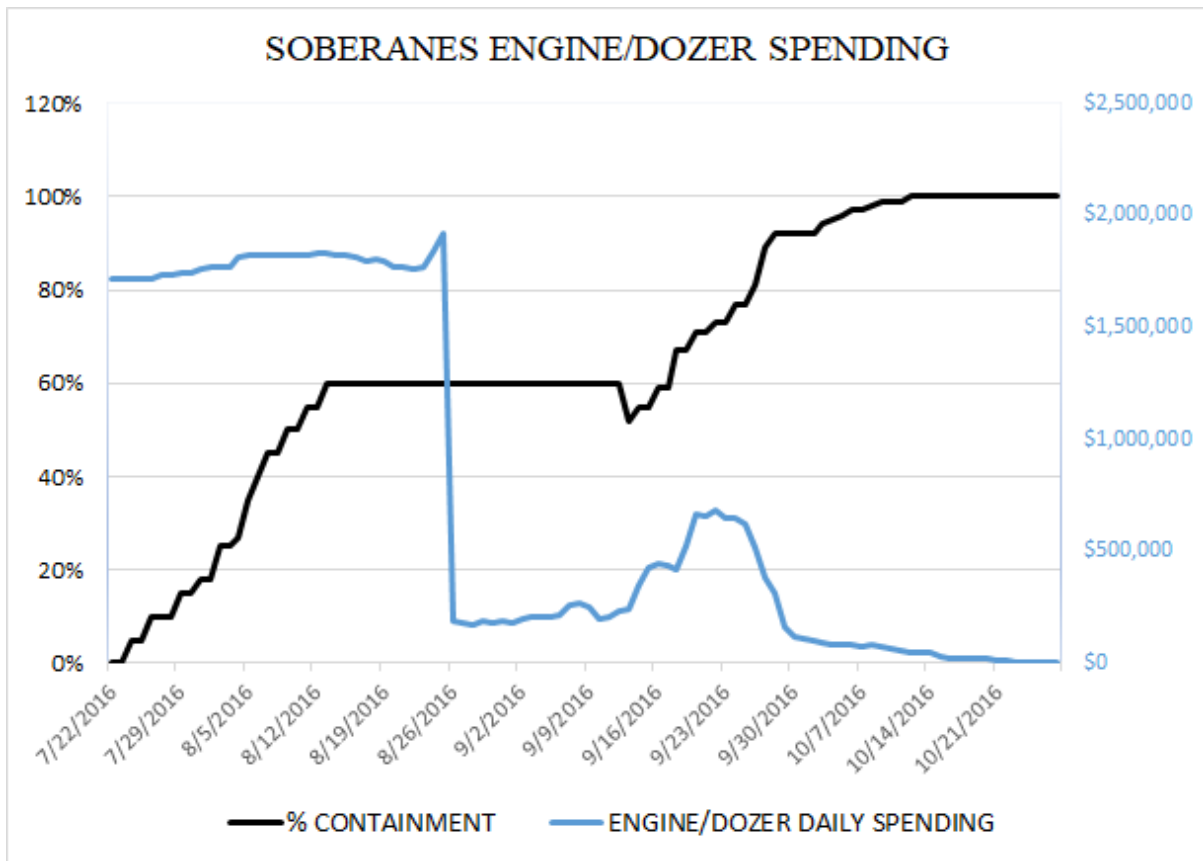


Image 3: Dozerline damaged the Mt. Manuel scenic hiking trail inside the Ventana Wilderness. Note the dozerline did not stop the fire spread. Aerial images sourced from Google Earth.

Dozerlines were also carved as contingency firelines that had no intention of engaging the wildfire. In areas where the wildfire had stopped on its own (due to changes in fuels and weather conditions) and/or direct handlines had successfully contained the fire, dozerlines were cut miles away from the wildfire’s edge and these firelines (Map 5). These dozerlines greatly added to the costs and damages of the Soberanes Suppression Siege (Graph 5).



Graph 5: Soberanes Engine & Dozer Spending. Daily spending on all engines and bulldozers and the percentage of fire contained. The steep drop on Aug. 25th marks the last day of unified command when CalFire turned over management of the fire to the USFS and removed their army of inmate handcrews and fleet of engines. *Data sourced from the USDA Forest Service.*

The reliance on “heavy metal” suppression tools such as air-tankers and dozers to compensate for the inability to safely use groundcrews is becoming more commonplace in Forest Service firefighting. However, these are some of the most expensive, but least efficient and least effective tools for containing and controlling wildfire spread in remote, rugged wildlands. The Soberanes Fire offers a starting point for researchers to perform a systematic cost-benefit and risk analysis using several other suppression incidents to determine whether air-tankers and dozers should be used as extensively as they are, especially in remote wildlands and wilderness areas.



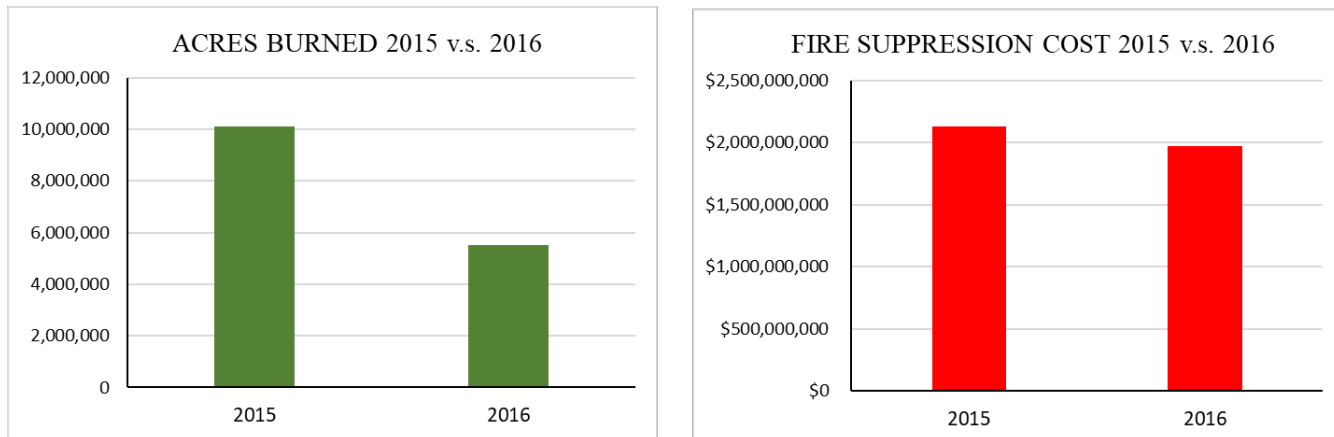
Image 4: Dozer carving a wildfire containment line. Bulldozers cause significant, long-term damage to soils, vegetation, and hydrological systems.

LACK OF CONGRESSIONAL OVERSIGHT FEEDS SUPPRESSION OVERSPENDING

Members of Congress have been frustrated by the Forest Service chronically overspending its annual budget on firefighting, and then engaging in “fire borrowing” where it raids funds from other non-fire forestry programs to pay for firefighting expenses. Instead of demanding more fiscal restraint and accountability from the agency to reign in its suppression spending, Congress simply added millions of more dollars to the agency’s budget!

The year before the Soberanes Fire was a very active wildfire season, with fires burning 10 million acres across the West, and the Forest Service overspending its appropriated budget on firefighting. In anticipation of another similarly active wildfire season the coming year, Congress added an extra \$700 million to the agency’s budget request in the FY2016 Omnibus Spending Bill that passed in December of 2015 [5]. But much to everyone’s surprise, 2016 had relatively low wildfire activity, with only half the acreage burned compared to 2015 [6] (Graph 6). Regardless, the Forest Service managed to spend almost its entire suppression budget -- including the additional \$700 million -- despite low wildfire activity. Only

the changing of the fiscal year on October 1st prevented the agency from overspending its appropriated budget again, draining the remainder of its budget on the Soberanes Fire. In short, the excessive suppression spending on the Soberanes Fire was enabled by Congress inflating the Forest Service’s annual budget. Only one member of Congress questioned the Forest Service about the unprecedented suppression expenditures of the Soberanes Fire [3]. As a matter of routine, Congress has essentially a “blank check” policy for funding wildfire suppression, and fails to demand any fiscal accountability about the agency’s suppression overspending.



Graph 6: Comparison of 2015 and 2016. Nationwide acres burned/fire suppression costs in 2015 and 2016. *Data courtesy of NIFC*

Another likely contributing factor to the cost overruns on the Soberanes Fire was that the USFS budgetary practice at the time was to underfund suppression resources in individual National Forest budgets, betting on firefighting paychecks to make up the difference in base pay. This deficit of available funding would be presented to the Forest Supervisor as the year’s budget “risk” for his or her approval. The risk was that there would not be enough money to keep the firefighters employed through the end of the fiscal year. According to sources familiar with the practice, as much as two months was programmed for firefighters to attribute base funding to wildfires. While that usually wasn’t a bad bet, 2016 was an unusually slow year. California hotshot crews and engines had to get parked somewhere off the preparedness budgets that summer and Soberanes was that place. Most California hotshot crews and engine modules did at least one to two two-week assignments, if not more. Supposedly, that practice of deficit-funding preparedness personnel has been eliminated in USFS budgetary planning moving forward. Promises have been made about increased accountability with the new firefighting funding “fix” in the Consolidated Appropriations Act of 2018 but those mechanisms have yet to be developed.



Image 5: Airtanker dropping retardant on the Soberanes Fire. Retardant lines were repeatedly breached by wildfire because they were laid down without any crews constructing adjacent containment lines. *Photo Courtesy of Noah Berger.*

LACK OF PROPER RISK ASSESSMENT AND TRADEOFFS ANALYSIS

FIREFIGHTING ACTIONS INCOMMENSURATE WITH VALUES-AT-RISK OR PROBABILITY OF SUCCESS

When the Soberanes Fire ignited, it immediately threatened hundreds of scattered homes and several small communities nearby the Garrapata State Park, and fully warranted an aggressive initial attack suppression response at that time and place. CalFire assumed command of the initial attack operations and quickly ordered hotshot crews, aviation, and heavy equipment to fight the fire. But when the fire transitioned to an extended attack situation and spread onto federal land, a unified command team with the USFS was created, and a Type 1 Incident Command Team was called to manage fire operations. In the original analysis and suppression plan for the Soberanes, fire managers anticipated that the fire would be contained by the end of the week with an estimated total cost of \$10 million [11].

Despite firefighters' efforts, the wildfire continued to spread rapidly, and by the third day of the fire, it had grown to 15,000 acres and burned half a dozen homes. The next day, the toll of destroyed homes increased to 20, and on July 30th, the day that fire managers had originally estimated the wildfire would be contained, the fire had spread across 35,500 acres, destroying 57 homes along with 11 other structures. However, this marked the final day that any homes were lost. Meanwhile, the wildfire had already entered the Los Padres

National Forest and was moving into the Ventana Wilderness Area, where it would burn for the next two and a half months. There is a significant drop in daily cost starting August 26th when CalFire left unified command with the USFS, having fulfilled the State mission of property protection on the north side of the fire in the Carmel Highlands.

Although the risk of fire spreading beyond the national forest and into surrounding areas occupied by homes and other social infrastructure (e.g. Highway 1 along Big Sur) was always a possibility, the agency failed to reassess the significantly reduced risk of further structure losses as the fire moved away from populated areas and spread into the wilderness. Fire managers then failed to apply new risk assessments into their decisions for suppression strategy and tactics. Thus, the agency kept fighting the fire with more and more resources at ever greater costs, causing more firefighting damage, even though the wildfire had transitioned into a wilderness fire and the risk to homes had greatly diminished. CalFire had made the original decision to go all-out with aggressive initial attack and ordering all available suppression resources, and the Forest Service maintained that decision throughout the long duration of the wildfire [1, 2, 9].

Indeed, as the fire spread into uninhabited wildlands and designated wilderness, the continually expanding suppression efforts and their ever-escalating costs were not justified in terms of the values-at-risk, especially given that there were no human structures present, no commodity resource values at stake within the Ventana Wilderness Area, and much of the vegetation burning in the wilderness was fire-adapted chaparral. Aggressive suppression actions were also not justified because fire managers had repeatedly predicted that the prevailing weather and fuel conditions were going to make aggressive suppression actions have a low probability of success in stopping the fire's spread in the wilderness [11]. Despite tens of millions of dollars spent on firefighting actions each week, the wildfire kept growing, and there was no attempt to contain the ever-escalating costs through a change in strategy or tactics (Graph 2).

FAILURE TO ADJUST STRATEGY AND TACTICS TO CHANGING CONDITIONS AND LOCATION OF FIRE

Over the duration of the Soberanes Fire, managers developed twelve Wildland Fire Decision Support System (WFDSS) Decision documents. The WFDSS is a web-based system for documentation and decision support regarding the management objectives, strategy, and tactics utilized when responding to wildfires. The WFDSS documents the data, analysis, and rationale based on values-at-risk for making those decisions. A new WFDSS is supposed to be issued whenever there is a significant change in the conditions, objectives or estimated final costs of a given wildfire. Each approved decision document, with its attached analysis and notes, represents the direction to fire managers from the line officer (agency deciding official) on how the fire should be managed. Subsequent WFDSS decisions on the Soberanes Fire reflected minimal changes made to the incident objectives, strategy and tactics over the course of that long-duration wildfire, as one would expect. The ever-growing estimated final cost of the suppression effort appeared to be the main driver for each WFDSS revision.

Early in the incident, managers had set structure and community protection as the main objective, applied a full suppression with perimeter control strategy, and developed a large planning area (“big box”) on a map, within which they hoped to contain the wildfire. Showing a willingness to host fire across a large landscape is to be commended, however in this case protection objectives and associated tactics prevailed (e.g. extensive indirect dozer line, unsupervised and/or ineffective aerial application of retardant and water, etc.), even though the wildfire was largely moving away from communities. Indeed, when CalFire turned over management of the wildfire to the Forest Service on August 26th, it was because it had been contained on State lands and was only spreading on uninhabited wildlands in the National Forest (Map

1). Daily suppression costs dramatically plummeted on that day because CalFire pulled out its fleet of fire engines and inmate handcrews, however, costs borne solely by the Forest Service continued to climb upward thereafter (Graph 2). The new WFDSS issued on August 27th stated “Current strategy remains the same” while claiming that “The communities of Carmel (and) Carmel Highlands...are threatened” [11]. In fact, operations on the state protection ground in the communities directly impacted by the fire had been downgraded to patrol status and suppression repairs were underway in those portions of the wildfire. The Forest Service added protection of endangered species habitat as another critical value at risk of burning in the wildlands, but continued to manage the wildfire with structure protection objectives as the main driver of its full suppression response.

Nevertheless, from each WFDSS to the next, managers failed to incorporate changes in the wildfire’s location and direction of spread that affected the values-at-risk, and made almost no change in the rationale, objectives, or course of action that should have happened if those changes in the wildfire’s situation had been acknowledged. For example, the original relative risk rating and associated notes conducted for the first decision on July 24th remained unrevised until September 2nd, long after the fire had ceased to pose a threat to developed areas. Even after the September 2nd revision the relative risk rating remained “high” despite notes alluding to the decreasing risk. Only in the final WFDSS Decision on October 25th was the relative risk reduced to “moderate,” two weeks *after* the wildfire had stopped spreading. Given that minimal changes in strategy were made over the long duration of the Soberanes fire, it appears that each successive WFDSS was an exercise in documenting decisions to “stay the course” of prior objectives and actions, rather than used as a means of developing new decisions. There was no visible attempt to rethink strategy or tactics as the suppression costs continued to climb.

FAILURE TO PLAN FOR LARGE-SCALE, LONG-DURATION WILDERNESS FIRES

During the early days of the fire, fire managers correctly predicted that the Soberanes would become a long-duration wilderness fire [11]. However, rather than developing a long-term plan to account for this likelihood, managers opted for a full suppression response with a perimeter control strategy. Consequently, as the fire continued to spread, mainly into the wilderness, fire managers continued to call in more and more suppression resources. Where it was unsafe to position groundcrews, “heavy metal” suppression tools such as air-tankers and bulldozers ranged deep inside wilderness boundaries even though, as discussed above, these tools were ineffective and inappropriate in the rugged wilderness.

An internal Forest Service review criticized Los Padres administrators for giving too much discretion for suppression planning to the several rotating Incident Command Teams (ICTs) [14]. However, these ICTs should not bear all of the blame for devising a strategy and using tactics that had low probabilities of success. Even though the Ventana Wilderness Area is known for frequent wildfires that are rarely able to be suppressed with a direct attack containment strategy, the Forest Plan mandates full suppression efforts on all fires in the National Forest. Alternative confinement strategies incorporating ecological fire use or modified suppression, like point protection, would be more appropriate for wilderness fires, but these are not allowed according to the Forest Plan. It is inevitable that another fire will burn in the Ventana Wilderness Area sometime in the future. At what point will agency administrators revise the Forest Plan to allow alternative responses to wilderness wildfires in order to spare taxpayers the costs and damages of another long suppression siege?

SUPPRESSION ACTIONS CAUSED SIGNIFICANT ENVIRONMENTAL IMPACTS

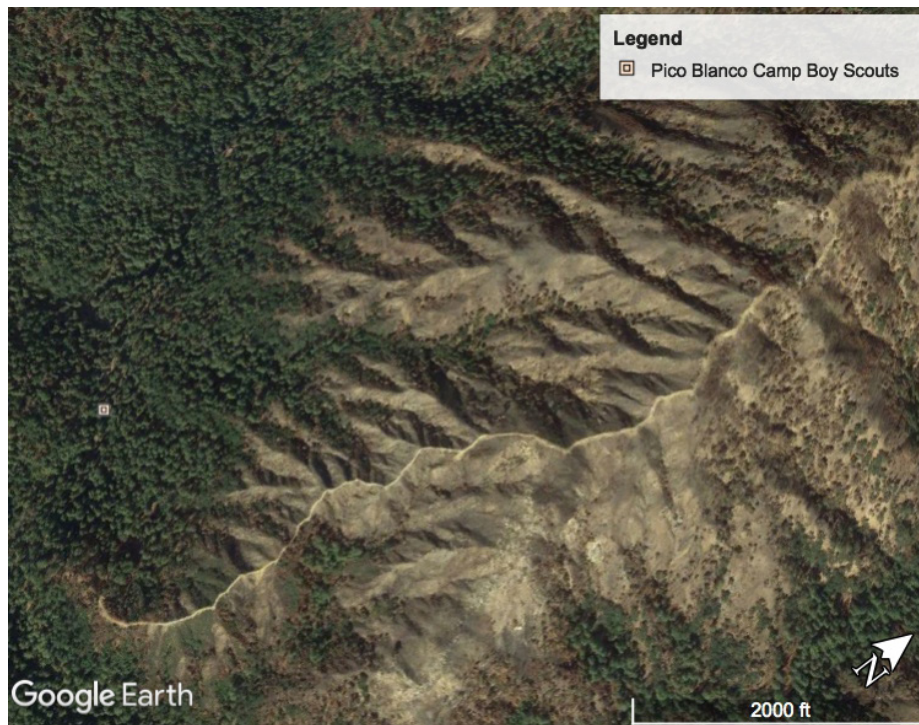


Image 6: Fresh dozerline scars the Ventana Wilderness next to Boy Scouts camp on 10/16. Note that the dozerline failed to stop wildfire spread.



Image 7: Two years later, the vegetation is recovering from the wildfire while the dozerline still mars the landscape, 2/2018.

Aggressive fire suppression causes significant adverse environmental impacts on a number of natural resources and ecosystem values, and the Soberanes Fire Suppression Siege was no exception. The agency documented expensive repair needs to mitigate impacts on the wilderness from helispots, safety zones, and dozerlines [10]. Many trails were damaged by firefighting actions (see Image 3). Most impactful were the dozerlines that caused massive soil disturbance, habitat fragmentation, and left long-term scars on the landscape (see Images 6 and 7). Dozers had also contaminated pristine streams with sedimentation from the soil plowed up by their blades, and also leaked hydraulic fluids into the water. There were expensive efforts made to repair suppression damages, but it is not possible to completely erase the impacts of carving containment lines with bulldozers. The extensive amount of costly suppression repairs needed for these wildplaces was another factor accounting for the record expenditures on the fire.

What was especially costly and damaging about the suppression efforts, however, was the excessive amount of contingency firelines that were constructed. Contingency firelines are constructed outside of the primary fire containment lines as a “hedge” against the possibility of the primary containment line failing to stop wildfire spread. In many cases, these contingency firelines were made by bulldozers that ran parallel to handlines that had successfully contained the fire. Outside of these dozerlines, an additional or “tertiary” contingency line was sometimes made by air-tankers dumping long lines of retardant. The logic behind using retardant as a fireline is somewhat dubious: retardant is effective in slowing down fire spread, but it cannot stop it on its own. Ultimately, wildfire never interacted with either the dozer or retardant contingency firelines which in some places were laid several miles and several days away from the wildfire’s edge. Thus, contingency firelines were unnecessary expenditures of money, resources, and labor that inflicted significant damage on the landscape.



Image 8: Retardant Drop on the Soberanes Fire. Approximately 110 linear miles of retardant was dropped on the Soberanes Fire. Sixty miles of retardant was dropped inside the wilderness. *Photo Courtesy of Kate Woods Novoa, bigsurkate.blog.*



Image 9: A dozer operator was tragically killed in a rollover accident on the Soberanes Fire. *Photo Courtesy of CalFire.*

FIREFIGHTER SAFETY RISKS AND HEALTH HAZARDS

Firefighting is inherently hazardous duty, and perhaps the most significant costs of aggressive suppression are firefighter fatalities and injuries. The Soberanes had its share of tragedies, with one dozer operator killed, and another dozer operator and a water truck driver severely injured in rollover accidents [4]. One firefighter was severely injured while attempting to cut down a snag (a dead standing tree). In addition to these serious accidents, documents revealed that there were literally hundreds of firefighters that were afflicted with poison oak rash [9].

The decision to apply “overwhelming force” and call in an overabundance of crews and aircraft increased firefighter exposure to the inherent safety risks and health hazards of aggressive suppression. It was too dangerous to send ground crews deep inside the Ventana Wilderness, so fire managers elected to emphasize air attack against the fire. This essentially shifted the safety risks from ground crews to pilots. At times there were so many aircraft operating over the fire -- flying in mountainous terrain in smoky conditions, using the same routes for ingress and egress, sometimes operating on different radio frequencies -- that this could have easily led to a disastrous mid-air collision. Outside of the wilderness, fire managers were concerned that the large number of crews and vehicles were exceeding the carrying capacity of the Los Padres’ road system, and if there had been a need for an emergency evacuation of all crews, this could have resulted in a disastrous traffic jam [7]. Questions remain as to why so many crews, heavy equipment, and aircraft were needed to aggressively suppress what essentially became a wilderness fire that, for the final month or more of the fire’s duration, posed little risk to homes or communities?

CONCLUSION

PROACTIVE COMMUNITY FIRE PREPARATION: A COST-EFFECTIVE ALTERNATIVE TO REACTIVE BACKCOUNTRY FIRE SUPPRESSION

In Garrapata State Park, long before the Soberanes fire was ignited, youth working for the California CCC had done some hazardous fuels reduction by pruning vegetation that was growing near park buildings, and this later prevented all of those buildings from being ignited by the Soberanes fire [7]. In that first week of the Soberanes Fire, flames raced through inhabited areas, destroying 57 homes and threatening several small communities along Big Sur. But what if all those homes had done proactive fuels reduction work done beforehand like the CCC had performed in the State park? Would those homes have been ignited? Would other homes have been threatened by the fire? If the risk of home ignition had been reduced, would that record-breaking suppression spending have been justified at all?

SOBERANES FIRE SIEGE: AN EXAMPLE OF SYSTEMIC LACK OF FISCAL RESTRAINT AND ACCOUNTABILITY IN FOREST SERVICE FIREFIGHTING

An internal review by the Forest Service’s Washington Office concluded that, “[S]ystemic fire management issues that have been previously identified in both the scientific and management literature...also appear to be significant drivers of the management response to the Soberanes Fire” [14]. The Soberanes Fire merely represents the most extreme example to date of an institutionalized lack of fiscal restraint and accountability when it comes to suppression *overspending*.

A record amount of firefighting expenditures occurred on this wildfire because the Forest Service had the capacity to spend that much money. Congress had supplied a record amount of money for suppression with no questions asked, no strings attached, and no sideboards set up for how that money could be spent. Agency officials felt compelled to spend as much of the increased FY2016 appropriation as they could because they feared the consequences on future budgets if they did not demonstrate a need to Congress for an expanded suppression budget. A bureaucratic fear of “use it or lose it” drove decision-making to order excessive amounts of suppression crews, aircraft, dozers, and other resources on the Soberanes Fire because, during that summer of low wildfire activity, it was the only real opportunity to spend large sums of money that year. The Soberanes was the agency’s last, best hope to spend the extra funding. Spending over two hundred million dollars on fighting a wildfire in the wilderness was a supply-driven, not a demand-driven decision, that was incommensurate with the values at risk.

SOBERANES IS A POSTER CHILD FOR THE FIRE INDUSTRIAL COMPLEX

In practice, different Forest Service regions count on their employees making a portion of their annual pay from getting firefighting paychecks. But it’s not only federal agencies that count on suppression dollars for income, the private firefighting industry also depends on wildfire suppression contracts to make their profits. The Soberanes Suppression Siege offers a clear example of what some people within the fire management community have come to call the “Fire Industrial Complex”[4]. This nexus of public agencies and private companies have vested political and economic stakes in perpetuating suppression-dominated fire management. California is one of the centers for the growing privatization of fire management, with almost all of the aircraft and dozers privately owned and operated for lucrative government contracts paid for with taxpayer dollars. For example, in 2016 standard contract costs for the use of a large air-tanker was \$5,720 per hour, and dozers were \$1,700 per hour, and there were fleets of air-tankers and dozers assigned to the fire. This transfer of public funds to private for-profit companies providing firefighting resources enjoys widespread support among elected officials in State and Federal governments, which is another reason that there are rarely any negative political repercussions for the agency’s suppression overspending.

NEED FOR SCIENCE-BASED RISK ASSESSMENTS IN DECISION-MAKING

The Soberanes Fire Suppression Siege clearly represented a breakdown in the proper assessment of the risks and costs of suppression strategy and tactics. Each suppression operation involves a set of trade-offs involving firefighter exposure, economic costs, environmental impacts, and probability of success in meeting those suppression objectives. There is no evidence that after the wildfire had moved away from homes and communities and spread into the wilderness area, the initial decision to go all-out with aggressive suppression was re-evaluated as the costs kept climbing. Bureaucratic inertia set in where aggressive suppression tactics were used, even though the risks to homes and communities had largely passed. More and more costly suppression resources and actions were ordered despite the minimal chance that they would be successful in stopping fire spread, and long after negative impacts to wilderness values outweighed both the costs and “benefits” to the ecosystem from firefighting operations.

Rather than accurately assessing the tradeoffs in risks, costs, impacts, and effectiveness, what are known as “risk-averse” managers embarked on suppression overkill with their firefighting strategy applying “overwhelming force.” Part of this overkill was the construction of secondary and tertiary contingency lines with dozers and aerial retardant that were often constructed without assessing whether or not the primary firelines would succeed in containing fire spread. Most of these contingency firelines never intersected with the fire, and thus were a total waste of money and effort, leaving long-lasting impacts on the land. Fire managers need to apply science-based tools that consider the risks of firefighter exposure, taxpayer costs, resource damage, and probabilities of success across a variety of possible wildfire responses, all the while weighing the tradeoffs of containing fire spread against the ecological benefits of burning in wilderness wildlands.

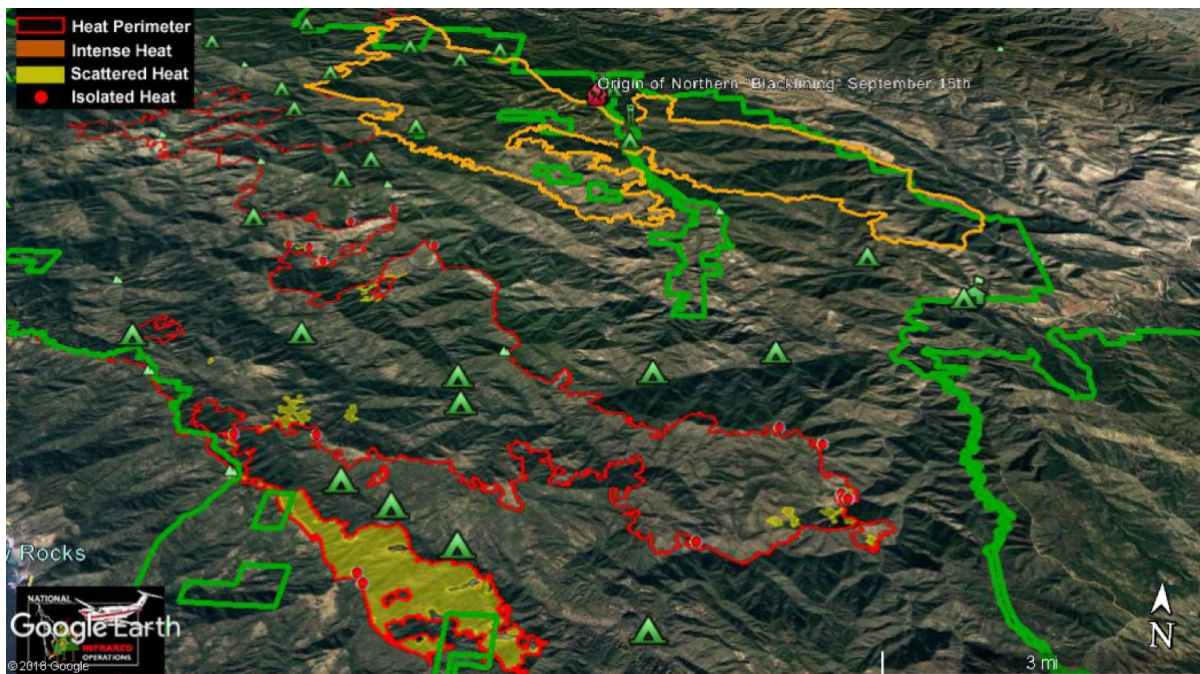


Image 10: A bulldozer cutting an indirect fireline on the Soberanes Fire. Over 20 miles of dozerlines were carved into the Ventana Wilderness Area. *Image courtesy of USFS.*

NEED TO CONCENTRATE SUPPRESSION EFFORTS ON PROTECTING HOMES AND COMMUNITIES, NOT FIGHTING FIRES IN WILDERNESS WILDLANDS

At the outset of the fire, CalFire and the U.S. Forest Service made all-out attempts to protect homes and keep the wildfire from spreading into adjacent communities. Although 57 homes were lost to fire, hundreds of other homes were saved by the firefighting efforts. But then the wildfire moved away from inhabited areas, and spread into the Ventana wilderness. The agency spent millions of dollars more over the next two months, exposing firefighters and especially aviation crews to more risk, but many of these actions did little to stop fire spread and nothing to actually protect homes.

The Soberanes was the final significant suppression incident of 2016, but what if there had been another late-season firestorm in southern California that year? The hundreds of millions of dollars spent on Soberanes would not have been available for one of these wildfires that would have put people and communities at risk. Similarly, what if all those resources committed to the burnout on the north side of the fire after September 15th had been needed elsewhere? Literally, all the increased acres after September 15th were due to the northern “blacklining” operation, when the fire perimeter north of Ventana Cone had not budged in over a month. That whole operation contributed significantly to air quality problems and seemed to serve no other purpose than justifying all the indirect dozer lines that were constructed weeks before. That burnout ultimately accounted for over 20% of the entire burned acreage, tying up large numbers of resources, requiring more aviation support, and costing in excess of \$50,000,000 more for that operation (See Map 6). Incident Management Teams (IMTs) need to be more patient and creative in reporting incident progress. As the days shorten and the season-ending rain event nears, percent containment or progress toward incident completion need not be burned out to a multi-blade width ridgetop indirect dozer line as occurred on the Soberanes Fire.



Map 6: Infrared Detection from September 14th. Over 20% of Soberanes fire area (orange outline) totaling over 27,000 acres was from the firing of indirect lines far to the north starting September 15th. Infrared imagery from September 14th (red perimeter) shows most of the existing fire perimeter to be nearly out. In fact, the burnout to the southwest has the most remaining scattered heat (yellow shaded). This is the signature of a fire going out. *Source: USDA Forest Service National Infrared Operations (NIROPS).*

The exorbitant and escalating suppression expenditures cannot be economically or ecologically sustained. Through some set of mandates or incentives, policymakers and the public must compel the agency to conserve its suppression budget and concentrate funds and firefighting resources on protecting homes and communities first and foremost rather than fighting fire in wilderness areas and other remote wildlands.

EPILOGUE

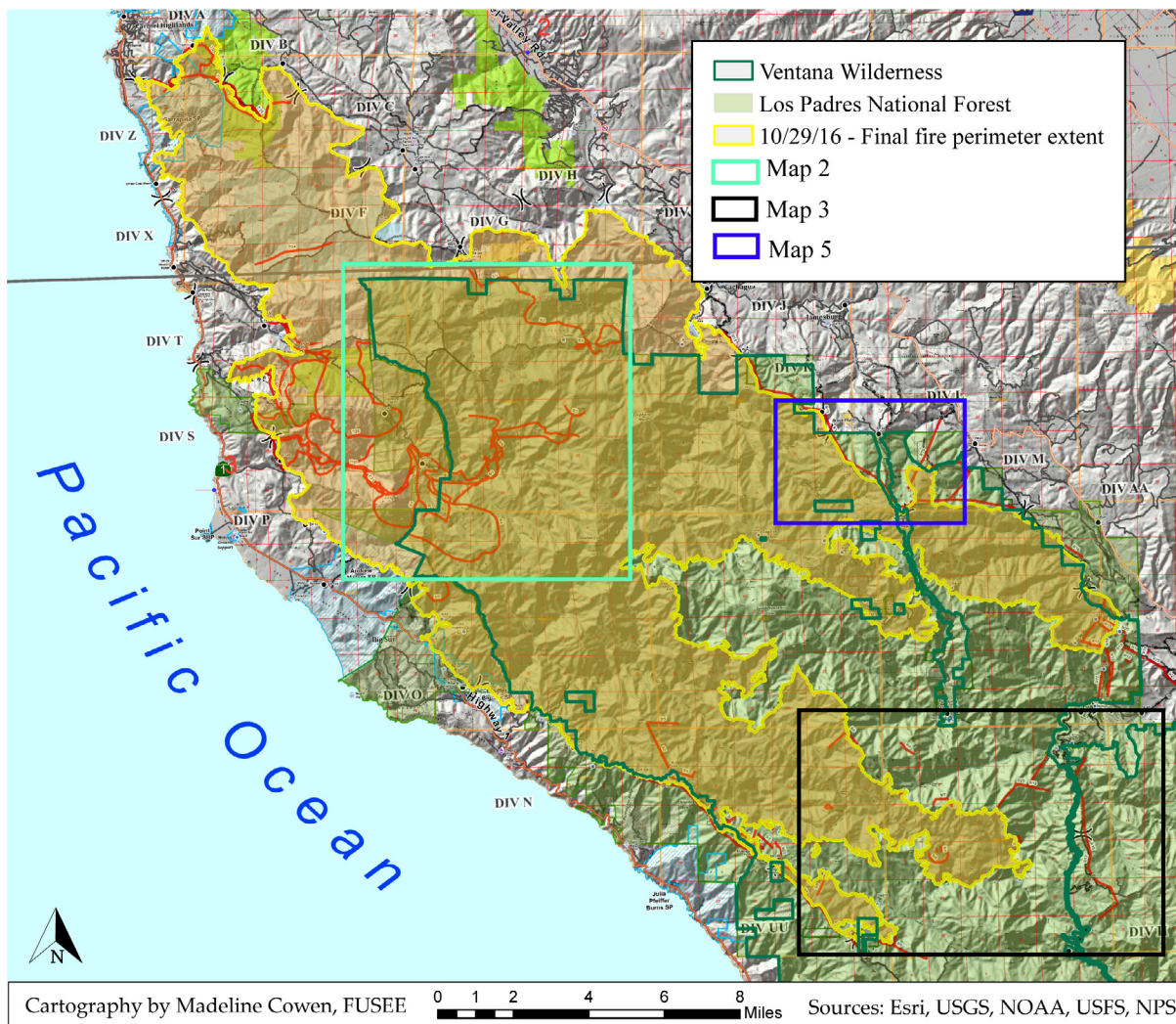
Since the Soberanes Fire, the Forest Service has established “Risk Management Assessment Teams” (RMATs), that use scientific tools for performing tradeoff analysis of the risks and probabilities for success from a range of fire management strategies and tactics. Use of these RMATs, along with other new fire management positions such as Strategic Operational Planners (SOPLs), Long-term Analysts (LTANs), and Resource Advisors (READs), offer valuable tools to fire managers in managing large-scale, long-duration wildfires. These positions are trained at utilizing the best available science to gauge risk and interpret that for both Incident Management Teams (IMTs) and agency decisionmakers. Greater utilization of these existing positions could potentially help to avoid some of the inappropriate, ineffective, and excessive suppression actions that took place on the Soberanes Fire. Even better, the revival of the agency’s Fire Use Management Teams (FUMTs) would help the agency manage wilderness wildfires for resource benefits and ecosystem restoration objectives. These FUMTs could manage wildfires at significantly lower costs than the expensive Type 1 Incident Command Teams, thereby reserving suppression funds and resources for community protection needs. FUMTs are more adept and comfortable with growing and shrinking an incident organization, as conditions change, relying more heavily on risk management analysis. These teams have only a handful of assigned overhead, costing far less per day than a typical Type 1 or Type 2 IMT. These IMTs operate with a conventional “suppressionist” mentality of building a large organization out of fear of resource scarcity, never shrinking to adjust to changing conditions. Changing Forest Plans, supporting line officers choosing alternative strategies of modified suppression and/or fire use for resource benefits, and re-establishing FUMTs should be high priorities in the Forest Service. Creating mandates or incentives for IMTs to incorporate RMATs and Resource Advisors into command-level decision-making should be another priority policy change.

The Soberanes Fire was the most expensive wildfire suppression incident in U.S. history, but it was overshadowed with 2017 being the most expensive wildfire season in U.S. history, and this record may be surpassed yet again when all the bills for firefighting in 2018 are tallied. Horrific urban firestorms ignited by wildfires in California in 2017 and 2018 are making the Soberanes Fire fast recede from memory. But a sober assessment of the Soberanes Fire Suppression Siege offers valuable lessons to be learned about making intelligent risk-based decisions regarding the time, place, conditions, and objectives for sending people and machines to suppress wildfire.

Starting in Fiscal Year 2020, the Forest Service will be allowed to go off-budget and tap into federal disaster recovery funds to pay for firefighting expenditures. This opens the door for suppression spending having even less fiscal restraint and accountability than it already lacks now. Desires by State and Federal politicians to invest hundreds of millions of dollars in a new fleet of large air-tankers, despite Forest Service research documenting their limited usefulness and effectiveness offers another bad sign that literally the sky is no limit on suppression spending [15].

The current dominance of federal fire management by reactive wildfire suppression is simply not socially, economically, or ecologically sustainable. As wildfires become more frequent and widespread in the frontcountry, federal and state agencies must be more selective and strategic in their use of suppression resources in the backcountry. There are better ways to manage fires in backcountry wildlands and wilderness

areas that minimize unnecessary risks to firefighters, costs to taxpayers, and impacts to natural areas caused by aggressive suppression actions. The fiscal crisis of suppression overspending can be resolved through wise investments in proactive planning and preparation for fires by homeowners and rural communities, and by restoration of fire ecology processes in wildlands. It is time for concerned citizens and taxpayers to demand that agencies prioritize community wildfire protection, and stop funding siege-like suppression boondoggles like the Soberanes Fire.



Map 7: Retardant and Dozerlines on Soberanes Fire.

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Image 11: A hiker enjoys the fire-adapted ecosystems of the Ventana Wilderness Area. *Image courtesy of USFS.*