THE MEGA-FIRE PHENOMENON:
TOWARD A MORE EFFECTIVE MANAGEMENT MODEL

A Concept Paper

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This Concept Paper builds on the work of the Mega-fire Scoping Group, convened in 2003. Team Leaders; Jerry Williams (U.S. Forest Service, retired) and Larry Hamilton (Bureau of Land Management). Team Members, Rex Mann (U.S. Forest Service), Marc Rounsaville (U.S. Forest Service), Dr. Herman "Dutch" Leonard (John F. Kennedy School of Government), Orville Daniels (U.S. Forest Service, retired), and Dave Bunnell (U.S. Forest Service, retired). Major Scott Mann and Special Forces Command (U.S. Army, Fort Bragg, N.C) also provided valuable insights into unconventional approaches to emergency management operations.

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Table of Contents

THE MEGA-FIRE PHENOMENON:
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Executive Summary

Federal wildland firefighting is dominated by a doctrine that attempts to match an increasing wildfire threat with greater suppression force. At the highest fire danger levels, where values at risk are greatest, public and political expectations are confounded when a "mega-fire" emerges. These few fires exhibit fire behavior characteristics that exceed all efforts at control, regardless of the type, kind, or number of firefighting assets that are brought to bear. The "mega-fire" phenomenon presents managers with a serious paradox. How do the federal wildland fire protection agencies control an uncontrollable wildfire and limit costs and mitigate dangers when public and political pressures to "do more" will only add to the costs and increase the dangers with little or no positive effect?

This Concept Paper explores the development of a more effective management model in dealing with "mega-fires." The paper focuses on three dimensions of the mega-fire phenomenon: wildfire suppression operations, land condition in fire-prone ecosystems, and growth behaviors at the wildland-urban interface. The intent of the paper aims toward a more effective management model that would better align wildland fire management doctrine, strategies, and tactics – and public policies - to the unique demands, risks, and dangers of mega-fires in order to reduce the enormous costs, losses, and damages associated with these rare, but catastrophic wildfires.

1. 0 Mega-fire Defined:

Four kinds of wildfires are generally acknowledged to define the spectrum of suppression operations:

1. Initial attack fires,
2. Extended attack fires,
3. Large fires, and
4. "Mega-fires."

These wildfires transition along a continuous spectrum that runs from very small, short-duration, and non-complex to extraordinarily large, long-duration, and very complex. In a way, the most difficult wildfire management problems deal with the transition between an incident that might be perceived as a "normal accident" to one that might become a serious accident (during extended attack operations) or an "ultra-catastrophe" (when a mega-fire emerges).

About 95% of all wildfires are suppressed at initial attack with little notice. Another four percent of all wildfires exceed initial attack efforts and become extended attack operations. These fires threaten to transition to a large fire, but with hard work and persistence they are often controlled within one or two burning periods. Statistically, extended attack fires pose the greatest risk to firefighters under the "blow-up" conditions that frequently define them. About 70% of all fireline fatalities occur during extended attack operations.

Only about one-percent of all wildfires require the management and oversight of an organized Incident Management Team. These teams bring the planning, logistical, and operational leadership necessary to deal with a complex incident. Of the few large wildfires, fewer yet become "mega-fires." These "mega-fires" are the subject of this paper.

"Mega-fires" are extraordinary, in terms of their size, complexity, and resistance to control. They often burn into the wildland-urban interface where values to be protected are high. They invariably break out when other wildfires are stretching firefighting capacity. With few exceptions, they usually occur in late seral stand conditions on drier sites, where the buildup of dead woody material and accumulation of live biomass can fuel high-intensity events. It is not unusual that fire severity in these stands is exacerbated following years of drought, insect infestations and disease. These few wildfires, often burning under extreme fire weather conditions and exhibiting extreme fire behavior characteristics, exceed all efforts at conventional control, until relief in weather or a break in fuel occurs.

Mega-fires are a situation as much as they are an incident. Emotions run high when they occur. They are not defined in absolute terms, using physical measures (e.g. acres burned). Instead, these are the "headline" wildfires where operational limitations, public anxieties, media scrutiny, and political pressures collide. Those affected often want to know why the fire became so destructive, how it escaped efforts at control, and who is to blame. While generally very large in size, complexity is their better descriptor. They overwhelm local capabilities and capacity. They are frequently long-lived, requiring a large commitment of suppression resources for an extended period. The intensity of these wildfires tends to place firefighters on the defensive and put managers in a reactive mode. They are expensive, but, while budget examiners insist that line officers, fire managers, and incident commanders reduce costs, there is a difficult contradiction at work: public and political influences almost always pressure fire managers to "do more."

Due to the costs and damages incurred, mega-fires often result in policy or procedural changes, but are usually limited to improving firefighting operations.

Over the past two decades, numerous after-action reviews, conducted internally and externally, have pointed to the rapid rise in suppression costs, property losses, and resource damages resulting from wildfires. Cursory analysis indicates that it is only one percent of all wildfires (those wildfires that escape initial and extended attack efforts) that

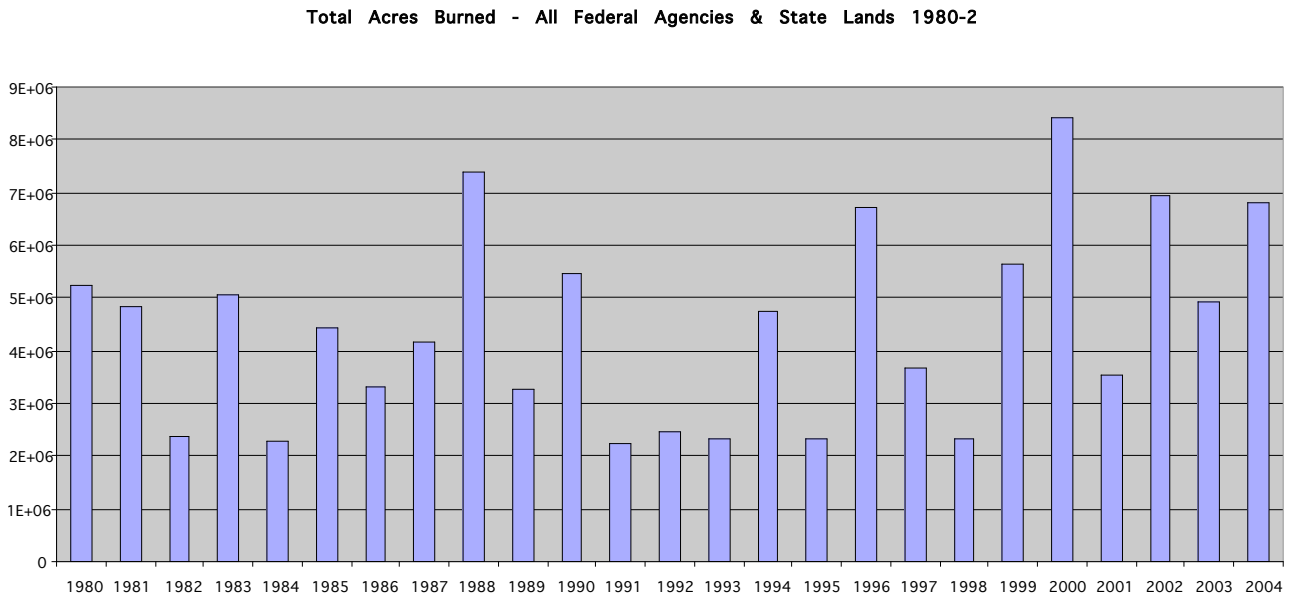
account for some 85% of total suppression related expenditures on federal lands. Federal wildland firefighters are remarkably successful in suppressing nearly all wildfires that threaten people, communities, and natural resources, but the consequences of those few fires that escape control efforts have become staggering. "Mega-fires" are only a fraction of the one-percent of all wildfires that escape control, but their consequences stand out.

When these few, most costly, most damaging wildfires are evaluated in a historic context, it is revealing, to see how many are burning at uncharacteristically high intensities. In fact, most "mega-fires," owing to changes in species composition, stand structure, and ecological function actually may have begun "incubating" toward disaster 50 years or more ago. The relationship is especially apparent in short interval fire-adapted forests, where resource expectations, management practices, and social behaviors have disrupted natural cycles, resulting in high levels of biomass that fuel today's most intense conflagrations.

The "mega-fire" phenomenon prompts managers to re-assesses the historic wildfire suppression doctrine among the Fire Services on federal lands. Traditionally, fire suppression doctrine has always attempted to match a greater wildfire threat with greater suppression force. However, based on observations over the past several years, a new "mega-fire" doctrine might challenge the "more is better" approach, as wildfire size, intensity, and complexity increases. High levels of suppression readiness and wildfire attack capabilities at critical fire danger thresholds remain an essential basis for preventing small wildfires from becoming mega-fires, but perhaps more emphasis needs to be placed on proactively managing the fuels in fire-prone forests where values to be protected are highest. The new doctrine might better use what we know about the predisposing factors that set the stage for a "mega-fire" and work toward mitigating those factors. The new doctrine may also focus on bringing affected publics to more actively confront the wildland-urban interface problem that only they can effectively solve.

2.0 Historical Context

Extraordinarily large wildfires in the United States, while new, are not unknown. Before and shortly after the turn of the century, the record is replete with many large wildfires. However, with the introduction of aggressive fire control efforts, wildfire losses diminished for several decades. It is only recently, in the modern era, that catastrophic wildfires have begun increasing again. The 1994, 1996, 2000 and 2002 fire seasons stand out, in terms of bringing a new awareness to the large fire problem in America, as the graph below illustrates:



Since the late 1990's in the U.S. there have been at least ten large, complex, and highly destructive wildfires that merit the label "mega-fire." They have occurred in, both, the East and the West. The country does not suffer a mega-fire every year. In fact, it has been two years since one occurred. Five record breaking wild fires, in different states, in 2002 alone fit the category. In 2003, Southern California's fire season eclipsed the record set only one year earlier. In 2004, Alaska's fire season burned more acres than ever before.

Although this concept paper is focused on the United States, it also should be noted that large, destructive wildfires seem to be occurring worldwide. The Great Dragon Fire (China, 1987) is probably the first example of a mega-fire in modern times. More recently, severe wildfires in Australia (1997, 2000, and 2003), Canada (2004), Spain (2005), and Portugal (2005) might, also, be categorized as mega-fires.

3.0 Background References

In 1999, the General Accounting Office issued a report to the Subcommittee on Forests and Forest Health, Committee on Resources, House of Representatives stating, *"The most extensive and serious problem related to the health of national forests in the interior West is the over-accumulation of vegetation, which has caused an increasing number of large, intense, uncontrollable, and catastrophically destructive wildfires."* (GAO/RCED-99-65). The report called on the U.S. Forest Service to develop a cohesive strategy to remedy the problem.

Following release of the GAO report, the Forest Service, with multi-disciplinary and interagency partners, led an effort to develop a recommended effective level of fuels treatment in short-interval fire regimes, where communities, species, and watersheds were identified at highest risk. The Cohesive Fuels Strategy (2000) used trade-off methodology to reach a recommended level of hazardous fuels reduction. In addition to establishing a fuels treatment strategy focusing on acres in high-risk areas, rather than least-cost acres, the strategy warned clearly that even the most aggressive fuels management program would not be sufficient in and of itself to preclude larger wildfires".

The report noted that future solutions lay outside fire suppression itself. *"The need to better connect our publics to the dynamics of the land and, simultaneously, connect agency policies and practices with the values of our publics is clear. Although forestry's history is anchored to the physical sciences, its future needs to better integrate the social sciences*." Although the report was not formally published, it was posted on the Subcommittee Chairman's website.

Following the 2000 fire season, the Secretaries of Agriculture and Interior approved the report, "Managing the Impacts of Wildfires on Communities and the Environment: A Report to the President in Response to the Wildfires of 2000." Often cited as the National Fire Plan, this document laid out a series of actions to prevent large, catastrophic wildfires across agency boundaries. In 2002, the President introduced the Healthy Forest Initiative. The next year (2003), Congress passed the Healthy Forest Restoration Act. The legislation provided the basis for increased funding, directed at accelerated fuels treatments, improved firefighting capacity, and community assistance.

As the consequences of large fires--and their associated suppression costs--have increased over the past several years, a number of studies were launched to evaluate why large fire costs were so high and to prescribe cost containment solutions. Many of the past reviews have focused on wildfire suppression costs and, somewhat superficially, emphasized cost reduction measures without full consideration of the land and resource management objectives that may have been quietly driving large fire costs. However, other notable studies conducted for the Chief's Office took a more comprehensive approach, including reports prepared by National Association of State Foresters (NASF), the National Academy of Public Administrators (NAPA), and later a joint Western Governors Association (WGA)-Wildland Fire Leadership Council (WFLC) panel.

In 2002, interagency fire managers tasked researchers to begin plotting yearly large wildfires against newly developed fire regime and condition class maps. The relationship demonstrated a clear connection between the presence of exceptionally large wildfires and their propensity to occur in late seral stand conditions on drier, warmer sites where these kinds of severe wildfires would normally be rare, before the advent of fire suppression.

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After the number of exceptionally large wildfires in 2002 where several states set new size records, the idea of mega-fire phenomena began to crystallize. A Mega-fire Scoping Group, commissioned by the Forest Service's Fire & Aviation Management

Director in 2003 and co-led with the Bureau of Land Management's Fire & Aviation Director began a series of meetings to explore some of the definitional, conceptual, and strategic implications in better managing a new class of larger wildfire. Their work reached out to other experts for fresh perspectives, including Harvard's John F. Kennedy School of Government and the U.S. Army's Special Forces Command at Fort Bragg, NC.

In 2003, as a result of some of the insights gained through the Mega-fire Scoping Group, the Chief of the Forest Service directed that a new post-fire review process on National Forest System lands be conducted. The new process added two new components to what would be defined as having three phases:

- The first evaluated pre-fire changes on the landscape, ecologically and socially. Specifically, this phase was put in place to evaluate how changes in species composition, stand structure, and ecological function may have predisposed the large fire event and how changes in demographics (growth at the wildland urban interface) may have influenced Line Officer and Incident Commander decision space, once the fire began.

- The second phase addressed the traditional review approach that emphasized incident management from time of detection to time of control. This more established approach continued to evaluate unit preparedness, Line Officer decision-making, and Incident Team performance in suppressing the fire.

- The third phase picked up following the fire's control and asked reviewers to evaluate those factors that might (or might not) set the stage for the next generation's catastrophic wildfire. This third phase was designed to help guide restoration efforts so that rehabilitation work did not, inadvertently, "build" the next high consequence wildfire.

To date, two of these reviews have been completed, although they are not yet published. The B&B Complex (Oregon, 2003) and the Aspen Fire (Arizona, 2003) are good examples of after-action assessments that may help local communities, planners, and Line Officers better evaluate resource management options and growth behaviors at the interface, as they may relate to wildfire risk and wildfire consequence.

2003 was also the year of the southern California Complex Fires. Especially difficult were the San Diego and San Bernadino county fires. In a 14-day period, over 900 new starts occurred. Remarkably, firefighters contained all but a handful, but those that escaped caused immeasurable damage and would be considered mega fire events on almost anyone's list. These fires were even more extraordinary because they occurred in a state that fields the largest, best equipped, and most well trained fire force in the United States, if not the world. Preparedness budgets, shared among federal, state, and county partners exceeds $3.1 billion per year in California. Despite this capacity, however, in San Diego County, alone, over 3,600 homes were destroyed and 22 lives were lost. In San Bernardino County, over 40,000 people were evacuated from the Lake Arrowhead

area ahead of a rapidly advancing fire front. While the resulting reviews of the Southern California Fires by and large called for increased suppression resources, the reports did introduce recommendations using a sequence of effectiveness, starting with improved land/resource management planning. The California Governor's Blue Ribbon Commission also included a recommendation to use a Balance of Harms assessment to weight the costs, risks, and benefits in attempting to sustain natural resource objectives and amenity values in late seral fire-prone shrub lands.

Several other context references should be mentioned. The first is a study by Yale University's School of Forestry & Environmental Studies Global Institute of Sustainable Forestry entitle Assessing the Environmental, Social, and Economic Impacts of Wildfire (May, 2003). Notably, the Yale study also found that eight of the ten case study wildfires burned in areas were the historic fire regime had missed several fire return intervals, leading to a significant build-up in fuels. The second reference, commissioned by the Wildland Fire Leadership in Council in 2003 , resulted in a report entitled *Large Fire Suppression Costs: Strategies for Cost Management (*2004). It examined large fire cost management issues on what the panel identified as "extreme fires." McGregor and Haynes of the Pacific Northwest Research Station developed a research draft paper on fire management decision making (*Integrated Research to Improve Fire Management Decision Making*), in which they addressed a fourth category wildfire, they term the "siege fire."

4.0 **Problem Statement:**

The Quadrennial Fire and Fuel Review (QFFR) process is intended to periodically reassess doctrines, strategies, and tactics that define wildland fire operations. As conditions and circumstances change, the QFFR process affords senior managers the means to amend or modify policies, plans, and practices in a coherent and comprehensive manner. In its assessment of future shaping forces and factors, the QFFR focused on the dual combination of two highly significant changes (larger wildland fire size and increased population exposed to wildland fire) which has "altered the nature of wildland fire risk, both now and for the future, as well as greatly increased the levels of complexity and difficulty for wildland fire and fuel management."

Federal wildland fire protection agencies can proudly demonstrate a 99% initial and extended attack success rate. Their professionalism is further demonstrated in their handling of large fires. But successful management of "mega-fires" has become a serious problem and may be getting worse. In the last few years, despite significant investment in wildland fire protection budgets, five states have suffered record-setting wildfires where the costs, losses, and damages involved have become staggering. It is not clear that the situation may abate. In fact, especially in the West, the rate of fuel accumulation far exceeds the rate of fuel treatment. Coupled with the on-going drought and increased growth in the wildland-urban interface, managers must anticipate a series of growing problems and reassess current strategies.

The challenge to protect people, local economies, and natural resource values is also intensifying. Public expectations for protection and political intolerance for operational mistakes, real or perceived, are running headlong into a growing wildfire threat. The rise in wildfire suppression costs, private property loss, and natural resource damage is unacceptable. And, while operational capabilities and capacity might be increased, they already boast a very high success rate. Among a growing number of fire professionals, there is an acknowledged limit to suppression effectiveness, irrespective of available funding. Public and political pressures to "do more," though well intended, have arguably little positive effect and only add to the costs accruing and dangers compounding. To stay the course, in terms of conventional wildland fire suppression doctrine, strategies, and tactics places the wildland fire protection agencies in an untenable position.

Unresolved, the "mega-fire" phenomenon brings with it other less obvious, but nevertheless significant problems. The first is ecological; the second has to do with government's obligation to manage natural resources.

Historically, exceptionally large high-intensity wildfires occurred in stand replacement fire regimes, where ecologically they should be expected. Alarmingly, though, these kinds of wildfires are beginning to occur in forests where fire once played a stand maintenance role. Many recent "mega-fires" are occurring on the drier, warmer sites where fire's role was once far different. Instead of low-intensity surface burning that swept the forest floor and maintained open conditions with fire-tolerant species, today's wildfires in these types more typically burn at very high intensities. Large amounts of accumulated biomass in multi-storied canopies, "jack-strawed" dead woody material, and the encroachment of fire-intolerant species have all combined to fuel severe, high-intensity wildfires. From an ecological perspective, these changes in the forest on these sites have disrupted nutrient cycles, water cycles, carbon cycles, and energy cycles. A trajectory of stand conditions (Cohesive Strategy, 2000) strongly suggests that sustaining fire-adapted forests and grasslands – and the species dependent upon them – will be a growing and certain risk.

Wildland fire protection and suppression dollars being spent today have seen a 90% funding increase since FY2000. In order to fund wildland fire operations, other functional areas (e.g. forest health, recreation, wildlife, watershed, and other natural resource areas) have cut back. Compounding the problem is the fact that, during very difficult fire seasons when suppression budgets are exceeded, needed suppression funds are "borrowed" against other program areas. Indeed, there is a double impact at work, in terms of natural resource management. First, "mega-fires" put more and more species and watersheds at risk. Second, the funds required to contain "mega-fires" rob managers of the means to better manage natural resources.

4.1 Matrix of Mega-fires

Over the past several years, several large wildfires have been scrutinized because of the costs, losses, and damages that have resulted. There are numerous post-fire reviews, reports, and records on hand. Reaching back to the Northern California wildfires in 1987, the Greater Yellowstone Fires in 1988, and the Northeastern Oregon wildfires in the early 1990's, the record is replete with massive, enormously costly wildfires. More recently, other wildfires, including South Canyon (where 14 firefighters lost their lives in 1994), Cerro Grande (where over 300 homes were lost as a result of an escaped prescribed burn in 2002), and Thirty-Mile (where 4 firefighters died in 2001) have rocked the federal wildland agencies, resulting in significant changes to policy, practices, and performance standards in fire management.

For the purposes of this Concept Paper, however, focus is turned to the following few examples. Some are listed as individual fires; others represent several fires that were managed as a single group or "complex." Among the examples cited here and used in this paper, several set new state records for their size. Mega-fires may have started from a variety of causes and some – as in the case of the Alaskan 2004 fires, may have been managed differently in terms of suppression strategy. Certainly, other wildfires, not categorized here, might be described as "mega-fires" or otherwise acknowledged as very difficult and very complex.

This concept paper recognizes that wildfires are perceived differently, depending upon the social, ecological, and economic impacts involved, but, for the purposes of this paper, the following "mega-fires" were significant for the costs involved, the losses incurred, or the damages sustained.

Table __

Summary of Selected Mega-Fires in the U.S. 1999-2004

Fire/Complex (Year)	Acres Burned	Suppression Costs	Duration (Days to Contain)		Fire Danger At Detection	Planning Level- --------- National	Fire Regime/ Condition Class
Florida Complex (1998)	Volusia Complex – 111,130 Flagler/St Jogn 94,656		Jun 22 -Jul 21 & Jun 22- Jul 13		Different Scale (2) 100% New record	PL 2	FR 1 CC 3
Montana/Idaho Complex (2000)	950,000 MT 1.3 mil ID		Late June To Early October		(2) 100% New record	PL 5	FR 1,3 Cc 2, 3
Cerro Grande AZ (2000) (3)	47,650 Acres 250 Structures		May 5 – May 25		86%	PL 2	F r 1 Cc 3
Hayman Colorado (2002)	137,760 (1)	39 $M	Jun 08- Jul 18		(2) 100% New record	PL 3	FR 1 CC 3
Rodeo-Chediski (2002)	468,638 (1)	40.4 $M	Jun 18- Jul 02		(2) 100% New record	PL 4	FR 1 CC 3
Biscuit Oregon (2002)	499,965 (1)	150 $M	July 13- Sep 05		87%	PL 5	FR 1, 3, 5 CC 1-33
McNally California (2002)	150,969 (1)	45.7 $M	Jul 21- Aug 28		95%	PL 5	FR 1 CC 3
Ponil Complex, NM (2002)	92,522 (1)		Jun 02- Jun 19		98%	PL 2	FR 1 CC 3
Southern California (2003)	739,596		Oct 21- Nov 10		95+ % Some Fires 100% (2)	PL 2	FR 1,2 CC 3
Alaska Complex (2004)	Taylor Complex 1.3M – 4 others .5 million	n.a.	Late June- Mid Sept Boundary (Sept 1) Others Mid Nov		No ERC For Alaska	PL 2	(4)

1. Established New State Record for Wildfire Size
2. Occurred at highest recorded fire danger
3. The Cerro Grande wildfire resulted from an escaped prescribed burn
4. Managed as a "Limited Suppression Response " incident

Several preliminary conclusions or interesting common features that might be observed from this table are:

1. Most occurred in Fire Regime 1, Condition Class 3
2. Several occurred at extreme fire danger levels
3. Most occurred when regional planning levels were high, but national planning levels were lower
4. About half of the fires established new state historical records for acres burned.

4.2 Relational Summary of Mega-Fire Management Effects

In order to reduce the suppression costs, property losses, and resource damages associated with mega-fires, this Concept Paper focuses on three dimensions:

- Wildfire suppression capability and capacity,
- Land condition in fire-prone wildlands, and
- Growth behaviors/political influences at the wildland-urban interface.

The mega-fire management model's dimensions, outlined here, argue for an integrated, comprehensive approach, where suppression force, land management practices, and wildland-urban interface growth policies are balanced.

Although increasing wildfire suppression capabilities and capacity will have a positive effect in reducing mega-fire costs, losses, and damages, any such investments should probably be seen as only marginally effective. It will likely require an unrealistic investment in order to improving wildfire suppression success much beyond the 99% percent level, now in place. That is not to say that suppression capabilities or capacity should be overlooked or reduced. There *are* opportunities to improve preparedness and suppression techniques. And, certainly, a strong initial attack organization remains the best way to keep small, relatively inexpensive fires from becoming large, costly fires, especially absent a more focused effort on the predisposing factors underlying mega-fire impacts.

Land and resource management planning and wildland-interface growth behaviors are the two dimensions of the mega-fire management model that need more most attention. Both are well outside the Fire Services to deal with, alone. Both will require agency and political leadership.

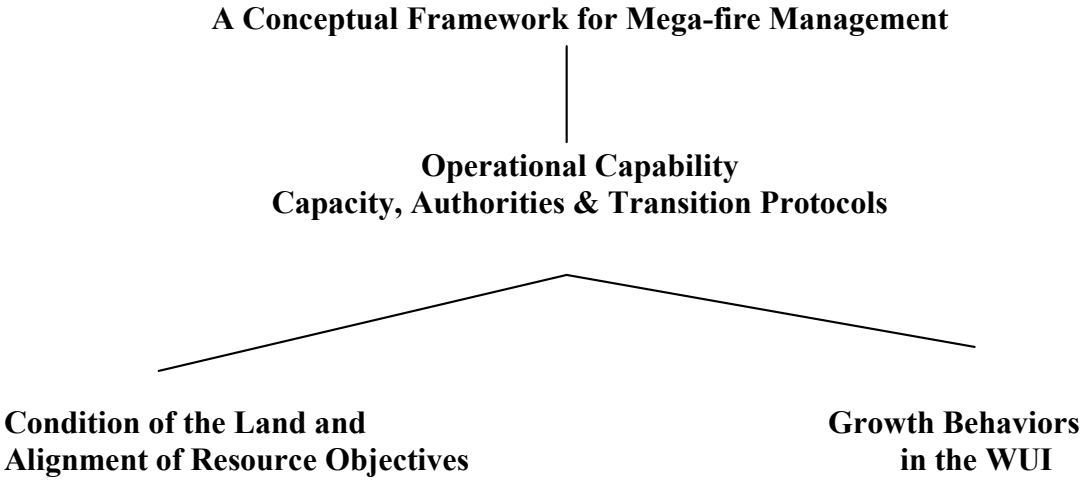
In terms of land/resource management planning, several observations stand out in substantiating this dimension's importance. Over the past several years, most mega-fires have occurred in forest types where, historically, severe fire behavior was not common. In fact, the Yale Study (2003) found that seven out of ten large fires studied burned at

intensities well beyond the historic range of variability. Likewise, five years of mapping large fires in relation to fire regimes and condition class shows a very high percentage of the largest, most damaging wildfires occurring in short interval fire-adapted ecosystems where the most fire return intervals were missed. The buildup in live and dead biomass, resulting in response to prolonged fire exclusion, is fueling many of todays most destructive, most costly wildfires. Looking deeper into this relationship, two reviews on National Forest System lands found that resource objectives (albeit unintentionally) actually set the stage for severe wildfires. The reviews found that fire exclusion was favored in order to meet resource objectives intended to sustain late seral stand conditions. Land management planning guides do no require that resource objectives be compatible with fire regime dynamics; nor do they require that risks in attempting to sustain resource objectives in fire-prone ecosystems be described in land management plans.

The California Governor's Commission (2004) included similar findings. This special report of the 2003 fires in Southern California found that, in areas where homes were more easily saved, wildfire-safe community plans, covenants, and codes made them less vulnerable to loss than those areas where no regulatory controls were in place. For example, in Ventura County, where wildland-urban interface planning has been on-going for the past 12 years, no homes have been lost due to wildfires in that period. By contrast, other counties having little or no controls over wildland-urban interface development, suffered tremendous losses; not only in terms of homes burned, but, more tragically, in terms of lives lost. Although progress is being made in "hardening" homes and communities to the damages of wildfires, there is no uniform fire code for wildland developments.

In order for a mega-fire management model to be effective, it must more fully explore opportunities to better align natural resource objectives in fire-prone ecosystems with fire regime dynamics and more effectively influence growth behaviors at the wildland-urban interface. The group felt strongly that relying on fire suppression, alone, will have little positive effect in reversing the mega-fire trend, unless it is complemented with a more comprehensive approach aimed at the causal and contributory factors underlying the mega-fire phenomenon.

The following illustration describes the three-pronged approach, developed by the Mega-fire Scoping Group, that might guide mega-fire management efforts.



4.0 Proposed Course of Action: (In development)

The Brookings Institute will conduct interviews and host three panels, inviting subject matter experts from government, the private sector, academia, the military, and research in order to develop a coherent and comprehensive mega-fire management model.

5.1 Panel A: Fire Management Operational Capability and Capacity

A panel consisting of key members of the fire management community- ranging form national incident and area commanders, line officers and agency administrators to unit fire management, fire support, and regional, and national fire management directors.

Panel would focus on short term & long-term issues in changing fire operational capabilities and capacities, resources and budget issues, authorities, transition and protocol issues, and suppression strategies, and tactics.

5.2 Panel B: Condition of the Land and Available Fuel

A panel consisting of agency executives and program directors, resource planning staff, research, and regional and unit line officers and fire managers and planners.

Panel would focus on fire risk and land conditions, resource and fire planning objectives and linkages, resource and habitat values, evaluation issues, and longer-term issues in sustaining resource objectives in fire-prone ecosystems?

5.3 Panel C: Growth Behaviors and Political Influence at the Wildland-Urban Interface

A panel consisting of agency executives in state & private forestry and a range of stakeholders and external wildland fire community participants in state, local, tribal, and non-governmental organizations.

Panel would focus on comparative objectives, roles and responsibilities, potential impacts on property and resource values, legal authorities, and communication and participation issues.

6.0 SUMMARY

During the past several years, a few extraordinary wildfires have required an enormous suppression response, but nonetheless, resulted in unprecedented loss and threats to private property, to say nothing of the resource damage that also occured. The fact that these massive, so-called "mega-fires" are occurring is especially vexing because wildfire preparedness funding has never been higher. Federal firefighting capacity has seen a significant increase since FY2000. More firefighters, more modern equipment, a better-trained workforce, and improved predictive services have all been brought to bear, but, still, five western states have suffered the largest wildfires on record since 2000. One of these incidents, the Biscuit Fire in Oregon (2002) cost over $150 million to suppress!

Although federal wildland fire suppression doctrine has always attempted to match increasing wildfire threat with greater suppression force, it has become clear that there are limits to firefighting capabilities, regardless of funding level.

This concept paper argues that it would be a mistake to view these trends in wildfire size, cost, loss, and damage as an anomaly. The contributory factors at work indicate otherwise:

- The rate of wildland fuel accumulation remains far greater than the rate of fuel treatment, especially in the West where most "mega-fires" occur.

- Demographically, more population growth is occurring in the West and in the South, where most at-risk fire regimes are concentrated. More and more development pressure is occurring at the interface between urban areas and the wildlands.

- Drought notwithstanding, most "mega-fires" are occurring on the warmer/drier sites where short-interval fire regimes have "in-filled" with more biomass and more fuel.

- Public expectations for the land tend to favor late seral stand conditions where disturbance activities that might otherwise reduce fuel loadings are generally discouraged or altogether excluded.

This concept paper also maintains that it would be a mistake to view the problem through the lens of wildland fire management policies and practices, in isolation. In review and analysis of several large fires, it is apparent that the condition of the land had much to do with predisposing the mega-fire event. It also seems clear that the proximity of high private property values at risk often took immediate priority for protection, as they must, but perimeter growth and longer term costs, losses, and damages usually resulted.

This concept paper calls for a comprehensive approach that goes well beyond the traditional fire operations "fix." This is not to say that improvements cannot be made in how we anticipate and react to a potential "mega fire" or in how we fight a "mega fire" once it takes hold. But, this paper calls for more emphasis on proactively managing the condition of the land, as a causal factor, and more effectively influencing growth behaviors at the wildland-urban interface, as a contributory factor.

It is in the best interest of the federal wildland agencies to confront the "mega fire" problem and deal with it in a more comprehensive, more proactive way. In addition to the enormous costs, losses, and damages accruing, suppression cost "borrowing" is impacting other natural resource areas and disrupting plans and activities across the full spectrum of each agency's larger stewardship mission. It is not known the full impact of large wildfire costs to shortfalls in recreation, watershed, wildlife, range, and other resource budgets, but it is gauged as significant.

The "mega fire" phenomenon won't be easy to mitigate, much less reverse. To some extent, it will require the fire professionals to look beyond the fire services and more fully engage land management planners and community leaders. It will require that land management agencies tailor resource objectives to the fire regime dynamics that dominate wildfire-prone landscapes or, at least, acknowledge wildfire risks in attempting to sustain natural resources in highly flammable landscapes. And, it will require national, state, and local leadership to more effectively influence growth behaviors at the wildland-urban interface where, every year, more homes and more people will otherwise remain at risk.