

## **SETTING THE STAGE**

### **Climate Change and Emerging Science**

Scientists have generally agreed that the Earth's climate is changing. Although the far-reaching implications of these changes are still unknown, they may have impacted weather patterns, resulting in longer fire seasons and a greater probability of intense fires in western forests. In addition, the cumulative effects of multiple years of drought along with overstocked vegetation conditions have increased fire hazards in many forests of California that prehistorically experienced frequent, low-severity fires. The reduced moisture content of drought-stressed vegetation increases flammability over a longer period of the year, resulting in an active burning period that starts earlier and lasts longer than historical patterns. Drought-stressed vegetation is more susceptible to insects and diseases, resulting in high mortality in trees and shrubs, leaving California wildlands with high levels of tinder-dry, dead woody material ready to ignite and burn with great intensity.

There is ongoing research regarding the impact of uncharacteristically severe fires in California's forests as a result of climate change and past fire suppression efforts. Concurrently, some research indicates that many chaparral shrubland ecosystems may be impacted by a too-frequent fire interval, especially in Southern California. As a result, these areas may be at risk of conversion from native to invasive species, which can pose an increased fire threat. There is also an emerging view among scientists that fire hazard mitigation through vegetation treatments or prescribed fire may play a beneficial role in long-term forest carbon sequestration, emissions reductions and climate change mitigation. Similarly, more is being learned about the positive and negative impacts of wildfire on air and water quality, wildlife habitat, forest and range health and nutrient cycling. This highlights the continued need for integration between resource management and fire suppression activities.

As science moves forward on these issues, the management of California's fire-prone landscapes will progress accordingly. Fire ignores jurisdictional and land ownership boundaries. Therefore, the best and most current science should guide coordinated planning across the administratively complex landscapes, eventually moving toward coexistence with fire through fire-resilient ecosystems and fire-resistant communities.

### **Population**

At the same time as biophysical conditions have increased the threat of wildland fires in many locations, the exposure of people and homes to these threats has increased due to population growth and development in wildland and wildland urban interface (WUI) areas. Where once only natural resources were threatened by wildland fire in these areas, threats now extend to life and property. Additional importance is being placed on the overall fire protection system of state and local agencies to protect lives and

property. These issues complicate fire suppression and, in turn, increase the need for fire prevention and planning efforts.

## Fire Protection

State, local and federal agencies each have unique responsibilities for wildland fire protection. The delivery of wildland fire protection services in California relies on an integrated, multi-agency effort to maximize the use of firefighting resources. This integration is essential to avoid duplication of firefighting resources and to allow the closest available resource to respond to a fire, regardless of jurisdiction. This integration is authorized by statute and guided by interagency agreements under which the state provides services to local and/or federal agencies, and vice versa.

Recognizing that each agency has its primary mission and responsibility, disasters in California, including wildland fires, do not respect jurisdictional boundaries. Along with differing missions, ownership responsibilities and land management objectives, applying suppression policies can be complicated and make cooperative efforts challenging. Fire suppression in an urbanized conifer forest may be approached differently than on a wildland fire in a conifer forest on National Forest managed lands. A one-size-fits-all approach to wildland fire suppression does not fit in California; hence, the need for differing suppression, prevention and mitigation strategies must be recognized and developed to meet the goals and objectives of this 2010 Strategic Fire Plan (Plan).

Despite California's highly effective wildland fire protection system, some fires will continue to escape control efforts.

Under extreme weather conditions, such as high wind or hot dry weather, or when resource availability is limited due to significant fire activity, a small percentage of wildland fires will become large and damaging. As a result, efforts must be taken to create homes and communities that can withstand such fires; develop policies and procedures to promote public and firefighter safety; and educate the public that wildland fire is a natural part of California's landscape.



*Chaparral wildfire burning near residences.*

Individual landowners, homeowners and communities share wildland fire protection responsibilities with federal, state and local fire protection agencies. Homeowners have a primary responsibility to create and maintain defensible space and to utilize ignition resistant building materials and methods. Homeowners and landowners in a community

must work together to plan and implement fire protection measures, such as education programs and fuel treatments.

### **Preventing Wildfire Threats to Ecosystem Health**

While historically wildfire has been a key component in ecosystem dynamics, a number of factors have disrupted the natural fire regime occurring in many of California's ecosystems. There are many cases where the type of fire and the pattern of its occurrence, when compared to historical conditions, are creating adverse impacts on ecosystem composition, structure and function. Factors such as fire suppression; land use, including timber management, grazing and development; exotic invasive species and climate change all place stress on the manner in which fire interacts with ecosystem health, function (such as biodiversity) and sustainability.

While these issues are reasonably well defined from both a broad conceptual framework and a detailed site research perspective, an analytical approach using these concepts to define areas of priority across the state is needed to frame a strategic response to these impending risks.

### **Current and Historical Trends in Wildland Fire**

California is a complex, wildfire-prone and fire-adapted landscape. Natural wildfire supports, and is critical to, the maintenance of ecosystem health, structure and function in the state. As such, the ability to use wildfire, or to mimic its impact by other management techniques, is a critical policy issue.

At the same time, wildfire can be a significant threat to life, public health, infrastructure and other property and natural resources. This threat will continue to be a significant issue due to factors such as continued population growth, changing land use and drought or other shifts in climatic conditions.

Additionally, because SRA consists predominantly of lands under private ownership, there are a variety of expectations relative to mitigating the threat from wildfire. As a result, addressing wildfire as a threat is also a major policy issue.

The complexities associated with ecosystem dynamics in California make statewide or even regional generalizations

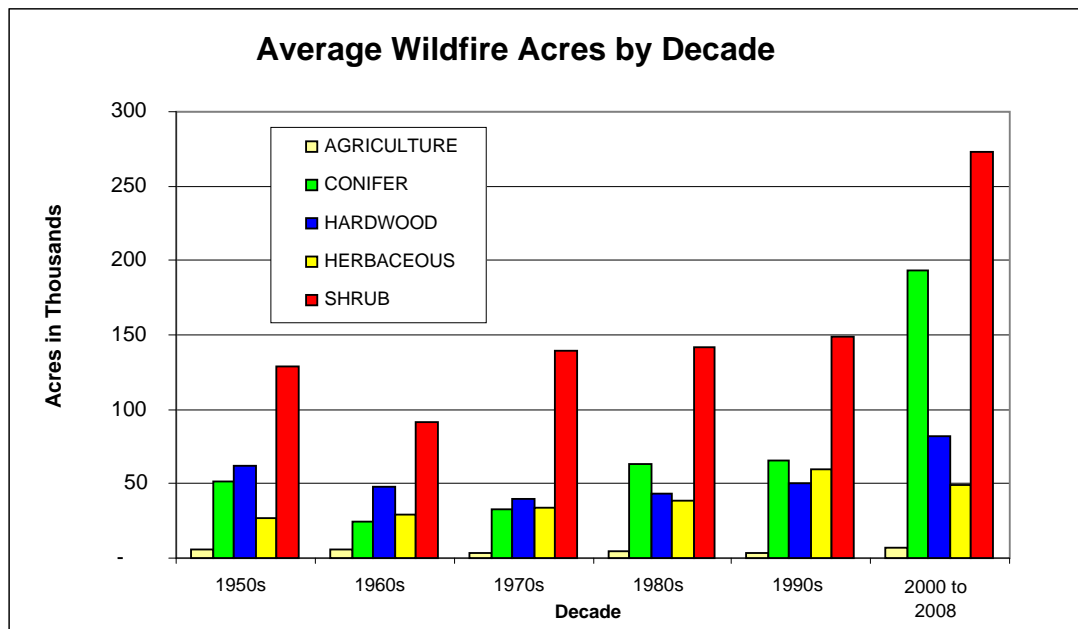


*Extreme fire conditions encroaching on urban area.*

difficult to capture. Specifically, within the scope of classifying fire regimes and effects, local conditions may vary considerably.

Data suggests a trend toward increasing acres burned statewide, with particular increases in conifer vegetation types. This trend is supported in part by the fact that the three largest fire years since 1950 have all occurred within the last 10 years.

Looking at the fire acreage organized by decade and by life form confirms these basic trends. Fire is most common in shrublands, across all decades, with a large spike in the last decade (Figure 1). Conifer, hardwood and herbaceous (grassland) all burned at a relatively similar amount from 1970 through 2000. In the 2000s, conifer fires significantly increased in annual acres burned, averaging 193,000 acres per year, compared to an average of 48,000 acres over the previous four decades.



Annual acres burned by decade and by type, 1950 – 2008.

A detailed discussion of wildfire impacts and concerns is found in the 2010 Forest and Range Assessment, located at <http://frap.cdf.ca.gov/assessment2010/publicreview.html>.