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NWFF-Phase II TOC - i Final Report
1 INTRODUCTION

1.1 PURPOSE OF THE ASSESSMENT
Phase II of the National Wildland Firefighter (NWFF) Workforce Assessment describes the various components of the Forest Service NWFF workforce and identifies the characteristics and attributes of the personnel charging less than 51% of their time to fire, with a focus primarily on the Forest Service.

The Forest Service and United States Department of Interior (DOI) conducted a joint assessment of the Interagency NWFF “51% or more” workforce in Phase I, examining how federal fire agencies recruit, train, develop and retain employees into wildland fire positions and assessing workload, demographics, and historical trends for these employees to address concerns regarding long-term workforce viability. Phase II uses data collected during Phase I to establish findings regarding the Forest Service “less than 51%” workforce. Although this data does not include current fiscal years, the assessment team evaluated trends demonstrated by the five years’ data examined (2005-2009) and concluded that it is reasonable to assume similarity in current trends.

The wildland fire community includes three major components: federal land management agencies, states, and local jurisdictions. The DOI and the United States Department of Agriculture (USDA) comprise the bulk of the federal wildland fire program. The federal NWFF community includes USDA Forest Service (FS) and the DOI Bureau of Land Management (BLM), National Park Service (NPS), US Fish and Wildlife Service (FWS), and Bureau of Indian Affairs (BIA). The five federal agencies that comprise the NWFF workforce manage almost 684 million acres.

1.2 SCOPE
This assessment examines FS employees performing fire duties less than 51% of the time. Due to data limitations, Phase II primarily focuses on the FS with a brief discussion of the DOI resource model. Employees in Phase II include dual-trained FS personnel, also known as the “Militia”, and “Fire Support” personnel.

1.3 ASSESSMENT TEAM MEMBERS
The following team members performed the assessment, supported by consultants from Management Analysis, Inc.

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency &amp; Title</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betsy Walatka</td>
<td>FS, Strategic Planning, Budget and Accountability - Management Analysis Studies Staff Lead, Washington Office</td>
<td>Oversight/Support Contracting Officer’s Representative</td>
</tr>
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<td>Robert Kuhn</td>
<td>FS, Fire &amp; Aviation Management Planning and Budget Specialist, Washington Office</td>
<td>Oversight/Support Contracting Officer’s Project Inspector</td>
</tr>
<tr>
<td>Mike Kerrigan</td>
<td>FS Forest Fire &amp; Aviation Staff Officer, Carson National Forest, (retired 7/12)</td>
<td>Subject Matter Expert</td>
</tr>
</tbody>
</table>

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1 The “less than 51% workforce” includes all employees who charge less than 51% or their regular time hours to a fire job code.
1.4 NWFF OVERVIEW

The NWFF workforce is not a distinctly defined organization. An interagency committee established common training standards and fireline qualifications for personnel participating in wildland firefighting activities, so certain NWFF positions are interchangeable on a wildland fire regardless of employing agency.

Wildland fires occur nationwide throughout year, and “fire seasons”, the most likely months of the year a wildfire will occur, vary geographically. Since wildfires cross all jurisdictions, the NWFF works together leveraging limited resources and assets to respond to incidents effectively and efficiently. The agencies cannot rely exclusively upon firefighters (the “over 51%” NWFF workforce which are the primary firefighters, evaluated in Phase I) to suppress and support all fires, but require help from other qualified and trained employees. These non-fire staff employees, discussed in this assessment, supplement the fire workforce during large fires and severe fire seasons.

NWFF Resources

Many employees support the NWFF mission. The NWFF agencies conduct fire management planning, preparedness, prevention, suppression, restoration, rehabilitation, monitoring, research, and education on a collaborative basis, involving multiple cooperators and partners. The NWFF personnel discussed in this assessment perform duties that are not part of the firefighting program over half their time, working as biologists, hydrologists, public affairs officers, and in a multitude of other non-fire positions. These less than 51% fire personnel assist the fire program only when called upon, however their response to the call is not compulsory.

The FS hires people with the understanding that all employees, not just firefighters, may be trained and qualified to work safely, effectively and efficiently in the wildland fire environment. The militia consists of employees that primarily serve in non-fire positions but are also fully trained and certified to fight fire or support the fire organization in a variety of Incident Command System (ICS) roles, as documented on their red cards. If an employee does not have a red card, they may support the fire program in ways not requiring certification, as needed.

NWFF Phase II Position Categories

- Militia - Positions that respond to wildfires and emergency incidents as a collateral duty.
- Fire Support - Positions that provide support to the fire program (i.e. materials, information, contract services, human resources).

The team analyzed data from the payroll accounting system to assess the separation between militia and fire support employees. The team discussed and established hourly thresholds to separate militia from support employees, as follows:

MILITIA - 68% of the employees included in Phase II, delineated as employees charging up to 349 hours to fire program appropriated funding.

FIRE SUPPORT - 32% of the employees included in Phase II, delineated as those employees charging at least 350 hours but less than 1080 hours to the fire program appropriated funding.
2 ASSUMPTIONS AND CONSTRAINTS

2.1 GENERAL ASSUMPTIONS

- The FS provided accurate and complete data for this assessment.
- The financial data (the number of hours billed to fire program codes) accurately reflects “base 8” time that the individuals performed fire duties. Overtime hours accurately reflect hours the personnel charged to fire suppression job codes over the same period.
- By using five fiscal years of data, the team accounted for fluctuations in workload associated with fire season severity allowing for representative conclusions regarding workforce trends. The same fiscal years used in Phase I are used in Phase II to account for all hours billed to fire during the same time frame.
- Federal hiring processes and policies may change in the future and the national wildland fire agencies will adapt to these changes.

2.2 GENERAL CONSTRAINTS

The following general constraints are applicable to the NWFF workforce.

- Budgets will generally remain constant and appropriate; the agencies anticipate no increases in the near future.
- Personnel databases, financial databases and historical fire databases are not electronically linked, challenging those attempting to obtain workforce-planning data and examine trends. A recommendation in NWFF Phase I exists to correct this problem.

3 FS NWFF WORKFORCE MODEL

3.1 PERSONNEL

The majority of FS employees contribute both time and skills to the wildland fire program. There are four general types of employees that make up the FS NWFF workforce: firefighters, militia, fire support, and Administratively Determined (AD).

The firefighters serve as the primary firefighting workforce preparing for and suppressing wildland fires and restoring the public lands. Phase I analyzed the historical trends, workload, demographics and attributes of these employees. Typically, the firefighters respond to fires first and continue to work the fire during the initial attack phase.

The militia consists of dual-trained employees. Most militia personnel work in programs other than fire the majority of their time, but maintain training and certification to work within the fire organization. The militia supplements the firefighters during fires that are contained but on going, assisting with logistics, information technology, purchasing and other support functions. Though a militia employee may have primary duties unrelated to fire, the employee may maintain ICS certification in one or more positions supporting fire. Participation by FS employees whose year round position is not in the fire management program is not compulsory. Additionally, even if the militia employee is qualified for fire positions on their red card they may turn down a request to respond to a fire incident if their primary position targets are not or may not be met if the employee accepts the assignment. They may also turn down a call to respond to a fire incident for other reasons including planned family events, vacations or health reasons.

Employees who support the fire program but do not maintain red card certification may still assist those physically fighting the fires. Support personnel purchase items and equipment for fires, develop contracts for fire-related services, prepare budgets and other financial data, and perform other fire support activities. Though not on-scene, this support staff plays an important role in the overall success of NWFF.
Since fire and emergency workload is unpredictable, the agency hires ADs when permanent federal employees are unable to support a fire incident adequately. The agency releases ADs from the fire incident when a federal employee is able to relieve them on the fire. ADs are typically retired or non-federal employees who maintain appropriate training and certification to assist with fires, hurricanes, floods, or other all risk-incidents on an event-by-event basis. ADs are federal employees during the time they are working but they receive hourly wages and no overtime or federal employee benefits. The agency may recall ADs repeatedly for multiple incidents requiring their assistance.

These four types of employees make up the FS NWFF workforce. Firefighters serve as the first line of fire defense and then, as necessary, the militia and ADs assist in the suppression effort. Fire support personnel provide continuous support throughout the year, but their workloads increase during peak season or severe fires.

**Training and Qualifications**

Phase II employees working in positions that require a red card must maintain the certifications and qualifications appropriate to their individual positions within the fire response structure, as required to respond to incidents. All agencies providing personnel must follow the National Interagency Incident Management System Wildland Fire Qualifications System Guide, PMS 310-1 [http://www.nwcg.gov/pms/docs/pms310-1.pdf].

In addition, the Forest Service Wildland Fire Qualifications Handbook (FSH) 5109.17 [http://www.fs.fed.us/fire/publications/5109/5109.17.html] outlines guidelines more specific than those defined by the PMS 310-1. The FSH 5109.17 details training courses and qualifications required “…to carry out fire and aviation policies and programs in a safe, cost efficient manner....”

The FS invests significant time, effort and funding towards maintaining a highly trained, effective firefighting workforce. An individual employee’s ICS position determines the required training, retraining (for currency), experience and physical fitness level. Non-fire position descriptions rarely require specific ICS qualifications; the qualifications are part of an individual employees’ specialized training.

Costs for recurrent training and required workshops may be significant, particularly when travel is required. Depending on the course level and requirements, training expenses may result in some employees losing ICS qualification currency. Instructors are costly, especially for the higher-level courses, since all instructors must be qualified to or above the levels they teach. Because of this requirement, instructors are typically higher graded employees. In addition to the course cost itself (instructors and materials), the FS pays for the travel to and from the course, if required. The local units typically provide recurrent training, but there is still a cost associated with preparing and conducting the training.

The physical fitness level varies based on position, but there are four established levels: arduous, moderate, light or none required. The employee must annually undergo a medical evaluation and a “work capacity test” for positions that require certain physical fitness levels. To ensure employees meet the fitness requirements for their own safety, the FS pays for these tests as well as any for required physical exams. The FS authorizes three hours a week funded by the program of work for physical training for militia personnel who maintain certification and must meet a certain fitness level. Allowing employees to properly train for their collateral duties involving fire illustrates the FS’ commitment to maintaining a safe and successful fire program.
3.2 WORKFORCE MODEL
The five national wildland firefighting agencies operate under different missions and objectives, but the underlying goal of each is to manage the land and its resources for posterity. Emergency incidents such as fires, floods, and severe storms pose some of the greatest threats to the country’s resources. The sections below discuss the workforce model for both the FS and DOI and outline the differences between the agencies.

FS and DOI Model
Employees in the militia maintain the skills and red card qualifications for incident response but accomplish a wide variety of daily activities unrelated to fire. These dual-trained employees help the agencies to succeed in meeting their respective mission goals by doing their everyday tasks except when the agency calls on them to respond to incidents. Using employees primarily to perform one function but calling upon them to meet workload demands of a different function is a “surge capacity” workforce model.

Both the FS and DOI use a surge capacity model to respond to wildland fires. Firefighters respond to the incident first, and the militia and fire support personnel assist when incident severity rises or workload increases. When the firefighters are able to cover the workload the militia and fire support employees continue to work in their regular jobs. As severity rises or workload increases, the agencies mobilize the militia for deployment and ready the fire support staff to provide specialized assistance. By using this flexible approach, the FS and DOI maintain continuous employee availability to respond to fires and to meet mission goals. The surge capacity model works well and is cost effective, as further discussed in Section 3.2.3.

Workforce Model Differences
Although the FS and DOI rely upon the same workforce model, there are two operational differences: hiring and charging time.

The DOI hires employees across the nine technical bureaus to do certain jobs, which in most cases are unrelated to wildland fire management. The Forest Service is a single resource management agency in which many positions relate to fire management. The FS may deploy any employee who maintains a red card to an incident. If a DOI employee shows an interest in attaining the skills and red card qualifications to support the fire program, the DOI bureau may assist the employee with achieving this goal. Conversely, the FS hires all types of positions (administrative, budget/finance, program managers, foresters, biologists, and firefighters) to support the agency’s resource management mission, which relies on fire management in prescribed fire to improve watersheds, habitats, control infestations, or direct fire suppression.

Despite the use of the same workforce model, the DOI and FS employees charge their time differently. While firefighters and militia personnel for both agencies charge their time to a fire code, the agencies use different ways of funding fire support employees. DOI fire support employees do not typically charge to a fire code unless the fire-related task requires significant time and effort beyond their primary duties. FS fire support employees, whether on-site at the incident or providing support from their duty stations, charge time to the appropriate fire code rather than to their regular positions’ appropriated funds.
Surge Capacity Model Cost

Fire workload changes from year to year, and the wildland fire agencies use historical knowledge and trends to hire employees for each year’s peak fire season. The unpredictable workload can cause gaps in coverage during peak fire season or during other emergency situations. The FS and DOI use the surge capacity model to ensure response and suppression occur as rapidly as possible to protect the land, property and people. This model incurs considerable costs in training, travel, and medical evaluations.

Fire season peaks differ slightly across Regions, but the majority of the large or severe fires occur in the late spring and summer. During these workload spikes, the agencies rely heavily upon the militia and fire support employees. An alternative to the surge capacity model would entail the agencies hiring a greater number of full-time firefighters, but this would take funding from other resource management positions. Also, these added firefighter positions may not be fully utilized during lower volume fire periods.

Another factor is that multiple fires in different locations require simultaneous support. When this occurs, a single firefighter responds to just one incident. If, however, the agency uses militia personnel in lieu of that firefighter position, multiple militia personnel can respond to the various sites when needed, and return to their regular daily activities once the fires are contained. This scenario highlights the flexibility and availability of employees whom the model allows FS and DOI to use to their advantage.

The surge capacity model effectively balances incidents and daily operations in support of the mission through flexibility of available dual-trained employees.
4 NWFF MILITIA AND FIRE SUPPORT WORKLOAD

The workload for militia and other employees supporting fire generally includes fire support activities related to employees’ regular positions, such as information technology assistance (IT Specialist), purchasing support (Contracting Specialist) or support to hiring ADs and others (Human Resources Specialist). During fire workload peaks, these employees assist with fire tasks instead of their “normal” daily workload. The hours employees bill to fire program job codes and wildfire specifics quantify and define the Phase II workload.

Workload fluctuates with each fire season. Figure 1 shows the number of FS wildland fires from 2005 – 2009. The highest numbers of wildland fires over the five-year study period occurred in 2006 and 2007. Numbers of fires are a measure of fire workload while fire severity and numbers of simultaneous fires also dictate need for militia and other temporary support.

![Figure 1 - Number of FS Wildfires from 2005 – 2009](image)
Workload Analysis by Employee

Wildfires are the most resource intensive part of the Forest Service fire program due to their unpredictability and severity. Figure 2 compares the total number of employees billing less than 51% of their time to the fire program to the number of wildland fires.

At first glance, the number of employees charging fewer than 51% of their total hours to a fire generally correlates to the number for wildfires. As the number of wildfires increase, so does the number of Phase II employees called upon to assist the primary firefighters, with the exception of 2009. However, the number of fires does not always readily correlate to the number of Phase II employees because fires vary in size, intensity, and complexity.

For example, a fire burning in a secluded area of a forest may be large, but due to its remote location, not require as much assistance from the Phase II personnel as a smaller fire burning on the wildland urban interface (WUI), such as is common in Southern California. The proximity of the WUI fire to thousands of structures and millions of people, not to mention firefighting challenges because of power lines, fuel lines, and water source concerns, increases the overall complexity of the fire. The risk to life and property is much higher near the WUI, often requiring greater resources. Since FS currently does not maintain a system to capture the level of fire complexity, the Team cannot validate the assumption that 2009 fire season was above average complexity. Based on historical data, and the fact that year after year FS successfully meets the 97% fireline containment during initial attack, FS appropriately adjusts staffing based on the fire workload.
To review correlation between workload and employees in greater detail, the assessment team analyzed the number of wildfires and the number of employees. Figure 3 separately compares militia and support employees to numbers of wildfires.

![Figure 3 - Number of FS Phase II Employees Compared to Number of Wildfires](image.png)

A correlation exists between the number of wildfires, complexity and number of militia personnel. In 2006 intense wildfires burned, requiring deployment of higher than average numbers of militia personnel, and the data illustrates this fact. The number of employees and wildfires were highest in 2006. In 2007 and 2008, the number of wildfires decreased and so did the number of militia. From 2008 – 2009 the number of wildfires increased slightly as did the number of militia personnel. Based on the five study years, the FS adjusts militia staffing appropriately based on the estimated workload.

Fire support employees steadily increased from 2005 – 2009. This increase may be indicative of non-fire program budget decisions or other external factors. With reduced program funding levels, non-fire programs allow the fire program to use their employees more to offset some personnel costs. Other factors that affect the number of fire support employees are the complexity of the support activities as well as the intensity and duration of the actual fire events and the overall length of the fire season (wet years versus dry years). Figure 3 indicates little correlation between fire support employees and the number of wildfires. However, paragraph 4.1.2 – WFSU explains that the number of hours charged to suppression by fire support employees correlates to wildfire numbers.

**Militia and Fire Support Workload Hours**

The team obtained data that identified the number of “base 8” (regular time) hours each Phase II employee billed to a fire program job code from FY 2005 - 2009. The two fire program job codes analyzed include Wildland Fire Preparedness (WFPR) used as the base funding for the wildland fire suppression organization and Wildland Fire Suppression Unit (WFSU) used when actively suppressing wildland fire (incidents are assigned “P codes” from the WFSU coding for tracking cost). In addition, the team obtained overtime data for the WFSU code and included both “base 8” and overtime data in the workload hour analysis.
The WFPR graph below, Figure 4, represents the number of “base 8” hours charged by militia and fire support personnel to each fire billing code in relation to number of wildfires. Figure 5 and Figure 6 WFSU graphs include both “base 8” hours and overtime hours for militia and fire support personnel to better depict the severity of each fire season.

**WFPR**

![WFPR Graph]

**Figure 4 - Number of FS Phase II “Base 8” WFPR Hours Compared to Number of Wildfires**

The WFPR job code funds support to the basic fire organization, prevention of wildland fires, and prompt and effective initial attack suppression operations. When a wildland fire occurs, each preparedness activity has its own transition point at which the funding changes from WFPR preparedness funding to suppression funding, job code WFSU.

Fire support employees appropriately charge more time to the preparedness job code than do militia personnel. Fire support employees provide wildfire readiness operations before the establishment of a suppression charge code, and during that time charge to WFPR. These employees stock caches, run mobilization centers, work in the dispatch centers, and help stage teams being deployed to the fire. The role of support personnel steadily increased over the five-year study period. Similar to fire suppression, this continual increase may tie to changes in budget, increasing duration of large fires and personnel availability.

The fire program is critical to the nation and therefore funded adequately. By funding non-fire program employees’ assistance to the fire program, Fire assists the supporting programs in maintaining their performance and staffing levels.
Charges to wildfire suppression are a key workload indicator for the militia. Fire Suppression and Fire Operations (WFSU) funds resources to suppress wildland fires on or threatening National Forest System (NFS) lands, and other federal and non-federal lands under fire protection agreements. The majority of the work the militia completes falls into this job code as they provide fireline assistance and suppression. Fire support employees also assist during the suppression phase of the fire, with tasks such as logistics, information technology assistance, and on-going support at mobilization centers. The WFSU job code data includes overtime hours in addition to “base 8,” so to depict the workload accurately the team analyzed all WFSU hours for personnel billing less than 51% of their time to fire.

Figure 5 illustrates the number of WFSU “base 8” and overtime hours charged by militia personnel compared to the number of wildfires.

![Figure 5 - Number of Militia “Base 8” and Overtime WFSU Hours Compared to Number of Wildfires](image)
Figure 6 depicts the number of WFSU “base 8” and overtime hours charged by fire support employees compared to the number of wildfires.

Figure 6 - Number of Fire Support “Base 8” and Overtime WFSU Hours Compared to Number of Wildfires

FS Fire Program Financial Analysis

Table 1 outlines the militia and fire support personnel costs associated with the FS fire program. These costs include “base 8” and overtime hours for personnel billing less than 51% of their time to fire.

Table 1 - Total Annual “Base 8” and WFSU Overtime Costs Billed to the Fire Program by FS Phase II Employees (in millions)

<table>
<thead>
<tr>
<th>Region</th>
<th>FY 2005</th>
<th>FY 2006</th>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Five-Year Average</th>
</tr>
</thead>
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<tr>
<td>Region 1</td>
<td>$13.3</td>
<td>$18.0</td>
<td>$21.7</td>
<td>$17.5</td>
<td>$15.7</td>
<td>$17.2</td>
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<td>Region 2</td>
<td>$7.7</td>
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<td>$10.8</td>
<td>$11.0</td>
<td>$8.9</td>
<td>$9.9</td>
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<td>Region 3</td>
<td>$15.7</td>
<td>$20.4</td>
<td>$16.7</td>
<td>$19.2</td>
<td>$15.1</td>
<td>$17.4</td>
</tr>
<tr>
<td>Region 4</td>
<td>$8.9</td>
<td>$14.3</td>
<td>$18.8</td>
<td>$16.8</td>
<td>$18.6</td>
<td>$15.5</td>
</tr>
<tr>
<td>Region 5</td>
<td>$27.2</td>
<td>$34.9</td>
<td>$37.1</td>
<td>$43.4</td>
<td>$34.9</td>
<td>$35.5</td>
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<tr>
<td>Region 6</td>
<td>$19.7</td>
<td>$27.9</td>
<td>$27.6</td>
<td>$26.3</td>
<td>$31.3</td>
<td>$26.6</td>
</tr>
<tr>
<td>Region 7</td>
<td>$11.4</td>
<td>$18.7</td>
<td>$17.3</td>
<td>$14.9</td>
<td>$19.1</td>
<td>$16.3</td>
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<tr>
<td>Region 8</td>
<td>$6.6</td>
<td>$10.8</td>
<td>$10.8</td>
<td>$8.6</td>
<td>$7.4</td>
<td>$8.8</td>
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<td>Region 9</td>
<td>$0.7</td>
<td>$1.1</td>
<td>$1.3</td>
<td>$0.9</td>
<td>$1.3</td>
<td>$1.1</td>
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<td>WO</td>
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<td>$5.9</td>
<td>$6.4</td>
<td>$6.0</td>
<td>$2.9</td>
<td>$4.9</td>
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<tr>
<td>Unknown Region and Other Offices/Locations</td>
<td>$2.7</td>
<td>$3.8</td>
<td>$2.9</td>
<td>$2.6</td>
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<td>$117.2</td>
<td>$166.9</td>
<td>$171.4</td>
<td>$167.2</td>
<td>$159.2</td>
<td>$156.4</td>
</tr>
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</table>
The cost for fire suppression personnel steadily increased from 2005 through 2007. However, personnel costs decreased in 2008 and 2009, with fewer militia overtime hours charged. Drought, climate change, and unprecedented fuels accumulation in the forests resulted in fire seasons averaging 70 days longer than they did 20 years ago. The longer seasons, coupled with fires burning hotter and faster than ever before, create a greater need for fire assistance from the militia and fire support personnel. Region 5, California, requires the most support year after year due to the high likelihood of wildfire outbreak and the proximity of forests to adjacent populous communities. The average cost for the militia and fire support workforce “base 8” and WFSU overtime hours during 2005 through 2009 was over $156 million.
5 NWFF WORKFORCE
In an effort to better understand who makes up the less than 51% NWFF workforce, the assessment team analyzed personnel data to determine the number of employees, locations, grade levels, ages, lengths of service, race/national origins, and genders. Figure 7 shows the breakdown of all FS employees in relation to NWFF, indicating that only 27 percent of all FS employees do not support fire in some way.

The majority of NWFF employees fall into the militia and fire support category. Direct fire (firefighters) and fire management positions and non-NWFF employees are fairly evenly split. Overall, 73% of the FS workforce provides some level of support to the fire program.

5.1 REGIONAL DISTRIBUTION OF EMPLOYEES
The FS strategically locates employees across the United States to manage NFS lands and to provide optimal fire response based on agency fire preparedness and planning analyses. In comparing data findings between Phase I and Phase II, the assessment team used the same NWFF analysis Regions. Table 2 shows the “NWFF Regions” and the corresponding FS Regions.

<table>
<thead>
<tr>
<th>NWFF Analysis Region</th>
<th>FS Region(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>Region 10</td>
</tr>
<tr>
<td>California</td>
<td>Region 5</td>
</tr>
<tr>
<td>Great Basin</td>
<td>Region 4</td>
</tr>
<tr>
<td>Eastern</td>
<td>Region 9</td>
</tr>
<tr>
<td>Northern Rockies</td>
<td>Region 1</td>
</tr>
<tr>
<td>Northwest</td>
<td>Region 6</td>
</tr>
<tr>
<td>Rocky Mountain</td>
<td>Region 2</td>
</tr>
<tr>
<td>Southern</td>
<td>Region 8</td>
</tr>
<tr>
<td>(Two National Grasslands in Western Texas included with Region 8)</td>
<td></td>
</tr>
<tr>
<td>Southwest</td>
<td>Region 3</td>
</tr>
</tbody>
</table>

To ensure there are enough personnel resources to cover a region, the FS uses workload factors such as number of fires, historical fire trends (severity, proximity to population, complexity), acreage managed, and timber values to determine regional fire staffing – direct fire personnel (covered in Phase I) and personnel discussed in this report. The FS hires personnel in locations requiring specific non-fire expertise and trains interested employees to work collaboratively as fire militia.
Table 3 identifies the number of Fire Support employees within the scope of the Phase II assessment by NWFF region.

<table>
<thead>
<tr>
<th>Region</th>
<th>FY2005</th>
<th>FY2006</th>
<th>FY2007</th>
<th>FY2008</th>
<th>FY2009</th>
<th>Five-Year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>1,372</td>
<td>1,419</td>
<td>1,541</td>
<td>1,717</td>
<td>1,996</td>
<td>1,609</td>
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<tr>
<td>Northwest</td>
<td>927</td>
<td>1,024</td>
<td>1,145</td>
<td>1,199</td>
<td>1,357</td>
<td>1,130</td>
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<tr>
<td>Southwest</td>
<td>696</td>
<td>811</td>
<td>706</td>
<td>859</td>
<td>973</td>
<td>809</td>
</tr>
<tr>
<td>Northern Rockies</td>
<td>512</td>
<td>673</td>
<td>804</td>
<td>893</td>
<td>996</td>
<td>776</td>
</tr>
<tr>
<td>Great Basin</td>
<td>319</td>
<td>422</td>
<td>604</td>
<td>728</td>
<td>891</td>
<td>593</td>
</tr>
<tr>
<td>Rocky Mountain</td>
<td>302</td>
<td>432</td>
<td>435</td>
<td>506</td>
<td>627</td>
<td>460</td>
</tr>
<tr>
<td>Southern</td>
<td>324</td>
<td>416</td>
<td>430</td>
<td>382</td>
<td>440</td>
<td>398</td>
</tr>
<tr>
<td>Eastern</td>
<td>178</td>
<td>237</td>
<td>239</td>
<td>230</td>
<td>226</td>
<td>222</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>102</td>
<td>112</td>
<td>89</td>
<td>101</td>
<td>147</td>
<td>110</td>
</tr>
<tr>
<td>WO</td>
<td>60</td>
<td>86</td>
<td>100</td>
<td>90</td>
<td>56</td>
<td>78</td>
</tr>
<tr>
<td>Alaska</td>
<td>12</td>
<td>19</td>
<td>11</td>
<td>14</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4,804</td>
<td>5,651</td>
<td>6,104</td>
<td>6,719</td>
<td>7,722</td>
<td>6,200</td>
</tr>
</tbody>
</table>

California and the Northwest employ the largest number of the less than 51% fire support personnel. Table 4 identifies the number of wildfires by region from 2007-2009. The assessment team had incomplete data for wildfires by region in 2005 and 2006, so the table does not include those years.

<table>
<thead>
<tr>
<th>Region</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Three-Year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southwest</td>
<td>2682</td>
<td>2091</td>
<td>2716</td>
<td>2496</td>
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<tr>
<td>California</td>
<td>2225</td>
<td>2256</td>
<td>2095</td>
<td>2192</td>
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<tr>
<td>Northwest</td>
<td>1926</td>
<td>2169</td>
<td>2365</td>
<td>2153</td>
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<tr>
<td>Southern</td>
<td>1857</td>
<td>2548</td>
<td>1668</td>
<td>2024</td>
</tr>
<tr>
<td>Rocky Mountain</td>
<td>2317</td>
<td>1561</td>
<td>1722</td>
<td>1867</td>
</tr>
<tr>
<td>Great Basin</td>
<td>2286</td>
<td>1373</td>
<td>1926</td>
<td>1862</td>
</tr>
<tr>
<td>Northern Rockies</td>
<td>1951</td>
<td>1776</td>
<td>1680</td>
<td>1802</td>
</tr>
<tr>
<td>Eastern</td>
<td>1238</td>
<td>815</td>
<td>1173</td>
<td>1075</td>
</tr>
<tr>
<td>Alaska</td>
<td>97</td>
<td>37</td>
<td>140</td>
<td>91</td>
</tr>
</tbody>
</table>

Although the Southwest battles the highest average number of wildfires, the California NWFF Region typically suppresses wildfires near more populous areas. These wildland urban interface (WUI) areas are where houses or communities meet or intermingle with wildland vegetation and present special firefighting challenges such as communication, power lines, fuel lines, water source concerns, and residents’ safety. Population density in WUI areas generally means greater risks to life and property from fires.
Figure 8 below shows the number of fire support employees and the number of total annual “base 8” hours billed to the WFPR job code and “base 8” and overtime hours billed to the WFSU job code.

![Figure 8 - Five-Year Average Number of FS Fire Support Personnel by Region Compared to Five-Year Average Number of WFPR “Base 8” Hours and WFSU “Base 8” and Overtime Hours](image)

This analysis illustrates that the number of hours the less than 51% fire support workforce charged to prevention and fire suppression generally correlates with the number of regional fire support employees. The Regions with the highest number of hours billed also have the largest number of fire support employees. The same is true for the Regions that charge fewer hours to fire; the fewer the charged wildfire support, the smaller the NWFF employee population in the region. The figure generally shows that the FS properly staffs its Regions for fire support based on the fire preparedness and wildfires, taking into consideration historical severity and proximity to urban areas. This cursory analysis does not consider travel between regions in support of fire.
5.2 ATTRIBUTE ANALYSIS

Militia and fire support employees occupy many positions throughout the FS, unlike Phase I employees who served in five primary positions. The following sections analyze the militia and fire support workforce by three attributes: grade, age and length of service.

Grade

Figure 9 shows the average grades for militia and fire support personnel.

![Figure 9 - FS Five-Year Average Grade Distribution of Phase II Employees](image)

Militia and support employees occupy various non-fire positions within the FS, performing fire duties on an as-needed basis. Many militia-trained employees’ regular positions require a college degree, while fire support employees typically work in the lower level or entry-level positions. The figure above illustrates this point. Sixty-six percent (66%) of militia personnel fall within the GS-05 to GS-12 grade range, with just 25% occupying positions in the GS-01 to GS-04 grade range. In addition to the fact that militia support requires a higher skill level, militia personnel are usually older and have more experience to qualify for higher grades. Fire support employees generally serve in entry-level non-fire positions or positions requiring less education and fewer specialized skills. The data demonstrates this, as 78% of fire support employees occupy positions graded as GS-07 and below, with the majority (54%) falling into the GS-01 to GS-04 category.

During incident assignments, militia and fire support personnel may occupy positions and supervise subordinates within the fire organization who they may be a subordinate to in their non-fire agency positions. A lower graded employee directing and assigning work to a higher graded employee is a variance from normal federal government operations that may occur depending on each individuals’ incident qualifications.
Age

The age of Phase II employees is an important factor in workforce makeup. Figure 10 depicts the average ages of militia and support employees.

Figure 10 - FS Five-Year Average Age Distribution of Phase II Employees

Militia personnel normally occupy positions requiring more experience and higher skill levels than do support employees. These two factors generally correlate to an older militia workforce. Approximately one third of the militia workforce falls into the 46-55 year old category with an additional 17% even closer to retirement. The remaining 51% are 45 years old or younger. The FS should closely monitor the militia and strategically continue to hire employees who can perform daily duties and assist on the firelines as needed. As fire support employees generally occupy entry-level positions, most are younger than the militia personnel. Sixty-three percent (63%) of fire support personnel are 35 years old or younger.
Length of Service

Length of service also requires analysis, since it may play a part in the decision to retire. For this assessment, the team calculated the number of years of government service from each employee’s service computation date. Figure 11 below displays the average lengths of service for militia and fire support employees between FY 2005 and FY 2009.

![Figure 11 - FS Five-Year Average Length of Service Distribution of Phase II Employees](image)

Many fire support personnel occupy entry-level positions and Figure 11 illustrates that 68% of them have fewer than five years of service. The majority of militia personnel have more than 15 years of service or fewer than five years of service. This bookend effect occurs because entry-level employees and employees later in their careers tend to be more available to perform fire duties. Those employees in the middle of their careers frequently focus on other key mission-support activities and may be less available to support fire.
5.3 RETIREMENT ANALYSIS
The 6c Retirement Benefit covers the majority of NWFF Phase I employees but does not cover positions held by the fire militia or support personnel. The assessment team reviewed federal retirement factors and determined realistic elements to use in two retirement analyses to identify potential future gaps in the militia and the fire support workforce. The first analysis factors in age and length of government service and the second analysis only uses age based on Social Security Administration (SSA) guidelines.

The sections below detail projected retirement impacts using FY 2009 data. It does not take into consideration personnel hired after FY 2009; the figures only depict a FY 2009 snapshot. The findings identify possible gaps in coverage that may guide management decisions to proactively hire or strategically train employees to support fire.

Retirement Analysis Using Age and Length of Service
Figure 12 below displays the distribution of employees newly eligible for retirement in 2009. The team used age 55 and 30 years of service for the retirement analysis since both Federal Employees Retirement System and Civil Service Retirement System use these factors as the minimum requirements to receive full retirement benefits. The graphic below details a 25-year projection. This data does not account for personnel entering the NWFF workforce after the end of FY 2009.

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* Percentage of workforce assumes no replacements after 2009

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A special retirement benefit for federal law enforcement officers and firefighters in section 8336(c) of Title 5, United States Code (5 USC 8336(c)) is often referred to as “6(c) retirement.” The 6(c) provision of the law allows a covered firefighter to receive special retirement benefits after meeting certain age and service requirements. The laws were intended to “permit the Government to maintain a young and vigorous workforce in rigorous firefighter and law enforcement positions through youthful career entry, continuous service, and early separation.” The FS has further defined that a firefighter eligible for coverage under the 6c special retirement benefit is a position whose primary duties are defined as “on the line” wildland firefighter experience gained through containment, control, or the suppression or use of wildland fire.
Figure 12 - Number of Newly Eligible Phase II Employees Each Year
(Retirement Age of 55 with 30 Years of Service)
The analysis illustrates two important findings: 1) more militia personnel are retirement eligible than fire support personnel and 2) by 2022, 25% of current Phase II employees will be eligible to retire.

The militia workforce serves in more highly skilled, higher graded regular positions, is of a higher average age and averages more years of service, thus is retirement eligible in greater numbers than fire support employees.

The second finding should alert FS management to monitor retirements of militia personnel, to ensure future coverage during fire workload surges. Militia personnel serve as key players on an incident such as engine boss and helitack. Due to the specialized training and ICS qualifications required, the agency cannot readily replace these employees. The FS should actively encourage current employees to attend training and certification courses to qualify and serve as militia personnel.

**Retirement Analysis Using Social Security Guidelines**

The team also analyzed the data based on the SSA guidelines. Although 65 was the Social Security retirement age for many years, SSA now calculates full retirement based on when a person was born. For people born between 1938 and 1959 the exact retirement age varies; for people born after 1959 full SSA retirement benefits begin at age 67.\(^4\) The assessment team analyzed data for the ages of 65, 66 and 67 and found there was little difference in the findings. Figure 13 below depicts the number of militia and fire support employees newly eligible for retirement at the age of 66. Again, this data represents a snapshot in time (the end of FY 2009) and does not account for personnel who entered the NWFF workforce after 2009.

\(^4\) [http://ssa-custhelp.ssa.gov/app/answers/detail/a_id/14/~/full-retirement-age](http://ssa-custhelp.ssa.gov/app/answers/detail/a_id/14/~/full-retirement-age)
The analysis shows a sharp increase in employees newly eligible for retirement in 2022, especially among militia personnel. This follows the same trend as the more typical federal retirement analysis discussed above. These employees, born in 1956, most likely entered the workforce in the mid-1970s as part of a large FS hiring initiative. During the process known as the “1972 fire planning,” the FS specified that “…fire planning must provide a level of protection necessary for successful management of natural resources and to improve and protect air, water, soil, and visual quality. It stated that this must be done at the least cost commensurate with values protected. Preparedness forces were to be developed and financed at a level sufficient to manage fire problems....”5 Key to the Plan was recruiting and hiring people serving as biologists, rangers and positions focused on preserving timber as a resource, all militia-type positions.

This analysis further highlights the impact of historical management decisions. By 2040, 49% of the 2009 militia and fire support employees will be retirement eligible. The FS should continue to monitor retirements, identify the ages and years of service that employees retire, analyze to forecast when retirement spikes might occur and coordinate timely training and strategic hiring.

5.4 NWFF WORKFORCE DIVERSITY
The FS believes “…the more diverse [they] are as an organization, the more effectively [they] can respond to the needs of the diverse publics [they] serve.”6 Consequently, over the last decade the FS has worked to develop outreach programs to recruit highly qualified and diverse candidates to fill positions.

Race/National Origin Analysis
Figure 14 depicts the five-year average race/national origin distribution for the total FS workforce, the NWFF workforce, the fire militia workforce and the fire support workforce.
The team found that the distribution of race and national origin for the less than 51% fire employees is representative of the overall FS race demographics although there is some uncertainty related to the numbers of “unknown” responses with respect to race. When surveyed, 5% responded “unknown” to the question of race/national origin. As shown, 83% of the militia reported White, Not of Hispanic Origin compared to 84% of the total FS population. The remaining part of the militia is 5% Hispanic, 3% American Indian or Alaskan Native, 2% Black, and 1% Asian Pacific Islander. Fire support employees demonstrate trends similar to the militia. White employees make up 71% of the fire support population. Although this appears significantly lower than the total FS workforce, all NWFF employees, and militia, a significant percentage of employees (18%) responded “unknown” to the question of race/national origin.

In addition to the five-year average, the assessment team analyzed the race/national origin data by year for militia and fire support employees. For this analysis the assessment team didn’t use FY 2009 data due to the high number of employees that responded “unknown” as to their race/national origins. Figure 15 details the annual race/national origin information for the militia personnel.
Figure 15 - Annual FS Militia Personnel Race/National Origin Analysis
The militia personnel race/national origin data remained relatively unchanged over the five-year study period. The Hispanic and American Indian or Alaskan Native categories fluctuated slightly from year to year, but the overwhelming majority of employees fall within the White, not of Hispanic Origin category. Fire support employee race/national origin data indicated similar trends as shown in Figure 16.

![Figure 16 - Annual FS Fire Support Employee Race/National Origin Analysis](image)

The majority of support personnel fall into the White, not of Hispanic Origin category. However, the Hispanic population steadily declined over the study period from 8% in FY 2005 to 5% in FY 2008. The American Indian or Alaskan Native population also slightly decreases from 4% in the first three years to 3% in FY 2008.

The lack of diversity in some geographic locations causes the FS difficulty in hiring diverse employees but the FS continues to develop outreach programs to foster greater numbers of diversity candidates. In addition to these programs, the FS offers qualified diversity students work for the agency to gain important experience through the Multicultural Workforce Strategic Initiative. The goal of the Multicultural Workforce Strategic Initiative program is to hire talented students into permanent entry-level positions while at the same time increasing cultural diversity. The FS should continue to foster these programs to help improve the agency’s cultural diversity.

7 http://www.fs.fed.us/fsjobs/forests/forests/multi.html
**Gender Analysis**

Figure 17 compares the five-year average of gender distribution for both militia and fire support employees.

![Figure 17 - FS Five-Year Average Gender Distribution of Phase II Employees](image)

Averaging over five years, females comprise 37% of the militia population and 27% of the fire support population, much higher than the overall FS female distribution of 17%. Although there is always room for improvement, the FS has done extremely well recruiting females into the militia and fire support positions.

### 5.5 PHASE II WORKFORCE SUMMARY

The Forest Service uses a unique, yet successful surge workforce model, to meet the wildland fire portion of its mission to “sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations.”\(^8\) The FS hires personnel with the understanding that all employees, not just firefighters, may be educated and trained to assist the agency in meeting fire management related goals. Using dual-trained employees allows the FS to fulfill daily land management responsibilities while maintaining the flexibility to pull properly qualified employees from their regular daily activities as needed to support fire when primary responders (firefighters) require assistance.

The WFPR (preparedness) and WFSU (suppression) job codes are two fire workload indicators for Phase II employees, with suppression serving as the primary indicator for militia personnel. The “base 8” breakdown in Figure 3 demonstrates that fire support personnel spend more time than militia personnel on wildfire readiness operations for initial attack. Since the WFSU job code funds the majority of the work for Phase II employees, the team included both “base 8” and overtime hours to represent the workload more accurately. Militia personnel charged more overtime hours

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\(^8\) [http://www.fs.fed.us/aboutus/mission.shtml](http://www.fs.fed.us/aboutus/mission.shtml)
than “base 8” hours for each of the five years under study, and the fire support personnel charged more overtime hours than “base 8” hours for the last four years of the study. Generally, the number of wildfires correlates to the number of “base 8” and overtime hours for both militia and support. The two areas where the data does not correlate, 2008 fire support and 2009 militia support, result from a more complex and severe fire seasons and from FS budgetary decisions. The average five-year cost for the militia and fire support workforce “base 8” and WFSU overtime hours was over $156 million. In response to erratic and unpredictable fire seasons, the FS uses their dual-trained employees to adjust staffing commensurate with fire season needs.

The grade structure accurately reflects the work performed. Typically, militia-trained employees’ non-fire position require a college degree, while fire support employees serve in lower level or entry positions that do not require a college degree. The age data supports this as 66% of the militia workforce falls into the GS-05 to GS-12 grade range, where as 78% of fire support occupy positions graded from GS-01 to GS-07. The age and length of service of the workforce correlates with the grades; the more mature and long-time employees usually fall into the militia category and the younger, newer employees work in the fire support positions.

Although not a time-critical issue, the retirement analysis revealed that by 2022 approximately 25% of current Phase II employees become retirement eligible, 75% of whom serve in the militia. Militia personnel require specialized training and it takes time for the agency to train and certify replacements. To avoid a potential critical gap in support, the FS should monitor Phase II employee retirements closely, adjust hiring practices and attempt to increase interest among current non-militia personnel in being part of the militia.

The majority of Phase II employees fall into the White, Not of Hispanic Origin, race / national origin category. The militia and fire support both include a relatively high percentage of females compared to the overall FS staff. The FS continues to strive to improve diversity, and in the past decade implemented new programs in the hopes of becoming a more multicultural agency.

Overall, the analysis did not reveal immediate threats to retaining the employees who bill less than 51% of their time to fire, and showed that the FS correctly uses the surge capacity model. The FS should proactively monitor changes in demographics and attributes, as well as increases in retirement, to ensure the workforce remains stable and continues successfully to meet the ongoing need to supplement the fulltime firefighter workforce.