

U.S. Fish and Wildlife Service Fire Activity Report



2007

U.S. FISH & WILDLIFE SERVICE Regional Map

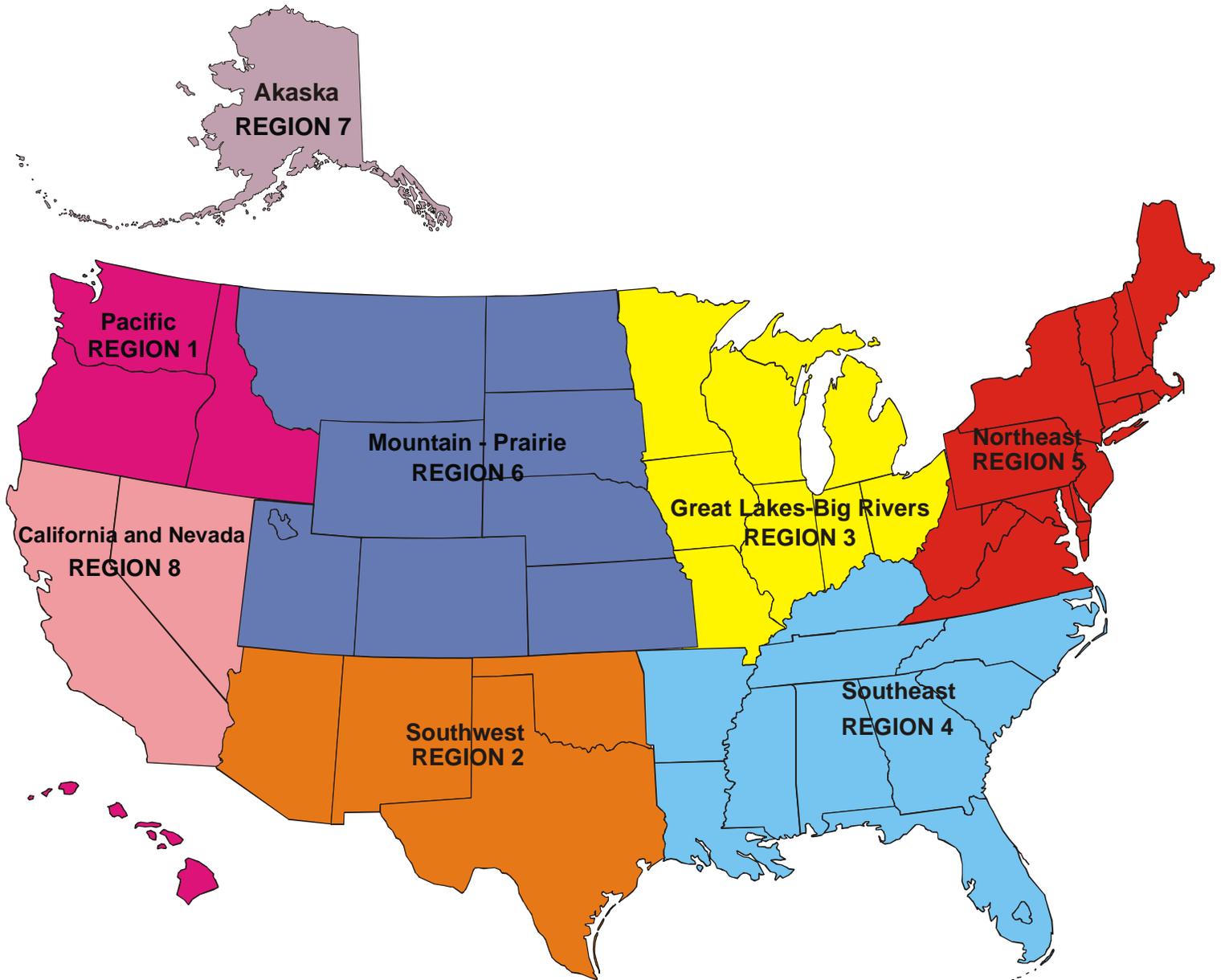


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PACIFIC REGION

Although the Pacific Northwest experienced a relatively normal fire season, the Eastern Great Basin experienced an exceptionally dry and severe one. One type 2 and numerous type 3, 4 and 5 fires occurred on FWS lands within the Region. In addition to suppressing fires on Service-managed lands, the Region actively provided interagency assistance both in and out of Region.

The Region's 2007 fire season started in early June and lasted into September. Idaho was the most severely impacted with numerous large fires, including several Type 1 incidents such as the Cascade Complex, Murphy Complex, and East Zone Complex. Oregon and Washington also experienced numerous large fires, of which several directly impacted FWS managed lands. For the year, Idaho led the Region with over 2.7 million acres burned.

Severity funds were requested on an interagency basis for Refuges in Washington, Oregon, and Idaho. Extended staffing levels were implemented for Sheldon-Hart Mountain, Malheur, Columbia, Little Pend Oreille, Turnbull and the Southeast Idaho Complex Refuges. A single engine air tanker (SEAT) was contracted to service Mid-Columbia, Columbia, and Hanford/Saddle Mountain NWRs and was stationed at Richland, Washington. Sheldon/Hart NWR also requested a SEAT to be stationed at Lakeview Oregon. The two SEATs saw extensive action in Washington and Oregon including multiple large incidents on FWS and interagency lands.

The four major fires affecting FWS lands all occurred in and around the Mid Columbia NWRC. The largest of these, the Wautoma Fire was a Type 2 incident totaling more than 72,000 acres. Three other large fires, "Upper Goose," "Overlook," and "MP 17" burned approximately 27,000 acres on Refuge lands. The Richland-based SEAT was used on all four of these incidents and was instrumental in their suppression. The SEAT also responded to fires on adjacent private lands.

All four fires occurred on sage-step communities, and directly impacted pristine habitat. A private consulting firm was used to prepare the BAER plan for rehabilitation and stabilization of impacted Refuge lands. This was the first time a private firm was used to develop such extensive plans. The \$220,000 expenditure for contracting resulted in \$16.9 million worth of funded rehabilitation/stabilization projects.

Dungeness NWR on the Pacific Coast had a 50-acre fire in grass that burned right up to Puget Sound. This type 4 incident is the largest fire the Refuge experienced in decades and is illustrative of the hot and dry conditions of the 2007 fire season. The interagency response to this fire included Washington State DNR and NPS personnel.

The Region assisted Regions 4 and 7 with Refuge fire staffing. Specifically, the region supported Florida Panther NWR with an FMO detail and Kenai NWR with the prescribed fire module and others serving as a fire use module on a fire use incident. A long-term detail

was arranged with Florida Panther for an engine boss to be stationed in the Northwest for the entire fire season. The detail was highly beneficial to both the employee and the Region. It helped assist an employee with a family hardship situation while greatly enhancing the fire suppression and prescribed fire programs for the Region's North Coast Fire Zone.

The PNW Multi-agency Coordinating (MAC) Group was activated for a month this summer conducting daily conference calls as well as numerous face-to-face meetings. The Great Basin MAC was activated for most of the fire season. Regional Office staff participated in daily Great Basin conference calls. The Region continues to represent Region 6 on the Great Basin Coordinating Group. In return, Region 6 represents Region 1 in dealing with smoke management issues in Northern Idaho.

Fuels treatment accomplishments for Oregon, Washington, Idaho and Hawaii totaled 19,806 acres for Wildland Urban Interface (WUI) and 28,849 acres for Hazard Fuels Reduction (HFR).

Implementation of the Regional Fuels Program was successful due in large part to the Region's FMOs lending their engines and crews to each other's Refuge as the need arose.

The Region's Prescribed Fire Module, based out of Turnbull NWR, was used extensively throughout the Region and once more proved to be a valuable asset completing mechanical and prescribed fire projects on various refuges. The

crew, along with Regional Office personnel and interagency cooperators, completed numerous prescribed fire projects across the Region.

The Region was successful in meeting its contracting targets in 2007; well over 50 percent of WUI and HFR projects and acquisitions were accomplished through contracting.

The Regional Fire Effects Monitoring Program accomplished plot installation and data collection on six Refuges within the Region. *Frontier Resource Consulting Inc.*, a biological consulting firm was contracted to assist the Refuges in plot installation, data collection, and analysis. The Turnbull NWR and Regional Office staff assisted with program planning, prescribed burn monitoring, and post-burn data collection.

The Regional Fire Planner worked with interagency partners to meet FPA deadlines. The planner initiated Fire Management Plan updates throughout the Region using the new Interagency FMP template.

Region 1 personnel filled critical positions on both National and Area IMT. The teams were dispatched to numerous fires throughout the west. In addition to IMT members, the Region was able to fill numerous orders for single resources, engines and hand crewmembers. Regional support was also crucial for local initial attack and Type 3 organizations.

Regional Office personnel assisted the San Bernadino National Forest with a review of the management of a type three fire that developed into a type one incident that resulted in the destruction of hundreds of homes.

The Pacific Region Refuges continued to be very active participants in Interagency Dispatch Offices throughout the Region. The Region assisted in staffing or funding five dispatch locations in Washington, Idaho, and Oregon. The major accomplishment for 2007 was becoming partners with the Burn Interagency Fire Zone. This new partnership allowed for extended dispatch services, WIMS, ROSS, and shared duty officer staffing for Malheur NWR.

The RO continued staffing the chief meteorologist position at the Pacific Northwest Coordination Center in Portland, Oregon. This position has been a benefit to all of the wildland fire organizations in Washington and Oregon.

The Region equipped and hosted the nationally funded Blue Goose Crew that was re-established with the primary objective being to provide a training venue for the professional development of FWS fire personnel in crew operations, fire suppression, and introductory leadership. The crew was assigned to 10 incidents in four different states. Eight of the ten incidents were extended attack and two were initial attack. The crew hosted 24 Agency detailers and facilitated training opportunities to work on position task books for the following positions: FFT1, CRWB, and FFT2. In addition, the Columbia Basin Job Corps students received training and experience that could potentially aid in future employment. Interagency partners gave the crew great reviews.

The Region filled the PFS position at Sheldon Hart NWRC and a Suppression Lead at SE Idaho NWRC.

Region 1 personnel continued to serve on numerous national working groups as well as local working groups throughout the Pacific Northwest, Great Basin and Hawaiian Islands. Regional personnel served as Chair for the Operations Working Team and National Fire Plan Grant Working Team.

Region 1 continued to represent the Service on the Technical Fire Management (TFM) steering committee. In 2007, Region 1 had one employee completing the TFM coursework process with the final project presentation remaining and one employee currently enrolled in the program.

Regional personnel are active cadre members for various training courses including S-620/S-520, RX-310, S-490, S-430, and Lessons Learned for the Redmond IHC, Fire Simulation Development and Delivery, and leadership training. A Regional Office staff member participated in the Region 5 Wildland Fire Program Management Review

A staff ride was conducted as a portion of the annual spring Region 1 fire safety and operations workshop. This year's meeting was held at Winthrop, Washington. The Staff Ride was conducted at the site of the 2001 Thirty Mile Fire on the Okanogan Wenatchee National Forest. This fire took the lives of four crewmembers from the local Forest. Five survivors of the tragedy took part in the Staff Ride and provided first hand knowledge and insights of their experience. The staff ride consisted of a pre-work study of the event, a field review and discussion at key locations at the site and a follow-up discussion. Participants used the learning experience to continue strengthening safe, effective

and efficient fire strategies, operations, and communications in a quickly changing fire environment. As an extension to the Staff Ride, Dr. Larry Iverson of the Institute for Advanced Development conducted a workshop on *Strategies for Becoming an Exceptional Leader*.

In addition to the Staff Ride a site visit was taken to the Fish Lake Fire. This fire, which occurred in 1979, resulted in one fatality.

The Region conducted Fire Readiness Reviews at Sheldon/Hart Refuge Complex and Malheur NWR. Both refuges continue to show excellent fire management and refuge leadership and interagency coordination.

A Regional Wildland Fire Management Program Review was held the third week of June in the Portland Regional Office. The Fire Branch from the National

Office in Boise conducted the review. The Region used the review as an opportunity to highlight our accomplishments and to learn what we can do better.

The Region continued with our fire season “Monday Afternoon Fire Briefings” with the Regional Director, Deputy Director, and Chiefs of Refuges, CGS, DCR and Human Resources. These meetings were used to keep the Regional Directorate updated on regional and national fire issues both within and out of the Service. In conclusion, 2007 was a year of challenges and accomplishments for the Region 1 Fire Program. The Region was challenged by reduced budgets and staffing levels but responded with continued high target accomplishments both in acres of hazardous fuels treated and wildland fires suppressed.

SOUTHWEST REGION

The fire season for the Southwest Region in 2007 was below average in regards to both amount of fires and overall acreage. A very active and moist weather pattern from mid-spring into early summer affected primarily the eastern half of the region (from the continental divide eastward) with both above average precipitation and cooler temperatures. Moreover, anomalous precipitation near and just west of the continental divide in early-mid June, set back fire season even further as fuels received welcome moisture atypically during a normal dry period. While fire potential and fire danger values were hitting near-record highs across several areas west of the divide by late June, the combination of less-lightning and a perceived heightened sense of awareness to the dire conditions led to less fire starts.

The 2007 wildfire season gave a long needed break to R-2 Refuges following what seemed to be endless wildfire activity in 2005 and 2006. This season instead focused on assisting our neighbors in the Southeast, Great Basin, and Pacific states. The year ended with a spike of fire activity on Texas and Oklahoma Refuges. The season was relatively slow in contrast to average fire seasons in the Southwest. Wildfires began in late February and remained steady until the last week of October when wildfire activity escalated. Approximately 40 percent of the annual workload was represented in the last two months of the year.

Personnel

We recruited and filled two vacant positions this year. Donald Kearney was hired as the Regional Prescribed Fire Specialist and Jennifer Adams was hired as the developmental Fire Management

Specialist. The Regional Fire Management Coordinator position has been vacant for 8 months and Mark Kaib has been acting during this period.

Operations

Relatively favorable weather and fuel conditions across the Region provided limited need for additional preparedness resources in 2007. In July, however the Region was authorized Severity resources to enhance suppression staffing in Arizona during a period of high fire risk. Additional engines and crews were located on the Colorado River Refuges for initial attack. Fortunately, there were no significant fires and crews were released as conditions moderated after 13 days. Total severity expenditures for the year were less than \$30,000.

Refuge personnel responded to 90 wildfires on or threatening Service lands totaling over 13,300 acres. Additionally we assisted our partner jurisdictions with controlling another 30 wildfires. The most notable wild fires on Refuges were the 5,976 acre Bill White Fire on McFaddin NWR, 1,151 acre Buena Fire on Buenos Aires NWR, and the 2,500 acre Las Brisas Fire on the Lower Rio Grande NWR.

Refuges continue to make progress updating their facilities and infrastructure. Upgrades to facilities include the completion of fire offices and equipment bay construction at Anahuac NWR, re-roofing equipment bays and offices at Wichita Mountains and Buenos Aires NWRs, converting existing covered parking area to enclosed bay area at Bosque del Apache NWR, and constructing a new facility at Texas Midcoast Refuge Complex. Each of these projects has

multiple funding sources within Refuges that mutually benefit the entire program.

RX Fire/WUI

Wet environmental conditions in 2007 created barriers to the implementation of prescribed burns throughout the region. Oklahoma and Texas both experienced one of the wettest years ever recorded. In fact, Refuge fire personnel responded to Refuge and Fish Hatchery flood mitigation requests on several occasions in both of these states. In New Mexico, a wet spring and cooler summer severely limited the hot-dry conditions needed to meet the management objectives for landscape burns.

Despite these difficulties, Region 2 was able to exceed all performance targets for the year in different seasons, or on Refuges where conditions were more amenable for achieving resource objectives. A total of 64,037 acres were treated using various fire management activities. In the Wildland Urban Interface (WUI), 89 projects encompassing 26,889 acres were completed, and 67 hazardous fuel reduction and wildlife habitat improvement projects totaling 37,148 acres were also completed. In addition, more than 50 percent of project funds were obliged to contracts.

Community Wide Protection Plans (CWPP) or the equivalent have been developed and implemented for most of the communities at risk throughout the region. Further development is ongoing in Texas and Arizona using a collaborative approach with local stakeholders and other Federal and State agencies. These plans will help further reduce fuels and wildfire threats to community values at risk.

Region 2 is an active partner with the Fire Use Training Academy (FUTA) in Albuquerque, New Mexico. The Region's

Fire personnel assisted the academy by providing instructors to prescribed fire training courses and curriculum development. The region provided 8 % of all the prescribed fire project work for participants to gain experience and to work on prescribed fire qualifications taskbooks.

Burned Area Emergency Stabilization and Rehabilitation

Two Southwest Region Burned Area Emergency Stabilization (ES) projects costing \$231,786 were approved. These ES projects are at the Lower Rio Grande Valley and Bosque Del Apache Refuges. Burned Area Rehabilitation (BAR) projects totaling \$1,968,824 were also approved. These eight BAR projects are located at the Lower Rio Grande Valley (3), Bosque Del Apache (1), Kofa (2), Cibola (1), and Havasu (1) NWRs. These ES and BAR projects are helping to reduce future wildfire threats, control non-native invasive species, and restore native wildlife habitat.

Research and Monitoring

Ongoing fire research projects include the Joint Fire Science Program funded collaboration between Oklahoma State University and Iowa State University with Dr. Sam Fuhlendorf and Dr. Dave Engle. This research evaluates prairie ecological interactions between large herbivore grazing, fire effects, and biological diversity at landscape scales. The Region's Science Support Program funded an assessment of fire risk to Endangered Golden Cheeked Warbler habitat in the Texas Hill Country and at Balcones NWR with Dr. Wylie Barrow and Dr. Joseph White at Baylor University Texas. The Region's Science Support Program also funded Dr. Karen McKee at the USGS Wetlands Research Station. This research is part of a larger global climate change network and designed

to evaluate changes to coastal marshland ecosystems including fire effects. The region has developed and approved four of the eight fire management districts fire monitoring plans. The remaining four are in progress.

Fire Planning

At the end of 2006, Phase I of the Fire Program Analysis (FPA) was evaluated and determined to be deficient in modeling fire resource logistics and budget analysis. Thus Phase I was discarded and in 2007 the National FPA development team began building a new FPA model to be run at the end of 2008. This sequence of events left only those regions with prototype Fire Planning Units (FPU) with access to the development of the new model. The Southwest Region was not chosen to sponsor a prototype FPU, and very little occurred in terms of FPA for the Southwest Region in 2007.

This year the Southwest Region filled a developmental Fire Management Specialist position with Jennifer Adams. The Southern Region under the Student Career Employment Program (SCEP) employed Jennifer. Jennifer has been instrumental in the implementation of FPA for the Service, and has since become a member of the FPA prototyping committee. She has proven to be a skilled asset to the Region as she coordinates and assists with the Fire Planning and FPA efforts.

Work is almost complete on the Caddo Lake, Cabeza Prieta, and Kofa NWRs Fire Management Plans (FMP). Cabeza Prieta and Kofa NWRs are Sonoran Desert

Refuges that historically very rarely burned if ever. In recent years, unusually wet seasons combined with non-native species invasions have resulted in new fuel loads and anomalous fire activity, hence the need now for FMPs. In coordination with the Texas Chenier Plains District FMO and AFMO, the Caddo Lake FMP should be ready for final review by February of 2008. A relatively new addition to the National Wildlife Refuge System, Caddo Lake NWR is unique among Southwest Region's refuges with fuel types dominated by soft and hard wood forests. Fire will play an important ecological role in restoring forest ecosystems at this Refuge, and we are eager to complete this FMP.

Development and approval of the new Interagency Fire Management Plan Template was completed in 2007. The majority of the Southwest Regions FMPs have reached their 5-year shelf life mandated by the National Fire Plan, and so most are due for revision. The Fire Planner and Fire Management Specialist focused on a regional prioritization plan and strategy to have these revisions completed by 2010 using the new Interagency FMP template.

Finally, the Fire Planner and Fire Management Specialist began focusing on helping coordinate monitoring efforts in the Southwest Region Fire program with the help of Remote Sensing and

GIS technologies. The first effort will focus on conducting a long-term vegetation change analysis on Buenos Aires NWR to determine if prescribed fire and resource management objectives are being met.

GREAT LAKES-BIG RIVERS REGION

The response to fire and weather related events started early in 2007 for Region 3. A continuing drought spread essentially throughout the region from winter until late summer. This resulted in less frequent opportunities for prescribed burning, however, due diligence by all fire staff allowed for all prescribed fire and fuels treatment projects to be met. It was, in essence, a challenging year in Region 3, the Great Lakes and Big Rivers Region. As has become the normal sequence the past several years, our fire management program experienced much activity in emergency response, weather impacts, personnel changes and fire program projects, culminating in a year of safe and successful fire program growth and accomplishment.

Weather was the major factor affecting all fire operations during 2007. The effects of changing climate are most evident here in the heartland of the country as extreme fluctuations become more commonplace. Extreme drought periods as evidenced during the first seven to eight months of the year were then followed by extreme wet periods. For example, in MN, the drought period that began in May 2006 abruptly ended essentially August 31, 2007 as we entered into an extreme wet period. The Twin Cities recorded the wettest 30 day period in recorded history as +8.0" of rain fell by October 1. An interesting data analysis from the Midwest Climate Center shows that the following weather patterns have emerged from weather records analyzed between 1895 until 2006. Temperatures have risen from +.3⁰ (IN) to a high of + 1.6⁰ (MN) in each state with the exception of lower peninsula MI which actually dropped -0.1⁰ during this 101 year period and that precipitation has risen in each of our eight states from a low of +1.5"

(MO) to a high of +4.5" (IN). Thus, we are gradually warming and getting wetter based upon this impressive set of weather records. Additional phenological records add further evidence to this changing climate.

Drought conditions existed in many areas of the region. Especially impacted was Northern Minnesota. Extending from the Northwestern corner of the state across the entire northern half of MN, the drought created extreme hydrologic deficits, increased wildfire activity and reduced prescribed burn opportunities. These drought conditions crossed into the upper peninsula of Michigan. This created extreme fire hazard conditions across the Eastern Upper Peninsula of Michigan, directly affecting Seney NWR. The Seney Refuge FMO, fire staff, and additional FWS fire crews from around our region supported the large Sleeper Lake wildfire, which burned primarily on State land. The Sleeper Lake Fire, the third largest in Michigan's history (MI DNR), began with a lightning strike on Aug. 2, 2007, and grew to 18,185 acres before it was controlled. It was fortunate that no refuge land was in the burned area.

The remaining states within the region also experienced many of the same weather related phenomena that have become characteristic to the most recent years. The continued drought conditions affected the NW Missouri/Southern Iowa/Western Illinois region extending into Indiana. This created a challenging scenario from which to conduct fire operations. Much like further North in the region, most all Southern areas of our region received abundant precipitation during the last months of 2007, which alleviated the drought situation. We thus ended the year in a much better position than how we entered it! Ground water levels

are nearing more normal in many previously drought stricken areas.

For 2007, there were 32 wildfires, which burned approximately 1128 acres within Region 3. Staff from Leopold WMD, Necedah NWR and Big Oaks NWR supported Seney NWR during its severe drought period and as previously, the Sleeper Lake Fire. Additional large fire incidents staffed by regional FWS employees included the Big Turnaround Complex on the Okefenokee NWR, Big Cypress Fire on Everglades NP and National Panther Refuge, and the Ham Lake Fire (BWCAW, Superior National Forest). Personnel from Big Stone NWR, Agassiz NWR engine module, Michigan and the Regional Office, just to name a few, assisted on this fire. It was common throughout mid-July to mid September to have 35-40 + R3 fire personnel out on assignments during any given week. Region 3 actively supported the Blue Goose Type 1 FWS fire crew stationed in Moses Lake, WA by detailing personnel to this crew for an excellent fire training experience.

The 2007 prescribed burn and hazardous fuels reduction programs were outstanding successes given the weather challenges that occurred throughout the region. For example, even with extended drought conditions the South Zone exceeded all targets and set a new record for acres treated. The West Zone (Minnesota) utilized a broad array of multi-agency detailers to assist with completing all burn projects. FWS stations in Oregon, California, Texas, Kansas and Nebraska (Quivira and Rainwater Basin) and Iowa contributed personnel and equipment. A NPS Fire Use Module from Buffalo River assisted during the spring prescribed fire season along with a BLM/BIA Fuels Module from California. Region 3 completed a total of 71,755 acres of WUI and HFR accomplishments. A total of 455 WUI and fuels projects were

accomplished, consisting of prescribed fire and various mechanical fuels treatments and entered into the NFORS database. Of major importance, these excellent accomplishments were all completed with no reportable accidents.

The joint Region 3 and Region 5 FWS and USGS Cattail Marsh Study project has continued forward with important progress made during 2007. Agassiz NWR continues to take full advantage of the drought conditions aiding their draw down efforts in various pools. The refuge conducted a successful growing season burn on the Madsen pool cattail marsh on August 15, 2007. Impressive consumption of the peat was observed with both depth and volume of peat consumed exceeding our expectations. With the peat continuing to burn and smolder safely within the confines of the burn area, and depths as great as 20 inches of consumption were observed. The outcome was truly impressive and provided excellent data to our continued research. In Wisconsin, the Leopold WMD conducted two very successful cattail management burns on the Uihlein WPA management unit. In June, the Pumphouse unit was burned with very impressive combustion of cattail and litter creating ash 6"+ in depth. Unfortunately, for burn study monitoring, none of the HOBO dataloggers operated correctly so we were unable to capture temperature and burn duration from this unit. In October, the Waukau pool was burned. This 300-acre unit also burned very well after the drawdown. A combination of continued drought conditions throughout the upper Midwest, in conjunction with pool drawdowns has enabled several of these units to be treated with Rx fire. Continued diligence has begun to pay us dividends, as we are slowly able to collect burn data from several of these units to add to study results.

Superb progress continues on multiple fire ecology studies within the region. At Sherburne NWR, the age structure and vegetation fieldwork was completed during the summer of 2007 for the fire dendrochronology study. What remains is the most challenging aspect to the study and that is to find a sufficient quantity of viable historic fire scars so that the fire return interval or fire regime will be able to be recreated. We anticipate completing this project in FY 2008. The impressive Fire ecology in northern sedge meadows: Factors influencing yellow rails and other birds at Seney National Wildlife Refuge made excellent progress. Researcher Jane Austin, USGS, with refuge support, is conducting this project. Additionally, at Seney NWR, the Joint Fire Science project on “Restoration based fuel reduction recommendations for mixed pine forests of Upper Michigan” is successfully advancing with impressive data collection and analysis efforts. Establishing the historic pre-European settlement, post-European settlement and post refuge establishment fire regimes, fuel loadings, forest composition and structure will aid immensely in developing ecological restoration techniques and alternatives for these red pine dominated ecosystems. The research data is currently under analysis. Big Oaks NWR currently has two additional fire ecology research projects in place. A fire dendrochronology project entitled “The Effect of Fire on Multiple Arboreal Species in the Eastern Deciduous Forest” seeks to uncover the burn history on Big Oaks NWR by modeling and testing the reconstruction of the fire history for the refuge along with documenting the historical range of variability of fire to settlement times in a deciduous forest. This is a truly unique study for us as, traditionally, not a very large amount of fire research has been conducted in these Eastern forests. We feel this research will uncover a tremendous wealth of information to add to

these spectacular forest ecosystems. In addition, a very interesting study on “Influence of fire in grassland areas on the herpetofaunal communities of Big Oaks NWR” is in progress. This study will provide critical information regarding the effects of prescribed fire on reptiles and amphibians allowing us to adjust and improve our future grassland burning methods and techniques. This wide array of studies and current research projects demonstrates our belief that a strong science based fire management program will benefit all of our ecosystems while reducing unnecessary risks to our refuges and communities by prudent fuels and habitat improvement

In 2007, we saw the temporary end to the ever-popular Rural Fire Assistance (RFA) Program. There was no funding allocated to the RFA program in this fiscal year much to the ire of many of our rural fire departments. This has been a truly successful program that we hope will return in the near future. As stated in the past, RFA greatly assists the local fire departments adjacent to NWR’s and WMD’s to expand their fire fighting capabilities along with providing a great public outreach educational tool that expands our network of local firefighters available to respond to rural incidents.

A strong public outreach program continued in 2007 with the filling of the vacant Fire Outreach Coordinator position. A part-time position was relocated to Agassiz NWR refuge where our new fire outreach coordinator, Lynda Knutsen is stationed. We welcome Lynda’s enthusiasm to her new position. As part of our continued effort in outreach, several fire staff from the South Zone in Iowa and Missouri and the regional office staffed our fire booth at the Pheasants Forever National Sport Show in Des Moines, IA in January. More than 25,000

people viewed our fire display during this impressive three-day event.

An active training schedule within the region culminated with all fire personnel receiving IS-700 and IS-800 Incident Management training. We have a well-trained and experienced all-risk incident force and this additional FEMA training keeps all our personnel current. RX-410 Smoke Management training was conducted in WI. We would like to thank Tom Zellmer, WI Zone FMO, for an outstanding job in facilitating this weeklong course.

Region 3 personnel have participated in several LANDFIRE and fuels mapping workshops. Testing and troubleshooting map inputs is contributing to further refinements in fire risk ultimately bringing

more accurate base level data to the field. Additionally, FPA is undergoing a major transformation and regional personnel have remained in close contact with this on-going process. We especially want to thank Jim Leach, Refuge Supervisor, from our Regional Office for stepping up as the management team representative to the national FPA Management Advisory Board. This is not an easy task and Jim has done an outstanding job in a complex arena.

In conclusion, 2007 was a superb year of accomplishment given the challenges presented to the Region 3 fire program. We have an experienced fire staff throughout the region, which contributes greatly to safe program growth and development. We look forward to a new and exciting year in 2008.

SOUTHEAST REGION

The Southeast Region had 279 wildfires covering 344,940 acres in 2007. Of these, the highest profile fires were those that occurred at the Okefenokee NWR, totaling 388,000 acres. There were 64 mechanical fuel treatments for 3,761 acres and 272 prescribed fire treatments for 151,082 acres. This totaled 336 treatments for 154,843 acres, which exceeded the regional target. A significant portion of the geographic area experienced severe drought this year resulting in a region wide prescribed burning moratorium. Also significant for the southeast is the fact that since 2005, this was the second year that the projected hurricanes did not occur, and the hurricanes that did developed remained at sea. Perhaps some tropical storm activity would have alleviated the drought situation.

During spring, the Southeastern Region experienced a significant amount of fire suppression activity. The total number of wildfires was 279. The majority of the fires took place in LA, MS, GA, and FL. Of these, 26 became project fires, while the others were less than 100 acres, initial attack, or support to other federal agencies and states. Of the 279 fires, the total amount on private lands that threatened refuges were 75. The volume of fire activity may be attributed to the severe drought in the southeast and the fuel conditions attributed to the 2004 and 2005 hurricane seasons.

The Southern Area deployed its new Type 2 Incident Management Team this year, with our own Tony Wilder at the helm as IC. They completed their successful, inaugural assignments this

year at Okefenokee NWR's Big Turnaround Complex and Yellowstone National Park's Owl Fire.

Although there were no Rural Fire Assistance funds available for 2007, the Southeast Region did acquire \$69,500.00 of Ready Reserve funds for use toward continued training and development for our rural and volunteer fire department partners. During fiscal year 2007, Region 4 implemented the Interagency Wildland Firefighter Medical Standards Program.

During the past year, Refuge Management and Fire Management convened prescribed fire review teams to review two separate burns in our region. This was to determine if our burning activities could have played a contributing role in motor vehicle accidents occurring in proximity to both burns. The complete results of these reviews are forthcoming. Subsequently, a RX burning stand down was implemented across the region. After the incidents were investigated and initial findings disseminated, the stand down was lifted and interim regional direction to include the line officer signature on the daily prescribed fire Go / No-Go checklist was implemented.

Five stations (Okefenokee NWR, St Marks NWR, ARM Loxahatchee NWR, Merritt Island NWR, Piedmont NWR) prescribed burned over 96,193 acres despite the extreme dry conditions and wildfire occurrence. These refuges accounted for 56% of the Refuge's RX acreage and 46% of the number of burns, as listed in the table below.

The Southeastern Region is within the Southern Area geographical region. During 2007, it was a year of contrast for this particular area, with high temperatures and little precipitation occurring in the southeastern portion of the area while floods and ice storms occurred in the western portion. The dry conditions materialized early in the year, with North Carolina, Puerto Rico, Georgia, and Florida fires occurring prior to our official fire season and continuing until July, and in some areas, August. Cabo Rojo and Culebra NWRs in Puerto Rico had numerous fires in the spring also. As the spring fire season subsided, and hurricane season was spooling up, the fire staff from the Southeastern Region turned its attention, as did everyone in the southern area, to the potential hurricane season. A total of 17 named storms and nine hurricanes were predicted for the coming season, with five of these expected to be extremely intense and affecting the eastern seaboard and gulf coasts. On May 6, Subtropical Storm Andrea developed off the mid-Atlantic approximately 140 miles off the coast of Savannah. Fire managers of the on-going incidents were on the watch for possible erratic weather conditions that could either help or hinder depending on what developed. By May 11, Andrea had lost all significant convection and degenerated into a remnant low. The storm never made landfall, and consequently did not bring high winds to the existing fires.

The hurricane season in 2007 did not impact the eastern or gulf coast as predicted. The major impacts were to Mexico. The formation of Subtropical Storm Andrea on May 9 marked an earlier beginning to the season and the

season extended past the official end of the season when Tropical Storm Olga developed on December 11.

District & Refuge Highlights

Alligator River NWR and District 1 experienced drought conditions that placed the refuges under severity. While managing the local situation, ARNWR also assisted with 11 wildland fires in the Great Dismal Swamp NWR in Region 5. Back home, ARNWR staff worked with local cooperators on prescribed burning and wildfire coordination issues. Within the District 1 refuges, they burned 17,443 acres. Key burns were conducted in the Manns Harbor WUI zone and at Cedar Island NWR WUI zone. There were two escaped or converted wildland fires at Alligator River NWR. District wide there were 481 acres of Firebreaks maintained with 126 acres of that being in Alligator River NWR. Fire management staff conducted the S-130, S-190, and L-180 training courses to 15 students this year. Fire Control Officer, Donnie Harris received an award for his role in development of a series of Equipment Operator task books for the Regional Equipment Operator Progressive Training Program. He also led the development of a Regional Interagency Fire Equipment Operator Task book (TRPL and DOZ1). This task book is currently under consideration for national distribution through NWCG. Others who received awards are Jeff Swain, Eric Meekins, and Cory Waters for their leadership on the Little Field Fire. Kelly Van Druten received the Prescribed Burner of Year Award from the North Carolina Prescribed Fire Council for excellence in education and outreach.

Naturally occurring lightning fires were predominating at Savannah Coastal Refuges and in District 2. The largest recorded fire in district history occurred in July on Wassaw Island NWR, burning 1,072 acres. Due to the drier than normal conditions, less than average acres were treated with prescribed burns. Nonetheless, several thousand acres were still treated throughout the fire district. Additionally the district assisted South Carolina State Parks in accomplishing some of their first prescribed burns in recent history at Santee State Park. Again the South Carolina Chapter of the Nature Conservancy and Fire District 2 cooperated on numerous fire related projects involving suppression, fuels treatments, and training projects. In "routine" fire management activities, the fire staff was successful in the supporting of wildfire incidents throughout the nation and particularly at Okefenokee National Wildlife Refuge. Locally the refuges work continued on the revision of Savannah Coastal Fire Management Plan and in the continuation of the national Fire Planning Analysis (FPA) products. Keith Penrose was responsible for the development of the South Carolina Low Country Wildland Urban Interface Council website. The SCLCWUIC is an interagency council consisting of private, county, state, and federal cooperators working to raise awareness and educate targeted groups in best management practices in community development and implementation of methods to lesson wildland fire opportunities in interface areas. The group presented several Firewise workshops around the state, and was successful in the first interagency funding to secure a mobile Firewise

exhibit trailer (complete with interactive computers and weather station exhibit) for fire education events across the state. Two WUI projects were implemented and completed. One at ACE Basin NWR and the other at Harris Neck NWR utilizing both district fire equipment and private contractors. Savannah Coastal Refuges acquired two new truck tractors with trailers.

Okefenokee NWR had an historic fire event. Fire crews had been working since April 16 to contain the fire, which burned portions of five counties in southern Georgia and northern Florida. The Okefenokee NWR fires burned a patchwork of swamp, shrubs, pine forest, and grasslands within the perimeter of 563,119 acres, including nearly eighty-one percent of the Okefenokee National Wildlife Refuge. Prolonged drought conditions set the stage for this major wildfire event. Impacts to adjacent commercial forest and private lands were unwanted, yet fires within the Okefenokee NWR are considered a natural part of this complex ecosystem. Disruption of the naturally occurring fire regime has resulted in major changes in upland and wetland habitats in the Okefenokee ecosystem. Even with naturally occurring fire, the landscape has become so fragmented that refuge staff must apply addition prescribed fire to restore the health of many Okefenokee's habitat.

Merritt Island NWR responded and assisted heavily with the fires at Okefenokee NWR with the Big Turnaround Complex being the greater of the assisted. Due to the cooperation in assisting Okefenokee NWR, the refuge had very few individuals who were able to go to western fire assignments.

Lower Suwannee NWR underwent a 30-day severity period ranging from May through June. The refuge responded to two wildfires on the refuge and five off refuge during the severity period. Most of the fires occurred during extended staffing hours and quick suppression action likely prevented large fire build-up. The refuge completed two, WUI boundary clearing projects for 9.5 acres or 13,000 linear feet, of heavily forested boundary. Five additional WUI boundary-clearing projects were initiated for 13.25 acres or 19,200 linear feet of boundary - which is still in progress. The fire-forestry office building is currently under going construction. The refuge acquired two new Type 6 engines.

This year, Florida Panther NWR and the Caribbean Islands NWR experienced severe high fire danger conditions. They were able to obtain assistance from multiple agencies to help manage the situation. One significant accomplishment of the refuge was their implementation of a burnout to assist Big Cypress Complex to help with suppression activities. After planning and collaborating with Big Cypress National Preserve and an Incident Management Team, the decision was that the best method to help stop the western advance of the fire would be to burn out the eastern pinelands on Florida Panther NWR, approximately 2200 acres. This operation helped the Whitney IMT change its focus to checking the fire's northern boundary, which was advancing towards private and BIA properties. Frank Connor assisted Willamette Valley Complex Refuges during the summer and fall. Darren Thomas and Skip Palmer from the National Bison Ranger in Montana detailed to Florida Panther NWR from

January through April. Eryn Yates and Sarah Sorenson were SCA interns and assisted the fire program at Florida Panther NWR for nine months. Florida Panther NWR donated a Type 6 engine to the Caribbean Islands NWR.

The Gulf Coast NWR Complex ended the year about 11 inches below the average annual precipitation of 70 inches, but the area escaped the severe drought that affected the interior southeast. The most significant fire for the complex was a lightning-ignited 180-acre at Bon Secour NWR. The Three Rivers began on August 26 and lasted through the 29th. Mississippi Sandhill Crane firefighters, with assistance from cooperators, suppressed the blaze. As part of the FWS response to Hurricane Katrina, Facilities Specialist Brad Long directed renovations and repairs on all the buildings and structures in the Maintenance Shop and Fire Center compound. Brad also worked with Mike Kionka of the FWS National Telecommunications office on the installation of a new P25 compliant radio system. The system will link all three refuges within the Gulf Coast complex. Fire crewmember Rebecca Goosman completed a summer assignment with the national helicopter crew at Salmon-Challis National Forest in Idaho becoming qualified as a heli-rappeller. Fire crewmember Dave Murphy completed a 40-day assignment with the FWS Blue Goose Type 2 Hand crew making significant progress on his FFT1/ICT5 task book. WUI Specialist, Jeremy Keller is continuing to build productive partnerships with local fire organizations. He also coordinated sessions of S-215 Fire in the Urban Interface for cooperators this year. Jeremy is also preparing multi-media

briefings for a visit to Bon Secour NWR by Director Dale Hall, and a visit to MS Sandhill Crane NWR by Mark Beighley, Director of the DOI Office of Wildland Fire Coordination, Brian McManus, FWS National Fire Branch Chief and Roger Boykin Regional Fire Management Coordinator. Prescribe Fire Specialist Sami Gray has taken on added responsibilities. Her job title is now Assistant Fire Management Officer. Sami continues to be a major resource for the district, reviewing over 100 burn plans. Sami worked with William Courson on completion of his RXB2 task book. Brad Bailey installed a new RAWS at Mountain Longleaf NWR. Brad also completed his ICT4 task book this year exhibiting strong leadership skills in the process. Fire crewmember Mike Krebs set a record this year by driving a transport with tractor-plov unit 743 miles to Florida Panther NWR for a severity assignment. Fire Program Jeff "Bunk" Twist improved his Infrared Interpretive skills, serving on incidents at Okefenokee NWR and Idaho. Three Noxubee fire crewmembers worked with the Jackson Hotshots on two separate assignments. The fire crew took the Type 6 engine to Georgia for the suppression efforts there. Dusty Dendy went to Oregon to work with the BLM as Deputy Unit Aviation Officer.

New Incident Response Management Vehicles

The four Southeast Region Fish and Wildlife Service Incident Management Response trucks and trailers were used at Okefenokee NWR for the Big Turnaround Complex. The response vehicles fit the needs of the incident and helped support a multitude of tasks. The

vehicles were designed to deploy as self-contained units for use during emergency response operations, and sustain a crew of up to 12 personnel for a week to 10 days without refueling or restocking. The largest trucks maintain crew supplies for two weeks with a 100-gallon fuel tank and storage for 100 gallons of potable water. All of the trucks feature a workstation for two and those with communications capabilities include cell phone boosters, remote communication systems using satellite technology, and telescoping antennas for instant radio communication in a disaster area. These units have proven to be highly effective additions to our incident response arsenal.

Miscellaneous

- Engineering Equipment Operator Elbert Noble retired on March 29.
- Anthony Snow resigned his position as Wildland Fire Specialist, MS Sandhill Crane NWR.
- Russ Langford, the Acting FMO at Okefenokee NWR accepted an FMO position at Sherburne NWR in Minnesota.
- Mike Housh of Carolina Sandhills accepted the FMO position at Okefenokee NWR.
- Joe Sharbough and Andy Heisley both accepted Forestry Technician positions at Okefenokee NWR
- Danny Jack Willis resigned his Forestry position at Okefenokee NWR
- New employees at Lower Suwannee are: Anthony DiMaggio, Forestry Tech, Jason

- Thompson, Equipment Operator, Jason Coates from SE LA Refuges, Jamie Farmer transferred from FL Panther; and Jaclyn Solodovnick was hired as Forestry Tech.
- William Evans transferred to Glacier National Park from Lower Suwannee NWR.
 - John Chris Jones, Equipment Operator of Lower Suwannee NWR retired.
 - Jennifer Adams of Merritt Island NWR transferred from her position as Forestry Technician (firefighter) to the Southwest Regional FWS Office as Fire Management Specialist in Albuquerque, NM.
 - Glen Stratton was promoted into the FMO position at Merritt Island NWR.
 - Jim Durrwachter of Florida Panther NWR accepted the director position at PFTC.
 - Matt Ellington was hired as a firefighter at Noxubee NWR.
 - Pat Boucher of the Southern Area Coordination Center instructed five courses of ROSS. She was received a Star Award for her achievements.
 - The following Southeast Regional Fire Management awards were given: Fire Prevention and WUI - Kelley Van Druten; Fuels Management - John Mason; Fire Leadership - Pete Kubiak.

NORTHEAST REGION

The drought conditions experienced in the southern tier of Region 5 refuges in 2006 only worsened in 2007, reflecting conditions throughout the Southeast. Fire danger indices, particularly KBDI, were at or above historical highs at RAWS sites in Virginia, Maryland, Delaware, and New Jersey for much of the year. The rainfall deficits, combined with relatively dry thunderstorms, resulted in Great Dismal Swamp NWR experiencing the busiest wildfire season in its history. Seventeen wildfires occurred during the year, with 15 lightning-started fires occurring on the Refuge during a period from late July through the end of August, including several multi-start days. Quick and effective initial attack contained all fires at under a half acre, but difficult access and involvement of the organic soil layer required extensive and prolonged suppression efforts. The commitment of resources included personnel from Virginia and North Carolina Refuges, the National Park Service, and a large contingent of AmeriCorps volunteers. The largest fire of the year occurred in December, and started with an illegal campfire, which burned approximately 10 acres before being contained.

Beginning in early June, program staff at Chesapeake Marshlands NWR Complex began to experience drought conditions with July through October being in the High to Extreme fire danger class. Refuge staff responded to 17 fires totaling 159 acres during this period. Most of this activity was related to a series of arson starts. Local authorities investigated a suspect but did not file charges. The Refuge had only one wildfire during the period but many were

immediately adjacent. The severity of the drought necessitated bringing on board several of our local seasonal firefighters as casual employees for emergency preparedness staffing. Refuge staff assisted the Maryland Forest Service on several long-term fires lasting several weeks. Due to the severity of the drought, one fire late in September, which included the organic soil layer, burned live 12-14 inch diameter loblolly pine trees off at ground level, a condition none of the refuge personnel had experienced in the past. The Refuge ended the year approximately 12.5 inches below average rainfall.

Nine fires were suppressed on New Jersey refuges under agreements with the NJ Forest Fire Service for a total of 420 acres. The Warren Grove fire, which crossed on to E.B. Forsythe NWR from private lands, accounted for 400 of those acres. Fortunately, no significant damage occurred to refuge resources. New England refuges accounted for eight wildland fires totaling 15 acres, with fire staff from Maine refuges also assisting the State of Maine on two private land fires.

Prescribed burning accomplishments for 2007 included 7,157 acres at Blackwater NWR and cooperative state lands; over 3,500 acres on refuge and state/NGO partner lands in the VA/WV zone; 200 acres in the NJ/NY/PA zone; and 149 acres in the New England zone. An additional 1,770 acres in the Region were treated with mechanical fuel reduction methods and 4,885 acres were treated chemically. Several wildland-urban interface or hazard fuel reduction

projects were implemented or initiated in collaboration with partners including the Maine, Massachusetts and Virginia chapters of The Nature Conservancy, Maryland Department of Natural Resources, National Park Service, Maine Forest Service, and Virginia state agencies. Region 5 accomplished over 140% of its target acres in 2007.

The large biomass utilization project at Great Dismal Swamp NWR continued with the objective of salvaging Hurricane Isabel storm damaged timber and regenerating the globally rare Atlantic white cedar forest cover type. Income generated from the salvage of windblown cedar was used to improve the condition of access roads and compensate the contractor for removal of non-merchantable or low value material. This project has the dual benefits of reducing a hazardous fuel situation while helping to regenerate cedar seedlings and eventually restore the forest type, all at little cost to the government. WUI project funds were used to contract for the streamlined EA and bring in a consultant in helicopter logging operations to help develop the scope of work and evaluate bids. As of December 31, 2007 approximately 5,550,000 board feet of cedar, 750,000 board feet of hardwoods, 1,200 tons of hardwood pulp, and 10,700 tons of mulch had been salvaged on about 850 acres. A concurrent project, initiated in 2007, involves the commercial removal of hardwoods from mixed pine-hardwood stands for the dual objectives of fuels reduction and habitat improvement (red-cockaded woodpecker reintroduction). A benefit of this project was the upgrade and graveling of five miles of roads leading to the project area. Prescribed fire control lines have

been established in this unit with the intent of following up with a prescribed burn in 2008. As of December 31, 2007, approximately 250 acres had been treated with whole tree chipping and 11,200 tons of chips had been removed by the contractor, along with 400 tons of hardwood logs and 950 tons of pine logs.

The busy 2007 western fire season was reflected in the number of assignments taken by Region 5 personnel. WUI Specialist Gerald Vickers served seven days as a Type 2 Safety Officer on the Big Turnaround Complex in Georgia and Florida, and 35 days with the Bennett Northern Rockies IMT1 as Type 1 Safety Officer on the Ahorn, Little Wolf, Novak, Meriwether, and Chippy Creek fires in Montana. WUI Specialist Bob Harris served as Support Dispatcher on a detail in Cedar City, Utah and trainee Supervisory Dispatcher on assignments in Richfield, Utah and Pendleton, Oregon where he was signed off on his EDSP task book. Fuels Coordinator Steven Hubner worked several details as Crew Boss on western fires. Regional Biologist Laura Mitchell worked on the Rattlesnake fire as a trainee GISS, and Refuge Program Specialist Catherine Hibbard went on three assignments as Public Information Officer Trainee for the Big Turnaround, Owl, and Zaca fires, becoming certified as PIOF. Blackwater Dispatcher Mary Elliott was detailed to the National Interagency Coordination Center in Boise for a Support Dispatcher assignment. GIS Specialist Roger Stone was detailed as a GISS and DPRO on several fires in Idaho, Montana, and California. Blackwater NWR also sent a dozer, plow, and two personnel to Okefenokee NWR during the Big Turnaround Complex wildfire. Central

Zone FMO Mike Durfee was assigned to a Northern Rockies IMT2 (McNitt) and was on five assignments as Situation Unit Leader on the Rattlesnake, Jacko Lakes, Sawmill, and Rombo Mountain fires. Durfee also was assigned to Florida Panther NWR during the month of May as Acting FMO. Fire fighters from Maine refuges were virtually gone with the start of the Southern Area spring season, through mid-September and the end of the western fire season. Of note, FWS manifested one Type 2 crew (Blair Mace CRWB), one Type 6 Engine to the Sweat Farm Fire (Okefenokee NWR) and 2 Type 6 Engine severity details to Ruby Lake NWR. John Meister worked two details and became certified as TFLD. Sunkhaze Meadows NWR fire staff continued an aggressive mobilization of Casuals (ADs) to fill out 20 person crews, and supplied EMTB's to fill six resource requests. In all, Vollick processed 35 individuals through the Casual Hire Center.

Training provided by Region 5 fire personnel included eight annual firefighter refresher sessions conducted throughout the Region, and S-215 provided by WUI staff at the Virginia Wildfire Academy and Missouri Fire Academy. Individual fire program staff served either as lead or as unit instructors for various courses including RX-310, M-410, S-244, S-300, S-133, S-131, and S130/190. Gerald Vickers attended S-520 training at NAFRI, which allowed him to be fully qualified as a Type 1 Safety Officer., and also attended beta testing and train-the-trainer instruction in T336 Fire Simulation. Laura Mitchell served as the Region 5 participant on the national team to

develop the "Refuge Biology Fundamentals" course at NCTC.

The Region contracted with Wildland Fire Associates to develop or update Fire Management Plans for 14 refuges using the latest interagency template. As of December 31, three refuges had held initial site meetings and plan development was well under way. We look forward to seeing the products of this initiative.

As Regional Fire Planner, Rick Vollick serves as lead for the New Jersey and New England-New York Fire Planning Units (FPU). With the development of the new FPA tool, the New Jersey FPU is a prototype – providing insight and testing of the various components under development. An FPU planning meeting in May brought together the principal agencies (NJ-NJS, FWS, and NPS) to the table. All Refuge Managers in NJ were present, as well as Park Superintendents and agency fire coordinators. Along with the FPU working members, the National FPA Team had three members present. This face-to-face meeting helped define an implementation timetable as well as where the program was heading. Much work remains, but the NJ FPU is focused on incorporating State involvement within this planning process.

RFMC Carter has sat on the Fire Base working team since its inception. In 2007, Fire Planner (Vollick) took the reins, attending two Boise sessions and participated in conference calls. In addition, Rick serves as the focal point for the Region's RAWS program, ensuring databases are edited, ASCADs up to date, and station maintenance requirements met. There are 15 "fixed"

RAWS stations scattered throughout the region; and three portables (or QD) units. In 2007, servicing and maintenance requirements were met via annual contractual agreement with Forest Technology Systems. This contract was renewed in October for the 2008 maintenance cycle.

Regional equipment acquisitions for 2007 included purchase of three Type 6 engine packages to replace older units that did not satisfactorily meet GVW requirements. Preparedness funding was used to purchase 30 digital portable BK radios for distribution throughout the Region. The Blackwater NWR fire program occupied a newly constructed 80 ft. X 60 ft. equipment storage building to consolidate equipment storage and expedite response time.

The regional fire outreach budget for FY2007 was \$43,750.00, with \$35,000.00 allocated for salaries and \$8,750.00 for projects. These funds were fully expended to cover nearly half the salary of Terri Edwards through a cross-program agreement with the Office of External Affairs to complete regional outreach efforts during 2007. More than \$6,000.00 carried over from FY2006 provided additional funding for projects. Terri Edwards and Catherine Hibbard served as the primary and alternate regional members, respectively, of the National Fire Outreach Team. One or both of them participated in all scheduled conference calls and team meetings during the year, and completed tasks assigned by the team. Products produced during the year included 12 reproductions of a regional tabletop exhibit, which were distributed to stations throughout the region; and, a prescribed fire exhibit for Eastern Neck

National Wildlife Refuge in Maryland. Contracts were established in 2007 with two communications and graphic design companies to prepare both a regional fire management brochure and a series of interpretive panels on fire activities at Great Dismal Swamp National Wildlife Refuge. These projects will be completed in 2008.

Catherine Hibbard served as the Service's representative on the NWCG Wildland Fire Education Working Team. She was involved in developing the team's strategic plan, organizing a team visit to Okefenokee National Wildlife Refuge, and planning for an issue of Fire Management Today. Catherine coordinated national distribution of the team's Communicator's Guide for Wildland Fire Management: Fire Education, Prevention, and Mitigation Practices.

Regional Fire Biologist Laura Mitchell helped Cape May NWR write forest ecosystem management objectives, with respect to potential WUI fuel hazard reduction treatments. She also wrote the Statement of Work, selected the contractor, and oversaw completion of a wildfire risk assessment for Cape May NWR. Laura also assisted Chesapeake Marshlands NWR in establishing a long-term wildlife and vegetation monitoring program in the fire ecology research plots at Blackwater NWR to determine secretive marsh bird breeding response to four burn regimes, helped bring in expert consultants, co-developed monitoring protocols with refuge staff, helped set data collection standards, and assisted with vegetation monitoring. She coordinated an Adaptive Management Workshop/Consultation at Chesapeake Marshlands NWR to guide future research and fire management in

Blackwater NWR Marshes. Laura coordinated contracting and funds for Phragmites spray operations in WUI areas at six coastal refuges this year (~1,800 acres); worked with DOI Office of Aviation Management and the Regional Office to develop Cooperative Agreement, wrote contract specifications, and assisted the WUI program in allocating funds.

A number of organizational and personnel changes occurred in 2007 which affected the Region 5 fire program. Because of regional workforce planning, the Division of Natural Resources within the National Wildlife Refuge System was disbanded and the Regional Fire Management Office was transferred to the new Division of Refuge Field Support. Refuge Program Specialist Catherine Hibbard and Regional Fire Biologist Laura Mitchell, formerly with the Division of Natural Resources, are now on the staff of the Regional Fire Management Office. Calvin Miller, formerly with BLM in New Mexico, arrived to fill a FWS position at the Northeast Coordination Center in Maine as Assistant Center Manager/Lead Dispatcher, bringing the total number of employees in the Regional Fire Management Office to nine. At the field level, three individuals transferred to other regions or agencies in 2007. Joe Krish, formerly Fire Management Officer at Chesapeake Marshlands NWR Complex, accepted a promotion to GS-13 Fire Management Officer with the Yellowstone National Park Fire & Aviation program and his former position is still vacant at this time. One of our career seasonal positions was vacated in November when Wesley Hatch (Moosehorn NWR) accepted a permanent position with the

Maine Forest Service. Jim Forsythe, another career seasonal Tech stationed at Great Dismal Swamp NWR, transferred to Charles M. Russell NWR in Region 6. Seasonal Biotech Kyle Krzywicki began working as a permanent full time Prescribed Fire and Fuels Technician at Great Dismal Swamp NWR in the spring of 2007.

Thanks to the efforts of Steven Hubner, the Region 5 Fire Management Office continued a rather unique partnership program initiated in 2006 with the Perry Point, MD campus of the AmeriCorps National Civilian Conservation Corps (NCCC). The NCCC component of AmeriCorps is a campus-based program modeled after the CCC programs of the 1930s and 1940s. AmeriCorps is for young adults between 19 and 24 years of age. Wildland firefighting along with other all-risk emergency response capabilities are part of AmeriCorps' public service mission. In March 2007, Steven, in conjunction with Shenandoah NP instructors, provided the 40-hour basic firefighter training to 48 Corps members. AmeriCorps paid for the training facility, meals and travel, and the Service paid for all the training materials. Eventually, 42 firefighters were red-carded. All but three of the 42 red-carded firefighters were deployed to some type of fire assignment in 2007. Deployments included crew assignments to the western states on Maryland and Delaware state crews as well as on several federal crews. A cadre of firefighters assisted on prescribed burns at Blackwater NWR, Prime Hook NWR, and Shenandoah NP. Firefighters assisted the states of Maryland and Virginia on local initial attack fires. Firefighters responded to wildfires at Shenandoah NP, George Washington-

Jefferson National Forest, and rotating crews assisted with multiple fire operations at the Great Dismal Swamp NWR.

Region 5 hosted a cadre of review team members from the Branch and Regions 1 and 6 on November 27-29 when the regional fire program was under review.

We decided to have our fall regional fire programmatic meeting in conjunction with (i.e., in the same building with) the review, which allowed the review team to have access to all region 5 fire personnel as well as provide Region 5 folks an opportunity to interact with Branch staff. This arrangement seemed to work well for all participants.

MOUNTAIN-PRAIRIE REGION

Overall, this was another successful year for the Region 6 fire management program. Much good work continues to be done by fire-funded and collateral duty staff in the region, as detailed below. No major wildfire activity was experienced on Service lands within the region, fuels treatment targets were exceeded once again, and Region 6 personnel provided an enormous amount of support to the interagency fire suppression efforts during a very busy wildfire season. While many changes are taking place, the ongoing work of supporting Fish and Wildlife Service fire management goals is being accomplished by many talented and dedicated employees in the region.

The regional fire program strives to function as a High Reliability Organization while continuously improving its performance. During spring prescribed fire activities two incidents resulted in a regional stand down of all prescribed fire activities. The Regional Chief required each manager to review prescribed fire policy, guidance, and operational considerations and then document this process before their station could resume prescribed burning. This requirement was very beneficial for the managers, as it served as a good refresher, re-emphasized a focus on the details of prescribed fire implementation and reinforced our commitment to “safety first”.

The region accomplished 54,474 acres of prescribed burns and 527 acres of mechanical projects for a total of 56,101 acres of fuels treatments. These included Hazardous Fuels and Wildland/Urban Interface fuels treatments and non-

National Fire Plan resource management prescribed burns. The Region experienced approximately 54 wildfires that burned 1,432 acres of Service lands, and Service personnel responded to many other wildfires on our cooperator’s lands.

As the federal and Department fire management priorities continue to evolve, regional refuge and fire staff discussed how changing objectives for fire management could be accomplished while still supporting the Service mission. In support of this effort, a meeting was held with Project Leaders from each zone and regional fire staff. The meeting included a review and discussion of policy documents that provide guidance for the fire program. This was followed with the development of guiding principles that could be used to set priorities and future direction of fire management in Region 6. This process is ongoing, and the continuing communication between all personnel will benefit the region as a whole. This process has helped identify focus areas for fuel treatment projects, with the goal of completing priority treatments first. An additional priority is to ensure that fire management staff is distributed equitably across the region to provide support and oversight for fire management activities on all refuge field stations.

New developments also occurred in Kansas, where collaboration with the National Park Service focused on the goal of developing a “Service First” agreement for fire management. The Line Officers and FMOs of the two agencies are working to formalize a

relationship in which Fish and Wildlife Service FMOs provide fire management oversight to both Refuges and National Parks in the area.

A regional review was conducted to evaluate the effectiveness and identify any safety concerns associated with the “Black Line Machines” that are in use on the Huron Wetland Management District based in Huron, South Dakota. These black liners are manufactured in South Africa and this is reported to be the first time they have been used in the United States. Initial findings regarding the effectiveness of this equipment in the Great Plains appears very promising.

During December the fire management program held the annual FMO regional meeting at the Bear River National Wildlife Refuge near Brigham City, Utah. This was the first meeting after organizational changes in the program, and was one of the most productive and informative meetings to date, thanks to the high quality presentations from our region and excellent support from the national office in making fire branch staff available.

Notable fire “Outreach” efforts in the region included a FIREWISE Nature Trail/Education project at Creston National Fish Hatchery in cooperation with Montana Department of Natural Resource Conservation (DNRC) and other volunteers in the Kalispell area; the completion of a fire interpretive panel that can be used throughout the region, work on another interpretive panel for use in Kansas, and creating a Region 6 fire brochure. Lori Iverson (National Elk Refuge) took over as the lead for our fire outreach program, replacing Cindy Souders (Education and Visitor

Services) who has done much work to assist us over the years and continues to help in outreach efforts.

Zone Highlights -- Mountain Zone

The Northern Rockies and Eastern Great Basin geographic area experienced a significant fire season but Service lands in the zone were largely spared. There was great potential for wildfire, which resulted in perhaps the highest levels of severity funding ever requested by the region this year for the Brown’s Park, Red Rock Lakes, National Bison Range, Lee Metcalf, Lost Trail, and Charles M. Russell National Wildlife Refuges. Only one incident in the zone – at the Charles M. Russell NWR – developed into an extended attack wildfire. For the year, Service lands in the Mountain zone experienced 16 wildfires for roughly 600 acres of Service lands burned, and an additional 733 acres of mutual aid/assist wildfire acres burned.

An early dry spring with good prescribed fire burning conditions allowed for an early season that carried through the fall. This was another record year for prescribed fire within the Mountain Zone, with approximately 12,494 acres treated, requiring 41 burns on 11 Refuges and 1 Fish Hatchery. All burns were spring or early summer burns except at Fish Springs NWR and Bear River Migratory Bird Refuge where fall burning was used.

The Zone participated in a number of activities related to implementing the National Fire Plan including: updating refuge Fire Management Plans and participating in Fire Program Analysis (FPA) planning, where Northwest

Montana was the only active prototype FPA group in the region in 2007.

Zone Highlights -- Prairie Zone

National Fire Plan fuels treatment accomplishments in the Zone included the completion of 208 fuels reduction or resource management prescribed burn projects for 41,980 acres, and 14 mechanical treatments on 527 acres for a total of 43,607 acres treated. In addition to meeting target acreage for National Fire Plan accomplishments, Service personnel responded to 38 wildfires, which burned 833 acres of Service lands and an additional 1,324 acres of cooperator's lands in Kansas, Nebraska, South Dakota, and North Dakota.

The Mid Plains Interagency Handcrew had another successful year in 2007, mobilizing three times in support of five different incidents. This was the fourth season that this crew was operating and they continue to develop outstanding leadership, provide training opportunities, and demonstrate an excellent work ethic on all assignments.

The North Dakota Interagency Dispatch Center (NDC) was relocated from the J. Clark Salyer NWR to the newly constructed wing of the Fish and Wildlife Service HAPET (Habitat and Populations Evaluation Team) office in Bismarck early in the year thanks to assistance from staff from several refuges and the HAPET office. The Dispatch Center held an "Open House" in May which was a great success, but focus quickly turned to supporting incidents around the country.

NDC accepted and dispatched 241 orders to incidents in 15 states. This

included 7 crew orders, 92 engine orders, and 152 overhead orders. Within the state of North Dakota 884 wildland fires for 43,046 acres burned were reported and 114 prescribed fire units were reported completed totaling 28,587 acres. NDC also took an active role in fire suppression in South Dakota by providing assistance to the Grand River Ranger District, located at Lemmon, South Dakota.

Personnel and Organization

The Region reorganized the fire program structure from three Zones into two in 2007. These changes were initiated to match the realignment of the Regional refuge supervision into two zones – a Mountain zone (Colorado, Utah, Wyoming and Montana) and Prairie zone (Kansas, Nebraska, South Dakota, and North Dakota). Shortly after the zones were changed, Ken Kerr – one of the former Zone FMOs, left the Service to work in the BLM Colorado State Office. The funding for his position was moved to the field, and in a similar manner other fire staffing within the region was shifted as vacancies occurred in Regional and field positions. These shifts were made to address fire management oversight needs and safety concerns identified after recent safety incidents and to deal with declining budgets.

New District FMO positions were created and filled in the Mountain Zone, with Louis Hartjes becoming the new FMO for the "Mountain West District" (western Montana, Utah, and Wyoming) with a duty station at the Lee Metcalf NWR. Another new District was created for the refuges in Colorado, and Todd Richardson (FMO) and Greg Gulan (Fire

Technician) are now supporting the District from their duty station at the Rocky Mountain Arsenal. In the Prairie Zone, Devils Lake Complex, Arrowwood Complex, and Long Lake Refuges were merged into the new Eastern North Dakota Fire District.

Other personnel changes in the region included Kevin Beck being promoted from his Fire Tech position into the new Prescribed Fire Specialist position for the Mountain West District and is now located at Benton Lake NWR; Chase Marshall, FMO Western North Dakota District transferred to the FWS FMO at Fairbanks, Alaska; Dave Martin, District FMO Tewaukon transferred to the FWS FMO at McGrath, Alaska; Doug Downs, AFMO Western ND District was made the FMO for the same district; Colby Crawford, Prescribed Fire Specialist at

Crescent Lake was promoted to the Mid Dakota District FMO at Sand Lake NWR; Jeff Dion, Arrowwood FMO was selected as Eastern North Dakota Fire District FMO; Chris Roed, Devils Lake FMO is now the Prescribed Fire Specialist for Eastern ND Fire Management District; Tom Zick, Fire Technician Sand Lake NWR transferred to a Bio-tech position at the same location; Steve Becker accepted a Range Technician position at Huron WMD; and Billy Cumbow, Engine Crew leader at Valentine NWR was promoted to Fire Technician at Fort Niobrara NWR.

Other changes included a name change for the Tewaukon Fire District to Mid Dakota Fire District, and construction on the new fire equipment facility at the Devils Lake Wetland Management District.

ALASKA REGION

As the Northern Lights dance across the night sky and the temperatures begin to dip, another year has passed and Alaska awaits the arrival of green leaves. The Region has had a full and rewarding year. The Lower-48, as referred to by Alaskans, experienced another record-breaking fire season. Alaska experienced a relatively average fire season with periods of extreme fire behavior activity. As a result many Alaskan fire resources were mobilized to the Lower-48 to assist. A total of 506 fires burned across Alaska encompassing 649,410 acres. Two-hundred fifty nine fires were natural start and two hundred forty seven were human caused. A fire of note was the Anaktuvuk fire, which burned on the North Slope of the Brooks Range. Natural ignition started the fire on State land late in the fire season and grew to 259,000 acres in September. The North Slope is primarily tundra and green leaves were waning into the colors of fall, meaning winter was not far behind.

The first fire of the season on Fish and Wildlife Service (FWS) lands was reported May 16 on the Yukon Flats National Wildlife Refuge (NWR). The last fire start was recorded on September 6 on the Kenai NWR. One false alarm and three natural outs were also recorded. Regionally 60 fires burned 135,670 acres. The Fish and Wildlife accounted for 21% of the acres burned in Alaska. Fish and Wildlife total acres by Alaskan protection options were 124,886 in limited, 4,052 in modified, 330 in full and 6,400 in critical. Table 1 summarizes the number of fires by Refuge.

Many refuge fires are of long duration, burning for several months. The change in conditions has been most notable across Alaska and the Arctic. For example, the Yukon Delta NWR and the Arctic NWR,

which usually experiences wet cool weather during the fire season, has experienced an increase in the number and size of fires. These changes in fire locations, duration, drier fuels and unusual events are most likely due to climate change. It is a change we are monitoring as it could have impacts to the fire program with an increasing workload as larger and larger areas begin to burn and expand the duration of our historical fire season. It is widely accepted that Arctic regions would be the first areas most influenced by climate change.

Twenty-six fires were managed as Wildland Fire Use (WFU), for benefiting 85,493 resource acres. Out of the 65 fires recorded on FWS lands, 11 were determined to be human caused, one false alarm three natural outs, and the remainders were lightning caused. A portable weather station was installed on one WFU but was chewed up and destroyed by a bear.

The Region experienced the retirement of Mary Kwart, Regional Wildland Interface (WUI) Coordinator. Laurie Thorpe resigned from the FWS and moved to a job with the Bureau of Land Management (BLM). The Fire Management Officer (FMO) stationed at Galena transferred to the FWS planning division. The Region filled two FMO positions, Chase Marshall at Fairbanks AK, and David Martin at McGrath AK. Staffing is currently at three Regional Office, five FMOs, five permanent seasonal technicians, one Assistant FMO, and four temporary.

Thirty-two medical examinations were provided, six baselines, 21 annual, and three periodic; 30 arduous work capacity tests were administered including five at the Tetlin NWR, two at Koyukuk NWR, 21 at Kenai NWR, and three at the Region Office.

One moderate test was completed on the Kenai NWR.

Training

All fire staff completed the annual safety refresher. Five attended the National FMO meeting at National Conservation Training Center (NCTC). For the first time in Alaska, the USDA Forest Service sponsored a Local Fire Management Leadership course. The course was very successful. Presentation by the primary staff lead during the South Canyon and 30-Mile incidents were very personal and thought provoking. Three Refuge Managers and two Regional Office staff completed the class. Several FWS employees taught units in the course.

The Tetlin FMO and Technician instructed units in S-130, S-190, S-290 and S-271 for the Tok area. Participation was interagency. Yukon Flats FMO was the lead instructor for Department of Interior (USDI) motorboat and All Terrain Vehicle (ATV) operations. Three boat and nine ATV operators were certified. These positions are a common need on wildland fires in Region 7. The outreach coordinator assisted in the community of Beaver on chain saw safety and safety connected to the fuels project.

The Kanuti FMO was selected and will be performing as a mentor with the FWS National Mentoring program. The FMO assisted in developing the chain saw training for the Village of Beaver crew. The crew conducted fuel treatment projects.

Kenai NWR offered five sessions of RT-130 and Annual Fireline Safety Refresher 23 refuge firefighters completed the course. Additional training offered was S-212, S-271 Helicopter Crewmember, Helitorch module, ATV operator and B-3 Basic aviation safety. Three students completed

S-212, four refuge and eight USDA Forest Service, students completed S-271, five complete the Helitorch Module, seven completed ATV Operator, thirteen Refuge trainees and three 3 trainees National Resource Conservation Service (NRCS) completed B-3 Basic Aviation Safety. Two USDA Forest Service instructors lead the Helitorch training while the other courses were lead by the Kenai NWR staff.

The Regional Ecologist finalized the Interagency Fire Effects Monitoring Protocol guidebook. The guidebook will be used to train and guide field staff on the technical data collection procedures.

Regional staff presented fire management information to the Refuge Information Technician (RIT) at their annual meeting. These positions are held by residents of local villages and are liaisons between the villages and FWS. The goal is to have the RITs serve as liaison officers or resource advisors during fire activity.

Planning

Fire staff has been involved with review and contributing to the Comprehensive Conservation Plan (CCP) process. Tetlin, Kenai, Innoko, Togiak, Koyukuk, and Kanuti NWR have been the most active this year. Responses to fire-related public comments on draft plans are provided by the FMOs. The Kanuti FMO attended the Chamber of Commerce meeting on the Kanuti CCP.

The Koyukuk FMO began the preplanning phase to assist with the Koyukuk CCP development.

As of this report, the Kenai NWR staff is in the process of revising the 1985 CCP. The internal review of the draft CCP was

completed. Both the Refuge AFMO and the FMO contributed many hours of technical writing, editing and reviewing to the planning effort, especially to the sections containing wildland and prescribed fire.

The Alaska Interagency Fire Management Plan (AIWFMP) identifies options for the initial response and management of wildfires. These options are limited, modified, full and critical. Every year, each Refuge reviews these options. No option changes were identified. The AIWFMP started the revision and updating process. The fire planner spent three days with National Park Service (NPS) and Bureau of Land Management (BLM) partners developing the draft update.

The Kanuti Fire Management Plan (FMP) was completed and approved. The Arctic and Togiak plans are well on their way to completion. Revisions of the Arctic Fire Management Plan are nearly complete. Work with Arctic staff member C. Curby was invaluable providing considerable editorial assistance. Three fire management plans are postponed until after release of the public draft of the Refuge CCP. Refuge preparedness and dispatch plans were updated. Regional office staff reviewed all FMPs.

The Kenai NWR fire management staff is in the process of revising its 2001 FMP per the current interagency format. The Kenai FMO is designated as the FMO for the Kodiak NWR. The FMP process has been initiated for Kodiak.

The Yukon Flats NWR is in negotiation with Doyon Inc., Regional Native Corporation, for an exchange of lands. Fire Staff were involved in editorial review, comment, and suggestions for modifications to the draft Environmental Review. Fire

management as well as other sections were included in the editorial review of the land exchange documents.

Equipment

A 1991 Chevrolet C3500 Fire Engine was surplused and replaced with a slip-on tank/pump unit on a Ford F-450 Truck body. The truck will be set-up as a Type 5 Engine for the Tetlin Refuge. The Koyukuk fire program acquired a $\frac{3}{4}$ ton Chevrolet pickup and transferred a suburban to the Refuge. The Kenai NWR fitted a Ford F-750 with a 1000-gallon Cascade slip on pumper unit and toolboxes. The unit was configured as a Type 4 engine by refuge maintenance and fire staff. The engine received its first test during the 59,000-acre Caribou Hills fire on the Kenai Peninsula. The engine performance was excellent according to operations personnel assigned to the fire. Fire staff and Refuge mechanics routinely maintain all Refuge fire facilities and equipment such as engines, dozers, pumps, chain saws and tools.

Two smoke monitoring EBAM units were upgraded with software and sensors. One EBAM was deployed to the Lily Lake prescribed burn and the Swan Lake (WFU) fire on the Kenai NWR. The EBAM are available for use throughout the region.

Fire Effects / Monitoring / Ecology

Monitoring activities (Tetlin NWR) were conducted in cooperation with the Natural Resources Conservation Service (NRCS) which monitored snow depth, density, and water content on two snow courses, the data will be used to assist in modeling and predicting spring run-off and flood potential. Snowshoe hare abundance was monitored on burned and unburned plots to examine hare use of post-fire seral stages.

Ducks Unlimited has been contracted to map land cover on several refuges. The fire ecologist coordinated and commented on draft land cover maps presented to the Refuges.

Fieldwork for a landscape analysis of the Koyukuk NWR seral classes was completed. On the Three Days of Restoration, 9,000 acre prescribed burn monitoring plots were measured for fire effects during good weather opportunities. Five-year measurements of the Galates and Big Yetna 2002 fires were completed.

The ecologist collaborated with the Kanuti and Innoko refuges to analyze their burn severity data from 2006 fires. The ecologist also investigated new alternatives within the severity model to define Potential Nature Vegetation Groups (PNVG) for Kenai and Kanuti to see if they produced improved FRCC results. Continued analysis and discussions with EROS, UAF and others on issues related to the Normalized Burn Ratio (dNBR) and Composite Burn Index (CBI) mapping protocol. An outcome of these analyzes was the fire ecologist presented the results of remote sensing burn severity mapping project at the International Fire Ecology and Management Congress.

Karen Murphy, fire ecologist, and Refuge Biometrician, Joel Reynolds, prepared and submitted a manuscript to the International Journal of Wildland Fire. The subject of the article was "Evaluating the ability of the delta Normalized Burn Ratio (dNBR) to predict ecologically significant burn severity in Alaskan boreal forests."

Kanuti Refuge, University of Alaska, Fairbanks (UAF) and the fire ecologist collaborated to evaluate what the climate change predictions mean for fire occurrence on the refuge and how that change would

affect the availability of Spruce-Lichen communities greater than 80 years old. The evaluation look at whether or not the proposed change in fire suppression management options (from Limited to Modified) in a portion of the refuge would make any difference. The determination was the refuge would regain/retain these old-aged communities more rapidly than the surrounding landscape if the modified management option was used.

The FWS collaborated with the NPS and hosted an interagency workshop to crosswalk the current Alaskan vegetation classes to the NFDRS 40 fuel models, NFDRS 13 fuel models and the Canadian Fuel Models as well as create a guidebook to the 40-fuel models using Alaska's existing vegetation classes. The NPS funded the participation of Joe Scott (developer of the 40 fuel models) and later contracted with him to complete the guidebook. The guidebook will be available for this coming fire season.

The region embarked on a new idea on applying and analyzing the initial attempt at using aerial photography to assess burn severity. The supervisor biologist of the Innoko Refuge collaborated on this study. Due to technological problems not enough aerial photos were obtained that coincided with ground plots to evaluate the technique. The approach will be refined to develop a sampling design and monitoring plan to sample fires that occurred on the Innoko Refuge in 2007.

Regional staff continued supporting Landfire as they initiate work in Alaska. Carston Geoff from the BLM at National Interagency Fire Center (NIFC) conducted two meetings in Anchorage to inform line officers and others on the landfire concept and data needs. One meeting was held at the

BLM state office and the other at the FWS regional office. FWS regional and refuge staff participated in a three-day biological setting workshop for the boreal ecosystem in Fairbanks and a two-day workshop for South Central vegetation types in Anchorage.

The ecologist represented FWS and fire program interests at the Circumpolar Biodiversity Monitoring Program workshop in Anchorage. The ecologist represented the FWS on the steering committee for a Climate Change Forum. As the FWS representative led the steering committee in defining the agenda and strategy for the entire workshop. As the lead on the Poster Session, coordinated approximately 35 posters related to climate change displayed at the Egan Convention Center location of the forum. During the forum, lead the discussion group how natural diversity, an Alaska ANILCA purpose for all Alaskan Refuges, should/could be considered in light of climate change.

The Chief of Refuges assigned Karen Murphy as regional representative on the Strategic Habitat Conservation (SHC) team. Primarily this means ensuring that Refuges are aware of the national SHC report and to begin the dialog on what SHC really means in Alaska.

Research

Tetlin FMO co-authored and submitted Joint Fire Science Program (JFSP) proposal entitled “Post-fire vegetative response & relationship to moose winter range carrying capacity.” The Tetlin FMO was the principle investigator for two on-going studies: “Post-fire berry production across a fire severity gradient on the Black Hills Fire, and “Furbearer use of post-fire seral stages, Tetlin NWR.” Another study the FMO

cooperated in was “Magnitude and Rates of Lake Drying in Wetlands on National Wildlife Refuges in Alaska.” One objective of this study is to document the effects of wildfire on open water dynamics on refuge wetlands. The Kanuti FMO attended a local meeting on JFSP projects concerning black spruce forests.

Research efforts are lead primarily by the ecologist. Activities have included chairperson of the interagency research committee, reviewed and scored (JFSP) proposals, and oversaw a contract with UAF through completion. The contract gave the FWS updated versions of Potential Nature Vegetation Groups (PNVG) used in Fire Regime Condition Class determination including the first assessment of how climate change influences the reference conditions in Alaska. The ecologist was the federal lead on two JFSP proposals for Alaska (1) to assess the vulnerability of deep burning in deep organic soils and (2) evaluate smoke emission and the Blue Sky model in Alaska. The ecologist continued collaboration and oversight on the funded JFSP project with Dr Scott Rupp to improve the Boreal ALFRESCO model of fire occurrence and climate change. The ecologist and the university designed a technical transfer workshop and report structure that would be delivered in 2008, the final year of the project. The fire ecologist also took the lead in developing a Memorandum of Understanding between Region 7 and the University of Alaska for Scenarios Network for Alaska Planning (SNAP) program. The agreement will lead to new climate data products that will be available for distribution to all stakeholders. These products are designed to assist Refuges understand the potential changes and how they may affect fire and other resources.

The Kenai Refuge AFMO, FMO and Pilot assisted Dr. Phil Higuera (University of Montana) and his team, who returned to the Kenai this summer to continue the Alaska ash deposition post-doctorate research project within the 2005/2006 King County Creek Fire.

Fuels, Wildland Urban Interface, Prescribed Fire

The communities of Evansville and Bettles are involved with hazard fuel reduction projects. The project was managed by the community of Evansville. Project activities consisted of hand thinning, piling the slash, and burning the piles. Coordination took place with Evansville Tribal Council, contract thinning crew, City of Bettles VFD, National Park Service, National Weather Service, and Alaska Fire Service (AFS) prior to conducting the burns. The project will be a multi-year effort. The Kanuti FMO review Wildland/Urban Interface (WUI) prescribed burn plans. The Native village of Hughes Fuels Reduction Project (19 acres) was completed by the Villages Emergency Fire Fighter (EFF) crewmembers.

A small project comparing fuel treatment effectiveness models (NEXUS, BEHAVE Plus, FS Pro, FLAMMAP and FCCS) was conducted as a first step in developing a fuel treatment effectiveness monitoring plan.

As FWS advisors, the Kenai Refuge Fire Management Staff participated in a collaborative interagency effort to complete five Community Wildfire Protection Plans (CWPP's) for extreme- or high-risk communities on the western Kenai Peninsula: Homer / Kachemak City; Anchor Point / Happy Valley / Nikolaevsk; Ninilchik Area; Kalifornsky / Kasilof / Coho / Clam Gulch; and Kenai Area. The

Kenai Peninsula Borough has been the lead agency for the development of these plans. The Kenai NWR has accepted the role of lead federal agency (closest federal land management agency). Completed CWPP's were implemented at various locations. Additional CWPP's planned to be developed include Soldotna, Sterling, Funny River and Nikiski. The Refuge will continue its collaborative efforts in the development and implementation of these plans. The Kenai Refuge continued its membership and active participation in the interagency Kenai Peninsula Wildland Fire Forests and Fuels Management working group and the All Lands All Hands 5-Year Action Plan.

Sixteen members of FWS and other State and Federal agencies assisted the Kenai Refuge fire staff and contributed hundreds of hours in the preparation and implementation of the Lily Lake Prescribed Fire project. The Refuge accomplished 8 acres of mechanical treatment (line construction and safety zone preparation) with dozers. A total of 15 acres of mechanically-treated black spruce hazard fuels were successfully burned in two separate blocks.

Several regional staff were able to work on task books, the Tetlin FMO work on RXB2 task book in region 4, and Sam Patten (prevent/outreach/mitigation) on the PIOF task book.

The Kenai Refuge experienced another interesting, challenging and eventful year. While the Refuge was preparing for its 400+ acre Lilly Lake WUI prescribed fire, a wildfire (Caribou Hills) was ignited by an errant spark from an electric grinder. As refuge firefighters returned to refuge operations and preparations for the prescribed fires, the national fire season heated up. Efforts to complete the project as

planned were thwarted by unfavorable weather and a lack of key resources for implementation. Still, fifteen acres of hand burning was completed before the seasonal wet weather shut the project down. Dianne MacLean, RXB1 and the Refuge fire staff with the help of many other refuge and regional FWS personnel, made a Herculean effort to complete the project this year and their efforts should not go unnoticed.

One administrative activity was conducted for fuels projects. Thirty-six Wildland Urban Interface (WUI) treatments were completed totaling 475 acres and 30 non-WUI treatments for 55 acres for an accomplishment of 530 acres. Treatments were accomplished by the Tetlin, Koyukuk/Nowitna, Kenai and Kanuti Refuges. These treatments provide protection and risk reduction around the communities of Evansville, Bettles, Tetlin, Tok, Sterling, and Seldotna. At Evansville, the Bettles Volunteer Fire Department (VFD) contributed in-kind services in the form of personnel and equipment to this project. The pile burn was regarded as an opportunity for a training exercise for the local Bettles fire department and engine crew who had also done the thinning for Evansville Tribal Council. It is important to note that most of the villages where fuel projects are applied do not have a VFD or fire fighting equipment. As mentioned early bears are constant reminders of wildness.

Community Wildfire Protection Plans and NEPA requirements were completed for the communities of Bettles, Evansville, Beaver, Tetlin. Plans are completed with cooperation from Native village leaders and either the State of Alaska Division of Forestry local office or BLM-AFS.

Wildland Fire

Tetlin Refuge personnel and equipment

supported four incidents: two in the Tok area, two others within the State and eight in the lower 48. Positions filled were ENGB, ENGB (T), ICT4, SITL (T) HELM (T). Yukon Flats outreach supported one fire (Okefenokee NWR) in the Lower-48 as a PIOF (T) and a member of the Decision Support Team, and one in Alaska (Kenai NWR) as PIOF (T). Koyukuk supported one Lower-48 assignment as GISS and one in Alaska as FFT1. One member of regional office staff was assigned to the Central Idaho large Fires team as infrared Interpreter “pod leader” in Boise. The Kenai and Tetlin refuge staff provided support to the State of Alaska during periods of high fire danger. The Chugach National Forest was provided assistance for the HEMG and HECM classes. Other personnel completed a 30 day detail as a helicopter crewmember on the Las Vegas Helitack model Type1, another completed a 14 day assignment as a EMT, another a 14 day assignment as a FFT1 on an Alaska Interagency Crew (Type 2-1A), and the Kenai AFMO completed a 30 day assignment at NIFC as Helicopter Coordinator.

The Caribou Hills fire ultimately burned through more than 55,000 acres of private, state, native association and refuge lands (6,400+ acres). The fire started on State land burned onto the refuge wilderness area. More than 200 structures were destroyed, many were in trespass on State land. Five firefighters with safety and firearms qualifications were assigned to protect camps and fire fighter from bears. Bears are a constant occurrence on Alaska’s fires and bear safety is included in briefings. Bears can show up at unexpected times and places. While running near the refuge headquarters one of the fire staff was attacked by a bear, leading to overall heightened safety awareness as a fuel reduction project was competed near the headquarters. A resource

advisor was assigned and a cost monitoring strategy was employed for the refuge portion of the fire. Two Kenai NWR refuge engines were also assigned along with six firefighters. The fire became the largest wildfire on the Peninsula since 1969 and the most destructive wildfire ever (in terms of structures lost). Those residences that had done Fire Wise treatments around their homes effectively protected their structures. Kenai refuge staff contributed about 1600 hours to the management of the Caribou Hills fire. As the Caribou fire entered the Refuge, prior burned areas substantially reduced the spread and intensity of the fire and afforded the opportunity to protect a near-by wildland urban interface area.

Wildland Fire Use

The decision to designate a fire a WFU primarily occurs within the limited management option. The limited management option is defined in the AIWFMP. The limited management option is designated an area where fire is managed and maintained to fulfill its natural role in the ecosystem. Most WFU fires remain in stage one or two. Occasionally a WFU may reach the complexity to implement a stage three. WFU, in any stage, may be of long duration burning for months with pulses of activity. These fires are regularly monitored and a periodic assessment completed.

The Swan Lake (WFU) Fire [1,960 acres] was managed exclusively by the FWS (as a FUM2/ICT3 incident), a first for the Refuge and the Alaska Region. Ten acres of private lands and 30 structures were protected at two separate remote locations. Eight FWS firefighters from Regions 1, 3 and 4 and five Alaska Region fire management and other staff assisted the Refuge. Many Refuge employees in addition to the fire staff

participated in the successful management of this WFU incident.

Tetlin Refuge fires were managed under a Stage I Wildland Fire Implementation Plan (WFIP). Two WFIPs were produced in the absence of the FMO by Refuge Manager, Tony Booth, under the direction of FUM2 Mary Kwart. These actions demonstrate that a Fire Use Manager can manage low complexity incidents remotely. The Manager's understanding of the process was in large part due to the Fire Management Leadership training completed in the spring. The State Division of Forestry did not directly participate in WFIP development this season but has expressed interest in the process.

Rural Fire Assistance

Rural Fire Assistance (RFA) funds were unavailable in FY07. However, other actions taken to help rural fire departments consisted of loaning the Tok VFD King radios, assisting the Galena VFD to hold a practice WUI scenario and obtaining support from the Bettles VFD to support the Evansville fuel reduction project.

Committees and Working groups

Regional fire staff is associated with both national and regional committees. The Region is represented on the FWS national firebase, operations and safety, fuels, and outreach committees.

Locally the FWS is represented on the following Alaska Wildland Fire Coordinating Group (AWFCG) committees/task groups: operations, education and prevention, fuels, research, fire effects, training, safety, weather, Fire Program Analysis (FPA), LANDFIRE, air quality and smoke management and Geographic Information System (GIS). On

the Kenai Peninsula the FWS has representation on the Forests, Fuels and Fire (All Lands All Hands) working group, the interagency Kenai Peninsula Borough - Local Emergency Planning Committee (LEPC) and, the interagency - Peninsula Fire Chiefs Association. These groups do not exist in other areas of the region. Two deputy refuge managers serve as line officer consultants and contacts for refuge managers to the Regional Fire Management Coordinator (RFMC).

Associated with FPA the regional fire planner, Jan Passek, attended FPA workshops in Boise and a number of local meetings. One of the efforts associated with this is to complete a 10-year comparison of fire reports from Fire Management Information System (FMIS) and records maintained by the BLM-AFS to account for all FWS fires.

Kenai AFMO chaired the National Interagency Helicopter Operations Guide (IHOG) Committee and served as a Subject Matter Expert (SME) to Helicopter Manager Training course revision. The FMO participated in the interagency Joint Fire Science Plan Biomass Roundtable in Utah.

Emergency Stabilization and Rehabilitation

No new BAER activities were recommended or requested by the Region in 2007. One project from the 2004 fire season (three-mile trail rehabilitation) was completed. Kanuti, Innoko and Yukon Flats all completed and submitted the final reports for BAER projects from the 2004 and 2005 fires.

Outreach, Fire Education, Prevention & Mitigation

The Outreach coordinator worked with the Alaska Interagency Prevention, Education and Outreach Committee. Assisted the State Project Learn Tree leader in training school teachers to use the "Fire in Alaska" curriculum developed using the FWS Role of Fire in Alaska and Forest Service fire materials. The training was held at the Delta Junction School. Fifteen teachers were trained in the use and presentation of the "Fire in Alaska" lessons. Project Learning Tree trained nearly 350 teachers in using the Role of Fire curriculum.

During the Alaska Sportsman's show over 300 copies of the FWS "Fire's Natural Role in Alaska" were distributed. In collaboration with the regional fire ecologist, Project Learn Tree updated the science standards in the Role of Fire in Alaska curriculum to meet new 2006 Alaska Standards for Education. Approximately 100 copies of the curriculum, on CD, were distributed at the statewide Math and Science Teachers Conference held in Anchorage in October.

At the Village of Beaver, the outreach coordinator presented WUI Project Orientation, outreach, prevention, mitigation, and chainsaw safety briefing, and information about the FWS. In addition, the coordinator provided materials and participated in community meetings on prevention and mitigating risk. Other activities of the outreach coordinator included participation as certified Fire Wise instructor at the Alaska Interagency Fire Wise conference and presented a poster at the Denver National WUI Fire Wise and Fire Education conference. The presentation summarized the results of FWS Alaska fuels reduction/WUI projects at Allakaket, Beaver and Evansville

Outreach staff participated with Ben Stevens, Acting President, of the Council of Athabaskan Tribal Governments to produce a live radio broadcast from the Ft. Yukon radio station on fire management on the Yukon Flats. Topics discussed included how fires are managed on the Yukon Flats NWR, wildland fire management options, the causes of wildland fire, where do most of the fires burn, do fires occasionally threaten villages, when was our biggest fire year, comparing 2007 to previous years, and how can we help protect the villages from wildland fire.

The outreach coordinator had a unique opportunity to participate with the Environmental Committee of the Japanese Diet (Parliament) and the Ministry of the Environment, Government of Japan, upon their visit to the Arctic National Wildlife Refuge offices at the Federal Building, Fairbanks, Alaska. The discussion included potential effects of climate change on four species of Arctic wildlife (caribou, moose, brown bear and polar bear) and changes in the natural fire regime of the Arctic Refuge associated with a warmer and drier climate (increasing fire frequency and fire size). Other activities included FWS representative in training sessions on Assessing Wildfire Hazards in the Home Ignition Zone, Fire Wise in Remote and Rural Communities, Planning and Mitigation, Fire and Emergency Operations, and in Fire Wise Communities USA. At the NCTC outreach workshop the coordinator presented a talk to FWS, NOAA and Government of Hong Kong, and other outreach personnel, on aspects of Alaska fire management and associated outreach methodologies, principally related to local rural residents and Tribal Councils. Fifteen outreach trainees from the various organizations attended

The Alaska Gateway School District and Alaska Mental Health Trust Cooperative Agreement between Tetlin NWR and Tetlin Village Council for Village fuel reduction project was extended for an additional year. Other activities at Tetlin Refuge drew over 300 participants to fire related environmental education activities. The Tetlin Technicians represented the FWS by driving the engine in the Fourth of July parade.

Tetlin Refuge in cooperation with University of Alaska Fairbanks, Cooperative Extension Service, and AK Division of Forestry gave a short Fire wise presentation at the landscaping workshop held in Tok. Participants viewed excerpts from the CD "Northland Wildfires - Fire wise Landscaping" along with receiving brochures and handouts. Some of the topics covered included basic principles of Fire wise protection, pruning and thinning vegetation, planting fire resistant plants and shrubs, and using fire resistant materials in garden design. The CD generated interest among the participants and the instructor. The Cooperative Extension Service requested a copy of the CD to use in their future workshops. The refuge plans to work with the local nursery to make landscaping and maintenance information available. This is an excellent example of leveraging what little funds FWS gets with sponsors from other agencies to cover expenses related to this project

Governor Sarah Palin proclaimed May 14-20, 2007 as "Wildland Fire Prevention and Preparedness Week." This proclamation was initiated by the Alaska Wildland Fire Coordinating Group (AWFCG), which consists of Alaska's state, federal and tribal organizations and agencies involved in fire management activities. It acknowledges the importance of wildland fire to the health of

Alaska's fire dependent ecosystems as well as everyone's role in fire prevention practices essential for public safety.

Outreach efforts resulted in three FWS Journal reports, Evansville WUI Project, Beaver WUI Project, and Visit of the Delegation from the Japanese Parliament to Arctic NWR. The Region maintained its representation on the National Fire Outreach Team (NOFT).

Robert Lambrecht (FMO) at Galena gave a presentation on fire management at the Western Arctic Caribou Working Group. The presentation was well received. The group commented, "Your expertise and professional demeanor was a wonderful reflection on your agencies." Representatives from Alaska attended the National Wildland Urban Interface Fire Education Conference. Denver, CO.

Outreach efforts during fire events included daily telephone contacts with the public and other agencies, preparation of radio station and newspaper news releases.

Regionally eight Native villages were presented fire education and outreach orientation. The AWFCG Wildland Fire Prevention and Education Committee reserved a booth at the Alaska Forum on the Environment Conference. During the proceedings, a FWS representative helped staff the Wildland fire/Fire wise booth. Staffer's found this to be an effective way for two-way communication with participants at the conference. Visitors from Alaska villages especially were able to relate to seeing photographs of their own village crews doing fuels reduction projects in Hughes, Allakaket, Evansville, Beaver, Chitina, etc. They were able to point out relatives and friends on the thinning crews. This made opening the conversation very

easy; most people were delighted to recognize individuals in the photographs and then wanted to engage us in conversation about the Fire wise/fuels reduction events, the goals, the rationale, and so forth.

During the annual Refuge Information Technician (RIT) meeting, the regional fire staff presented a half-day session on fire management and possible ways in which the RIT could assist. The Technicians are local individuals hire from the villages. They serve as a liaison between the Native villages and the FWS. They also help collect data on subsistence use.

Kenai NWR has experienced a reduction or lack of human-ignited wildfires. The reduction is partly a result of the consistent, collaborative interagency wildfire prevention effort on the Kenai Peninsula. Refuge fire and visitor services staff all play a role in that success through prevention patrols, visitor contacts and education programs. It is difficult to estimate how many Alaska students, residents and visitors are contacted every year by Refuge staff with a fire prevention, fire safety or fire ecology message. Messages are presented at campgrounds and trailheads, at the Environmental Education Cabin, at the Visitor Contact Station, at the Refuge Visitor Center, in area schools and through the media. The number of contacts is in the thousands every year.

All refuges make a concerted effort to reach its local, regional and national customers during wildfires. Refuge Managers often provide public comment on FWS actions on wildland fires and WFU. On occasion external affairs staff provides assistance and review of outreach materials. Some of the duties include preparing information kit, exhibiting safety awareness, processing information from dispatch, following check-

in procedures, doing documentation review, knowing current incident information, preparing fact sheets, participating in briefings, facilitating media relations, assisting with community relations, and preparing radio, newspaper, and internet news releases.

Refuge Biologists (Kanuti, Tetlin and Innoko) and the Regional Office Biometrician contributed the following to the fire program success:

- Prepare and finalize BAER reports
- Met with UAF researcher Dr. Rupp to discuss modeling project looking at the effect of different fire management options on the amount of old growth spruce/lichen forest on Kanuti NWR
- Developed a poster effect of different fire management options on the amount of old growth spruce/lichen forest on Kanuti NWR that was presented at the FWS climate change workshop
- Member of Fire Effects Task group.
- Obtaining GPS points for geo-referencing SPOT satellite imagery
- Attended session on fire regimes and fire consequences at the Climate Change Impacts on Boreal Forest Disturbance Regimes Conference at UAF
- Recorded data on fire severity and collected tree cores and cross-sections to determine stand age
- Worked on JFSP proposals with Dr. Feng Sheng Hu titled “Variability of Boreal forest Fire Regimes and potential impacts on caribou winter range”; and Drs. Eric Kasischke and Merritt Turetsky on “Predicting the occurrence and consequences of deep burning in Alaskan black spruce forests and peatland.”
- During the CCP process responded to questions (written response) about recent changes in fire management options to protect old-growth spruce/lichen habitat
- August 2: Met with ADF&G habitat biologists Dale Haggstrom and Tom Paragi (recently moved to intensive management coordinator position) to introduce new fire management officer Chase Marshall and discuss Kanuti fire projects and fire management options;
- Continued to refine fire-related sections of the CCP (Kanuti, Innoko, and Tetlin) prior to the release of the public review draft in spring. Responded to questions (written response) about recent changes in fire management options to protect old-growth spruce/lichen habitat
- Cooperation with Joan Foote regarding her efforts to finalize her report analyzing 10 years of post-fire vegetation surveys on permanent plots
- Reviewed and commented on graduate project proposal concerning remote sensing of wetlands and fire
- Prepared a Power point presentation on ALFRESCO fire modeling for Refuge Managers and Regional Director
- Presented Refuge Lands GIS (RLGIS): Weed Mapping Training
- Reviewed fire management sections of CCP
- Coordinated land cover mapping effort with Ducks Unlimited and provided comments on draft maps
- Co-authored and submitted JFSP proposal “Post-fire vegetative response & relationship to moose winter range carrying capacity”.
- Principal Investigator for on-going

study: “Post-fire berry production across a fire severity gradient on the Black Hills Fire, Tetlin NWR.”

- Principal Investigator for on-going study: “Furbearer use of post-fire seral stages,
- Cooperator on study entitled “Magnitude and Rates of Lake Drying in Wetlands on National Wildlife Refuges in Alaska.” One objective of this study is to document the effects of wildfire on open water dynamics in refuge wetlands.
- Currently serve on national planning committee for fire/biology workshop.
- Member of Alaska Committee for Noxious & Invasive Plants Management.
- Member of Land Management Research Demonstration (LMRD) planning team
- Reviewed NEPA documents on hazard fuels related projects
- Reviewed burn plans
- Made presentations to FWS Washington office staffers, ARD for

Refuges, and Regional Refuge Biologists on Region 7 LMRD Project. Talk emphasized on-going research and monitoring activities relating to wildfire in the boreal forest.

- Coordinated investigation of invasive plant treatment/control alternatives on lands adjacent to refuges
- Prepared fire effects section in CCP
- Assisted with post-fire assessments
- Helped provide statistical parameters for data collection
- Reviewed reports and offer guidance on statistical analysis of data
- Researched spruce bark beetle issues and how findings relate to fuels and fire management
- Conducted water body sediment studies to aid in the determination of fire history

CALIFORNIA and NEVADA REGION

In November, we were pleased to hear the official announcement to name the California and Nevada Operations Office (CNO) as Region 8. The name change served to clarify the status and role of CNO within national program scope and budget structure. The Fire Management Program in the California-Nevada Region (Region 8) includes national wildlife refuges (NWRs) and fish hatcheries throughout California, Nevada, and the Oregon Klamath Basin.

2007 Fire Season Summary

Much of the Region's 2007 fire season was average, but by October, it ended with a southern California firestorm. Santa Anna winds drove fires through communities and across numerous counties, impacting several NWRs including the San Diego and Hopper Mountain NWRs.

The Harris Fire burned a total of 90,345 acres of southern San Diego County. Approximately 50 percent (4,137 acres) of the San Diego NWR burned. Much of the Coastal Sage Scrub habitat protected on the NWR was burned and numerous special status species were impacted. The Harris fire also burned several homes and outbuildings including the newly installed San Miguel radio repeater and parts of the San Miguel weather station.

The Ranch Fire burned a total of 58,400 acres including 90 percent of the Hopper NWR (2,200 acres). The fire burned a large portion of the California condor's historic foraging habitat and several associated outbuildings.

BAER and ESR Programs

There was a sizeable workload associated with the Burned Area Emergency Response and Emergency Stabilization (BAER) and Rehabilitation (ESR) Programs. The San Diego NWR Emergency Stabilization Plan totaled over \$751,722 and the Hopper Mountain NWR plan required \$239,135 in immediate emergency stabilization project work.

In addition, we have prepared long-term Burned Area Rehabilitation Plans for each refuge with total requests of \$446,634 for Hopper Mountain NWRs and \$1,020,492 for rehabilitation work at San Diego NWR.

Hazardous Fuels and WUI Programs

Region 8 treated well over their target acres for hazardous fuels reduction and wildland-urban interface (WUI) protection. The region accomplished approximately 37,583 acres¹ in 2007, with 12,073 acres treated in the WUI.

In 2007, approximately 25,510 acres were treated to reduce hazardous fuels and maintain and or enhance wildlife habitat and fire-adapted ecosystems (non-WUI areas). These treatments emphasized prescribed fire. Mechanical treatments were emphasized in the WUI, while using a collaborative planning process for NWR lands and adjacent communities at risk of wildfire.

¹ Acres calculated by querying calendar year 2007 accomplishments reported within the FMIS data system.

Contracting and cooperative agreements continue to be an emphasis for fuels treatment implementation and other cooperative fire management efforts.

Many areas in the Sacramento Valley, Central Valley, and Southern California are still finding it difficult to meet prescribed fire targets through growing and competing smoke restrictions. We estimate that affected refuges are willing and capable of burning three to four times as many acres as they currently are burning, but are limited by the local air quality districts.

Collaboration and Partnerships

Region 8 fire management staff was involved in the California Fire Alliance and provided technical assistance and support to numerous fire safe and fire wise partners. The Fire Alliance is an interagency forum of local, tribal, state, and federal agencies coordinates statewide pre-fire management efforts and assists local communities at risk to wildfire. Fire management staff was also involved in the Nevada fuels committee, which is comprised of state and federal representatives and helps collaborate on WUI projects within Nevada.

Community Wildfire Protection Plans

Community Wildfire Protection Plans (CWPP) are still in progress for many of the southern Oregon, California, and Nevada WUI areas associated with NWRs. CWPP equivalents² or agency level plans³ are being utilized for

² CWPP Equivalent- a Community Wildfire Protection Plan Equivalent has been identified, by FWS, as one of several options to meet the intent of the Healthy Forest Restoration Act and National Fire Plan policy.

³ Agency-level plan- a plan that suffices as a risk

collaboration and prioritization strategies in many of these areas. In support of CWPP planning and partnerships, three National Fire Plan WUI grants were funded to help develop CWPPs and provide collaborative fire outreach and education in southern California and the Bay Area.

Outreach and Education

Fire outreach and education efforts continue to grow throughout the region. Much of the outreach funding this year went to staff time developing and updating the fire management website and other internal and external communication efforts. Although, fire program staffing and funding is currently inadequate to meet refuge program needs and stakeholder concerns. Increased funding and support to Region 8 would greatly enhance and build upon the successful implementation of national outreach plan objectives within the region.

The region also support several state-wide interagency fire prevention and education initiatives including the California State Fair's Camp Smokey and the California Interagency Fire Prevention Conference

Regional Organization and Staffing

The realignment of budget and resources between CNO and Region 1 had taken place prior to 2007 and the fire program was implemented under existing resources. Region 1 and Region 8 will continue to share administrative support functions located in Portland, Oregon. Region 8 will continue to have the same-

assessment and mitigation strategy for National Wildlife Refuge lands

delegated authorities and responsibilities as all other Service regions.

Under the region's new table of organization, the California North Central Valley and Nevada fire management zones were able to hire Assistance Fire Management Officers this year. The Regional office was also able to hire an Assistant Regional Fire Management Coordinator of fire operations.

Below is specific 2007 information for each fire zone within the region.

Klamath Basin Fire Management Zone

The Klamath Basin Fire Management Zone (Zone) is located in southern Oregon and northern California and includes the Klamath Marsh NWR, Upper and Lower Klamath NWRs, Bear Valley NWR, Clear Lake NWR, Tule Lake NWR, Modoc NWR and Humboldt Bay NWR.

The Zone experienced eight wildfires on refuge properties burning a combined 111.9 acres. Despite the high fire danger indices this season, fire starts and acres burned were below average.

The two Zone's suppression engines assigned to Klamath Basin NWR Complex provided initial attack on 15 local cooperator fires. In addition, the engines completed three 14-day fire assignments outside of the local area.

Zone personnel filled numerous overhead positions and supported fire assignments throughout the country. One employee served as Resource Unit Leader on the Northern Arizona Incident

Management Team. Task books were completed for a number of employees, which certified them for various overhead positions.

In 2007, the Zone treated over 30,000 acres of refuge lands with prescribed fire. Of this, 5,000 acres were WUI acres. Zone personnel also assisted local cooperators with additional prescribed fire projects off-refuge. This year, the Zone acquired a Marsh Master/ fire vehicle to use for fuels treatment projects in wetlands.

The Zone continues to build good working relationships with internal staffs, interagency cooperators, and lessees. To date, 11 out of the 12 permanent fire personnel in the zone meet IFMP qualifications for their current positions. This year, the Zone nominated both Project and Deputy Project Leaders for the national Fire Management Leadership class.

California North Central Valley Fire Management Zone

This Zone includes fire management for the Livingstone Stone and Coleman National Fish Hatcheries (NFH), Sacramento River, Sacramento, Delevan, Colusa, Sutter and Stone Lakes NWRs and the Willow Creek-Lurline and Butte Sink WMA.

In FY2007, Zone fire staff had no serious injuries both during fire and non-fire operations. The Zone experienced five wildfires on NWR lands burning 10.9 acres, all of which were suppressed during initial attack and held to under five acres. Zone firefighters also took action on seven threat fires that burned 12.9 acres on NWR lands and supported

ten local fire district incidents. Heavy fuel loadings existed due to average precipitation during the preceding winter and spring, and severity funding was approved for one month of the fire season.

Zone fire staff provided support to other geographic areas with personnel and equipment during severity operations. Zone fire staff assisted local, state, and national suppression efforts with 15 single resource and 10 off-refuge engine module assignments.

Zone fire staff worked on various projects in support of the refuge complex and the fire management program including the completion of ten WUI treatments for a total of 640 acres and 17 prescribed fires for 652 acres. A number of WUI projects were implemented using hand crews with the Coordinated California Conservation Corp or under goat grazing contracts.

Zone fire staffs supported countywide fire training for Glenn County rural fire departments under the Ready Reserve program and provided technical assistance and collaborative project opportunities with local fire safe councils.

The Zone is finalizing refuge risk assessments and mitigation strategies (RAMS) to incorporate into local CWPPs, where applicable. Fire outreach efforts were coordinated through refuge and hatchery events like the Salmon Festival.

California South Central Valley Fire Management Zone

This Zone includes fire management for the San Joaquin, San Luis, Merced, Grasslands, Antioch Dunes, San Pablo Bay, Don Edwards San Francisco Bay, Ellicott Slough, Salinas, Kern and Pixley NWRs.

The fire season and severity conditions in California's San Joaquin Valley began a month earlier this year and extended through late-November. This included sending a large contingent of the Zone's suppression resources to the Southern California wildfires. The Zone experienced a greater number of fire starts this year including several wildfires larger than 50 acres at both the Kern NWR and SF Bay NWR Complexes.

Although the wildfire season was longer this year, the zone was able to accomplish nearly 4,000 acres of fuels projects, the majority of which were prescribed fires. When comparing the 2006 to the 2007 fire activities, the Zone, this year, had more initial attack fires and acres affected, more fuels projects and acres completed, more overhead assignments, more engine assignments and a greater number of task books completed.

Highlights of the 2007 season include:

We maintained nine red-carded fire-funded personnel and 10 red-carded collateral fire fighters; maintained two type six engines, one type 3 engine, one tactical water tender, and a stand-alone fire cache. In addition, we supported the initial attack on 26 wildfires totaling 494 acres on or threatening NWR lands; dispatched overhead to nine off-zone fire assignments totaling 85 staff days; and dispatched to seven off-station fire assignments and one severity cover assignment for a total of 198 staff days.

Finally, we dispatched a Zone wildlife biologist (and collateral firefighter) to the National BAER team in support of the Southern California Wildfires.

During the year, Zone fire staff completed seven Position Task Books, which included DIVS, TFLD, ICT4 and RxB2.

This year, the Zone had the Zone took delivery of a new Command vehicle and a new Type 3, 4x4 Pierce Engine in December of 2007 which will provide staffing for both of its heavy engines in future years. The Zone also acquired new aerial photos for Merced County which aid in the planning and implementation of fuels projects and wildfire suppression.

The San Luis Zone maintained one WIMS weather station and made use of a new portable WIMS station on a number of fuels projects.

The Zone completed 33 fuels projects totaling 3,715 acres. Of these, 15 projects were prescribed fires ranging in size from 10 to 600 acres and totaling 2,867 acres. Early severity this year prevented additional prescribed burning. Another 18 projects emphasized mechanical fuel reduction including mowing, disking and spraying for a total of 848 acres.

The Zone supported a number of refuge and cooperator efforts this year including two cooperator prescribed burn projects totaling 70 acres, a chainsaw safety class to staff at the Kern NWR Complex and public outreach efforts at the Wild on Wetlands Festival, Crane Day and the Riparian Brush Rabbit Festival.

Zone Firefighters spent several staff days at the Kern and SF Bay NWR Complex to help plan and implement both prescribed fires and mechanical fuels treatments.

Zone staff monitored vegetative response to prescribed fire at three sites (Lone tree unit, Elk Pasture and the Colusa Unit) on the San Luis NWR Complex and monitored baseline conditions of iodine bush before prescribed burning to monitor fire effects on this unique woody shrub of the Central Valley.

Fire staff also surveyed all vegetation in the 1,700-acre Snowbird unit to provide a description of baseline conditions to monitor future fire effects.

The Zone has been supportive of local CWPP efforts in the Bay Area, Santa Cruz and throughout the Zone and developed risk assessments and mitigation strategies for refuge wildland urban interface properties in the Zone.

Southern California Fire Management Zone

This Zone includes fire management for the Blue Ridge, Bitter Creek, Guadalupe-Nipomo Dunes, Hopper Mountain, Seal Beach, Coachella Valley, Sonny Bono, Salton Sea, San Diego Bay, San Diego and Tijuana Slough NWRs.

Weather and fuels in southern California remained at critical levels at the end of the 2006 fire season. As a result, the potential for wildland fires within this zone remained high as the year began. The 2007 fire season started in January with the "Mother" fire that burned .25 acres. With no significant rainfall

predicted, the San Diego NWRC submitted an early season severity request to staff initial attack coverage. The significant drought, which amplified the critically low fuel moistures, continued throughout the fire season culminating in the Santa Ana wind season and the 2007 October fire surge. The conditions that created the need for severity funding continued throughout most of the fire season.

This was an above average fire season for the Zone which conducted initial attack and/or support actions on 28 wildfires totaling 6648 acres (on or threatening refuge lands). Most of the acreage, 6,500 acres was burned during two separate fires which occurred during the October fire surge.

Three fires stand out during the 2007 fire season due to their size and location- the Island Fire, Ranch Fire and Harris Fire.

During the Island Fire on Catalina Island (10,000 acres), Zone firefighters assisted with suppression efforts. Fire engines and crews were moved to the island via Marine Corps hovercraft operated out of Camp Pendleton.

The Ranch Fire began 8 miles east of the Hopper Mountain NWR and burned 58,400 acres, which include 2,471 acres of refuge land including a large portion of the California condor's historic foraging habitat and several associated outbuildings.

The Harris Fire started 21 miles east of the San Diego NWR during a very intense Santa Ana wind event. The fire burnt in a west direction towards the Refuge. The fire burned a total of 90,440 acres, which included 4,193 acres of

refuge land. Infrastructure loss and replacement costs included a remote weather station, water supply system, and FWS radio repeater. FWS fire crews and support personnel from the local area, as well as San Luis, Sacramento, and CNO assisted with suppression and efforts.

A summary of 2007 Zone Support Actions include: Zone fire crews responded to five out-of-area fire assignments, which included northern California. Fire Engineer, Javier Saldivar accepted a 30-day detail as a helicopter crewmember on the Las Vegas Interagency Helitack crew, and Bill Molumby, fire management officer, participated in four fire assignments on an incident management team as the Incident Commander. Merriam Aranzanso, fire budget technician participated in two fire assignments at Southern California GACC as an Expanded Dispatch Recorder, and, Assistant Fire Management Officer Larry Wade participated in four fire assignments, including assignments to the state of Georgia and Okefenokee NWR.

The Zone fire crew conducted basic firefighter training to soldiers of the 163rd Ordinance Company of the US Army, based out of Irvine, CA. 21 soldiers and two civilians attended this training. Lead instructor included FWS Fire Captain Jim Mitchell and Engineer Javier Saldivar. Training included live fire, classroom, and fire shelter practice.

Fire program staff also provided refresher training and fire line fitness testing to refuge and ecological services staff members.

The San Diego Rural Fire Protection District accomplished 2,900 acres of chipping around 270 homes through a \$100,000 FWS community assistance grant. This project funds two FWS chippers and the personnel to operate them. San Diego RFPD employees worked with homeowners who cut the brush creating a defensible space around their homes.

The San Diego NWR mechanically treated 160 acres of refuge fuel breaks at strategic WUI locations at a cost of \$6,000. Various other hazardous fuel reduction and invasive species removal projects were completed which resulted in 270 increasing the defensible space in homes adjacent to the refuge.

The San Diego NWRC has collaborated with the Fire Safe Council of San Diego County (FSC) on various WUI projects. With funding provided by the FWS, the FSC has worked to promote fire safe projects in communities adjacent to FWS managed land. We have also been successful in supporting existing community FSCs' in San Diego and encouraging many interested and emerging communities to establish local FSCs. Within this grant term, the FSC has promoted projects in 10 new communities in hope of establishing active and effective community FSCs.

Fire crews also participated in two interagency prescribed burns for 92 acres.

Nevada Fire Management Zone

The Nevada Fire Management Zone includes Marble Bluff Fish Facility and Lahontan National Fish Hatchery, the Anaho Island, Fallon, Stillwater, Ruby

Lake, Desert, Pahranaagat and Ash Meadows NWRs, as well as the Stillwater WMA and Amargosa Pupfish Research Station.

Fire season in Nevada started early in 2007 with a fire on the Pahranaagat NWR on January 30. The 38-acre fire in salt cedar was a sign of how dry the area was.

Fire restrictions went into effect on the southern Nevada refuges in mid-May and remained in effect until mid-September.

By June, fire danger indices (i.e., ERC's) were setting new records almost daily in Nevada. In mid-June, a severity funded type-6 engine was stationed at Pahranaagat NWR. Staff rotated through and kept the engine available until August. Another severity funded engine crew staffed the engine at Ruby Lake NWR for part of July and the month of August.

The crews were maintained in position until fire danger declined. The detailers worked on fuel reduction projects on Moapa Valley, Ruby Lake, and Pahranaagat NWRs at no additional cost to the refuges. There were no negative incidents associated with these crews.

There were few fire starts on the refuges in Nevada this year in spite of the extremely dry conditions. The monsoons came late, and wet, so most lightning starts were extinguished by the storms that ignited them. There were six lightning fires reported on Desert NWR, only one of which was staffed before they went out. Pahranaagat had one fire that was staffed. Ash Meadows, Moapa, Stillwater, and Ruby Lakes refuges were spared wildfires in 2007.

Ten prescribed burn projects and six mechanical fuels projects were completed this year. Projects totaled over 1,250 acres.

All the prescribed burns carried out included interagency partners. The list of partners was long, including USFS-Humboldt Toiyabe; BLM-Las Vegas; BLM-Carson City; BLM-California Desert Unit; BLM-Ely; Clark County; US Navy (Fallon NAS); Paiute tribe (Pyramid Lake), NDF, and the NPS-Lake Meade.

In late June, the Ash Meadows NWR hosted an interagency fire training drill, which featured a scenario based on a large fire that impacted the refuge in 2004. The drill included participants from the USFS, NDF, Las Vegas BLM, and Nye County EMS, and the Amargosa Valley fire department and a private Church Camp. The purpose of the scenario was to better coordinate and improve response to wildland fires on the refuge. The training day was a success.

Nevada zone had four red-carded, arduous duty personnel this year (One fire funded and three collateral duty). They supported incidents in Nevada, Montana, and California.

Three different USFWS detailers filled our slot on the Nevada Interagency Helitack Module in Las Vegas. These detailers provided valuable interagency support to the helitack program during a year that the helitack program was understaffed. There were no negative incidents associated with these detailers. In fact, the helitack supervisor had positive reports about all three.

Again in 2007, there were no injuries or accidents associated with Nevada Fire Operations.

Nevada zone personnel supported other CNO fire zones and interagency partners by providing “end-of-season” analysis. Products were developed for the southern Nevada, northern Nevada, and San Diego, California areas. In addition, we worked with the other southern Nevada federal agencies to develop a National Fire Danger Rating System (NFDRS) Operating Plan for the area.

The Nevada zone entered into two Interagency Agreements with partners who support our prescribed fire program and another Interagency Agreement to provide fire protection on the southern Nevada refuges.

The zone continued to work with partners on both statewide and specific CWPP’s as a member of the Nevada Landscape Risk Assessment Project.

The Nevada zone was involved with three fire ecology projects this year involving the Sheep Range on the Desert NWR.

One project included gathering soil, plant, animal, and fire history information from dozens of plots within the 1.5 million acre refuge. This project will continue for at least one more field season.

The National Tree Ring Laboratory at the University of Arizona conducted the second project. This project included collecting samples from fire-scarred Ponderosa pine in the Sheep Range for analysis of fire occurrence, size, and

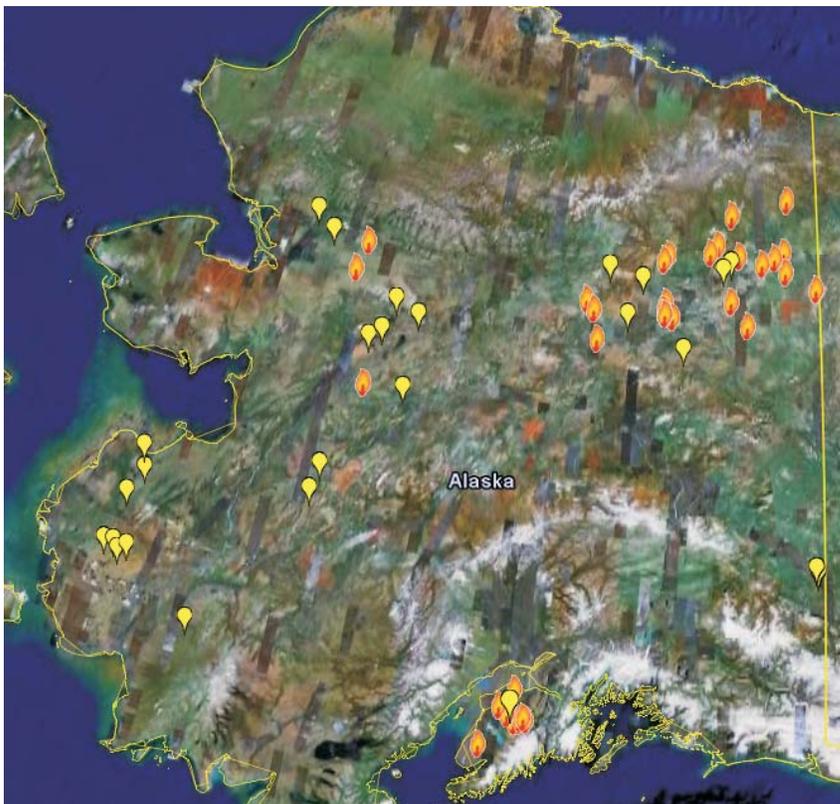
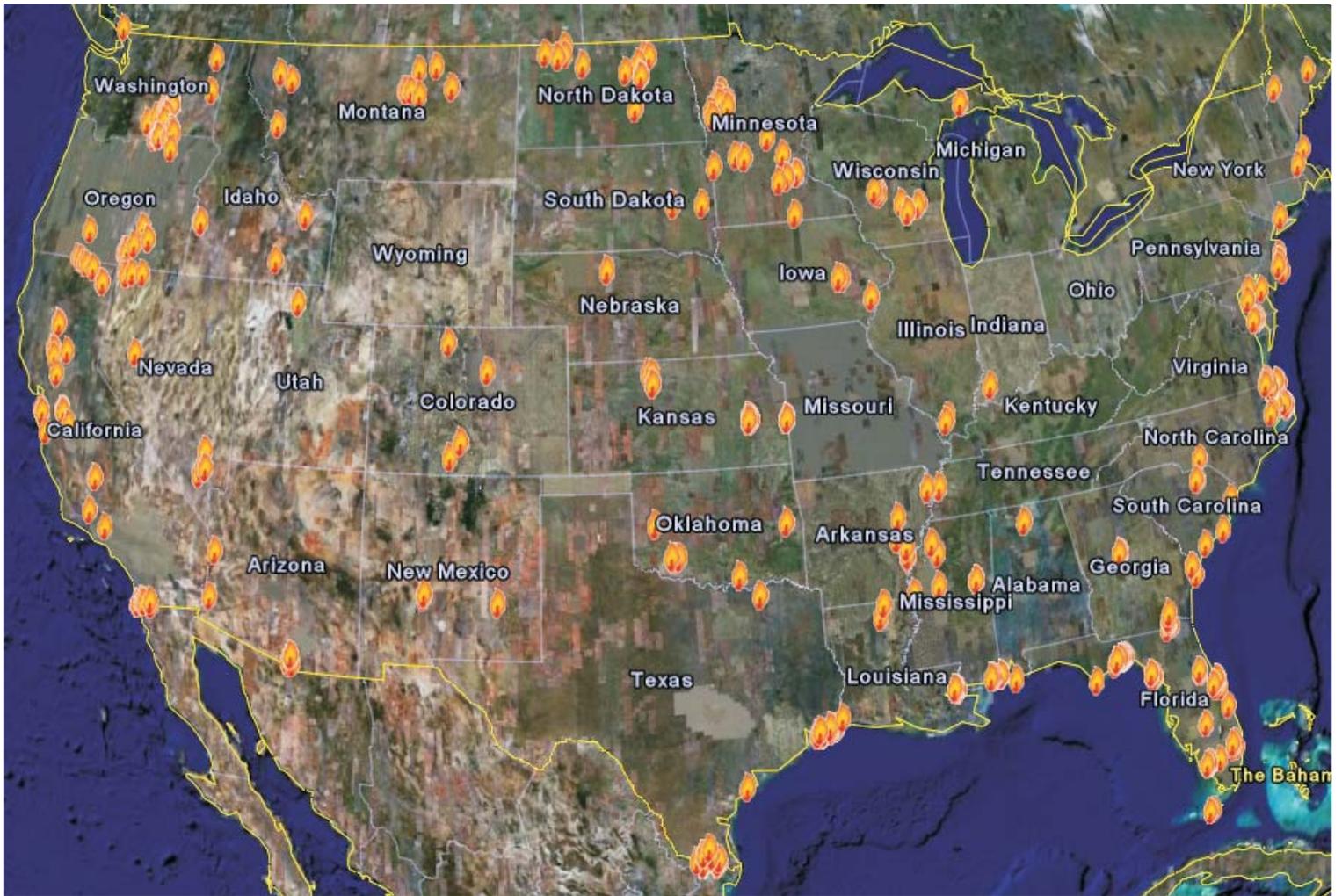
intensity. The study will continue into 2008.

The third project also focused on the Ponderosa pine in the sheep range. Samples of thirty pines were sent to the US Forest Service Genetic Laboratory for DNA analysis and comparison with the other samples from across the west. The study will reveal how similar this isolated population is to other populations of Ponderosa pine in the

western US. Results should be available in 2008.

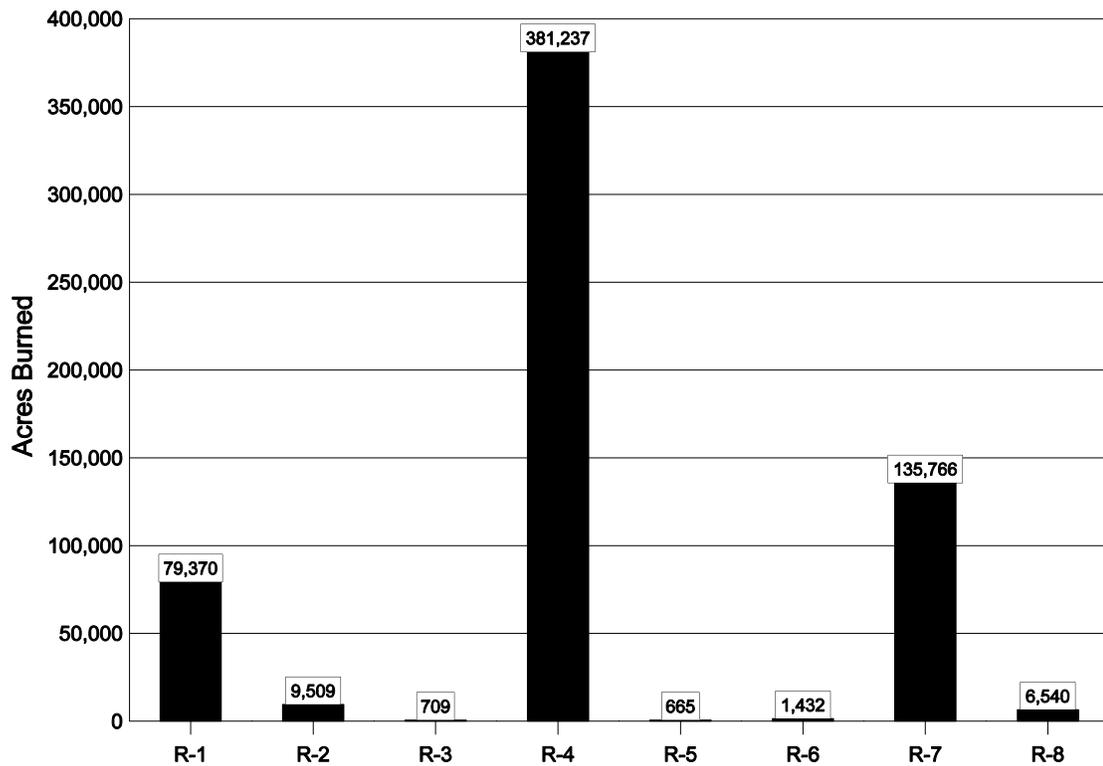
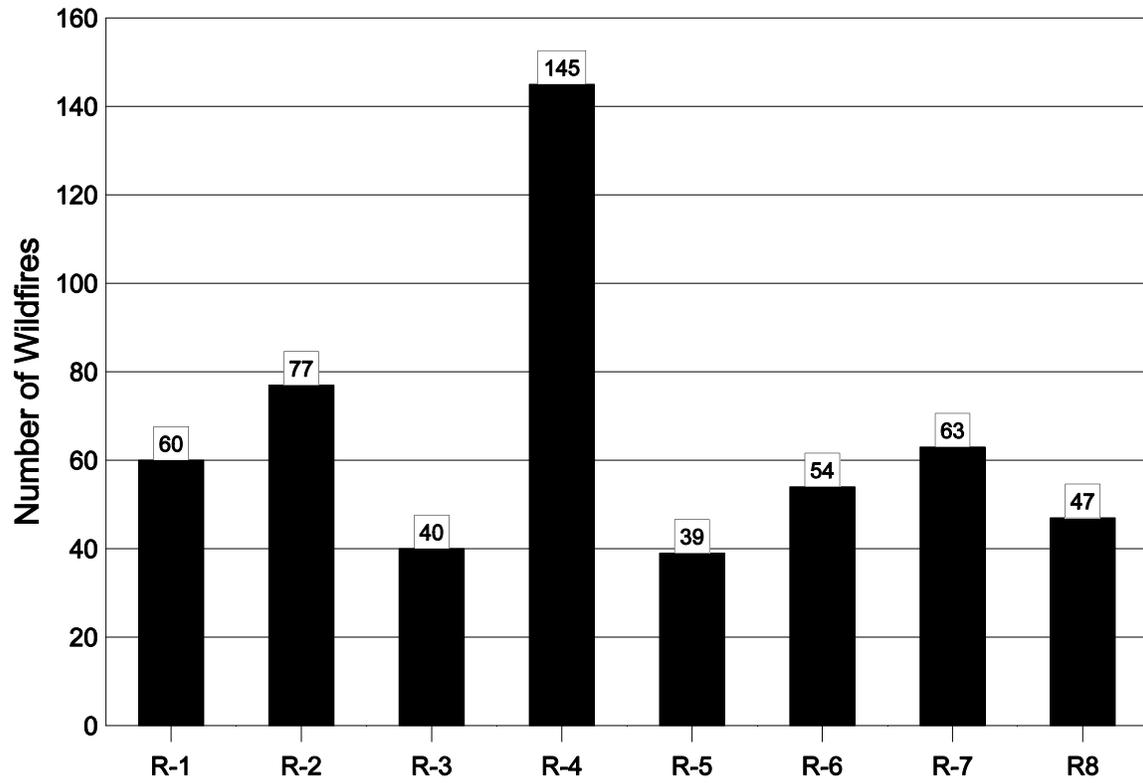
Several BAER and Burned area rehabilitations were completed on Nevada Refuges. Between the Ash fire, the Longstreet fire, and the Meadows fires on the Ash Meadows NWR and the Vegas-Gass complex on Desert NWR, over 1 million dollars was spent on fire rehabilitation projects.

2007 WILDFIRE ACTIVITY



Orange Flames = Wildland Fires
Yellow Balloons = Fire Use Fires

WILDFIRES 2007



WILDFIRES by State 2007

<u>State</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Alabama	3	79.2	107.0	186.2
*Alaska	63	135,766.1	55,706.6	191,472.7
Arizona	8	1,371.9		1,371.9
Arkansas	7	22.5	10.0	32.5
California	37	6,495.7	142,802.5	149,298.2
Colorado	4	78.7		78.7
Connecticut	1	0.1		0.1
Delaware	1	0.1		0.1
Florida	59	11,865.2	61,912.3	73,777.5
Georgia	14	367,775.8	132,883.0	500,658.8
Hawaii	1	30.0		30.0
Idaho	4	8.9		8.9
Illinois	2	0.4		0.4
Indiana	1	5.0		5.0
Iowa	3	48.4		48.4
Kansas	20	558.0	483.6	1,041.6
Louisiana	14	55.5		55.5
Maine	2	3.1		3.1
Maryland	7	228.5	135.0	363.5
Massachusetts	2	3.3		3.3
Michigan	2	2.6		2.6
Minnesota	21	624.2	413.2	1,037.4
Mississippi	17	143.4	138.9	282.3
Montana	10	519.7	133.2	652.9
Nebraska	1	0.1		0.1
Nevada	11	288.7	9.0	297.7
New Jersey	9	417.6	16,650.0	17,067.6
New Mexico	3	3.2		3.2
North Carolina	21	1,204.7	148.0	1,352.7

North Dakota	15	246.0	7.7	253.7
Oklahoma	12	196.3		196.3
Oregon	25	249.6		249.6
Puerto Rico	7	45.5	5.5	51.0
South Carolina	7	5.5		5.5
South Dakota	2	28.5		28.5
Tennessee	1	40.0		40.0
Texas	54	7,937.6	185.3	8,122.9
Utah	2	1.3		1.3
Virginia	12	11.6		11.6
Washington	29	78,837.5	24,182.0	103,019.5
Wisconsin	11	28.7		28.7
Total	525	615,228.7	435,912.8	1,051,141.5

* Alaska had 28 Fire Use fires for 68,237.7 acres. They are included in the totals above. Alaska was the only region with Fire Use fires on FWS lands.

WILDFIRES Pacific Refuges

<u>Refuge</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Camas NWR	1	7.0		7.0
Columbia NWR	12	1,393.2	2,897.0	4,290.2
Deer Flat NWR	2	1.8		1.8
Dungeness NFH	1	11.0		11.0
Hanford /Saddle Mtn. NWR	8	77,319.2	21,285.0	98,604.2
Hart Mtn. Natl. Antelope Refuge	6	2.3		2.3
Huleia NWR	1	30.0		30.0
Little Pend Oreille NWR	1	0.1		0.1
Malheur NWR	3	20.0		20.0
McKay Creek NWR	1	0.3		0.3
McNary NWR	6	167.3		167.3
Mid-Columbia River NWRC	1	84.0		84.0
Minidoka NWR	1	0.1		0.1
Sheldon NWR	4	250.1	9.0	259.1
Toppenish NWR	1	16.0		16.0
Turnbull NWR	1	1.0		1.0
Umatilla NWR	10	66.6		66.6
Total	60	79,370.0	24,191.0	103,561.0

WILDFIRES

Southwest Refuges

<u>Refuge</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Anahuac NWR	5	820.2		820.2
Aransas/Matagorda Island NWRC	1	0.1		0.1
Bitter Lake NWR	1	3.0		3.0
Bosque Del Apache NWR	2	0.2		0.2
Buenos Aires NWR	6	1,363.4		1,363.4
Cibola NWR	1	0.5		0.5
Deep Fork NWR	1	15.0		15.0
Havasu NWR	1	8.0		8.0
Lower Rio Grande NWR	26	784.0		784.0
McFaddin NWR	18	6,269.4	185.3	6,454.7
South TX Refuges Complex	1	4.0		4.0
Sequoyah NWR	1	12.0		12.0
TishomingoNWR	1	0.5		0.5
Texas Point NWR	3	59.9		59.9
Washita NWR	1	168.0		168.0
Wichita Mountains Wildlife Rfg	8	0.8		0.8
Total	77	9,509.0	185.3	9,694.3

WILDFIRES

Great Lakes-Big Rivers Refuges

<u>Refuge</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Big Stone NWR	1	1.4		1.4
Crab Orchard NWR	2	0.4		0.4
Crane Meadows NWR	1	7.0		7.0
Detroit Lakes WMD	7	582.0	408.0	990.0
Horicon NWR	2	3.4		3.4
Leopold WMD	4	7.5		7.5
Litchfield WMD	1	1.0		1.0
Minnesota Valley NWR	5	10.4		10.4
Morris WMD	1	10.0		10.0
Necedah NWR	5	17.8		17.8
Patoka River NWR	1	5.0		5.0
Port Louisa NWR	3	48.4		48.4
Seney NWR	2	2.6		2.6
Sherburne NWR	1	2.0		2.0
Tamarac NWR	3	1.4	5.2	6.6
Windom WMD	1	9.0		9.0
Total	40	709.3	413.2	1,122.5

WILDFIRES

Southeast Refuges

<u>Refuge</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Alligator River NWR	7	1,086.8	130.0	1,216.8
ARM Loxahatchee NWR	5	8,030.0		8,030.0
Big Branch Marsh NWR	11	25.2		25.2
Bon Secour NWR	1	73.0	107.0	180.0
Cabo Rojo NWR	3	18.0		18.0
Cache River NWR	2	7.4		7.4
Cape Romain NWR	1	4.0		4.0
Caribbean Islands Refuges	4	27.5	5.5	33.0
Carolina Sandhills NWR	2	0.2		0.2
Chickasaw NWR	1	40.0		40.0
Central Arkansas Refuges	1	0.1		0.1
Currituck NWR	1	4.0		4.0
D'Arbonne NWR	1	0.1		0.1
Ernest F. Hollings Ace Basin NWR	1	1.0		1.0
Florida Panther NWR	9	2,610.6	61,461.0	64,071.6
Grand Bay NWR	8	99.7	113.6	213.3
Lake Wales Ridge NWR	2	6.0		6.0
Lake Woodruff NWR	4	18.5		18.5
Lower Suwannee NWR	6	9.3		9.3
Mackay Island NWR	3	61.1		61.1
Merritt Island NWR	6	13.4		13.4
Morgan Brake NWR	1	0.2		0.2
MS Sandhill Crane NWR	4	2.4	25.3	27.7
North Mississippi Refuges	1	23.0		23.0
National Key Deer Refuge	3	8.3		8.3
Noxubee NWR	3	21.0		21.0

Okefenokee NWR	8	366,698.7	132,882.0	499,580.7
Pee Dee NWR	1	2.0	18.0	20.0
Pelican Island NWR	1	10.0		10.0
Piedmont NWR	5	1.1	1.0	2.1
Pocosin Lakes NWR	4	50.3		50.3
Sabine NWR	1	30.0		30.0
Savannah-Pickney Natl Wildlife Rfg	2	0.2		0.2
St. Johns NWR	3	160.0	410.0	570.0
St. Marks NWR	19	998.9	41.3	1,040.2
St. Vincent NWR	1	0.2		0.2
Upper Ouachita NWR	1	0.2		0.2
Waccamaw NWR	1	0.1		0.1
Wassaw NWR	1	1,076.0		1,076.0
Wheeler NWR	1	0.3		0.3
White River NWR	4	15.0	10.0	25.0
Yazoo NWR	1	3.0		3.0
Total	145	381,236.8	195,204.7	576,441.5

WILDFIRES

Northeast Refuges

<u>Refuge</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Bombay Hook NWR	1	0.1		0.1
Chesapeake Marshlands NWR	6	228.4	135.0	363.4
Edwin B. Forsythe NWR	9	417.6	16,650.0	17,067.6
Eastern Massachusetts NWRC	1	3.0		3.0
Eastern Neck NWR	1	0.1		0.1
Great Dismal Swamp NWR	17	12.1		12.1
Lake Umbagog NWR	1	0.5		0.5
Parker River NWR	1	0.3		0.3
Stewart B. McKinney NWR	1	0.1		0.1
Sunkhaze Meadows NWR	1	2.6		2.6
Total	39	664.8	16,785.0	17,449.8

WILDFIRES

Mountain-Prairie Refuges

<u>Refuge</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Arapaho NWR	1	1.5		1.5
Baca NWR	1	25.0		25.0
Bear River Migratory Bird Rfg.	2	1.3		1.3
Bowdoin NWR	2	1.2		1.2
Charles M. Russell NWR	5	517.4	133.0	650.4
Chase Lake Prairie Project WMD	1	0.1		0.1
Crosby WMD	1	18.0	7.5	25.5
Des Lacs NWR	2	0.4	0.2	0.6
Devils Lake WMD	9	218.0		218.0
Flint Hills NWR	11	128.9	483.6	612.5
Huron NWR	1	0.5		0.5
Kirwin NWR	4	400.1		400.1
Lee Metcalf NWR	1	0.1		0.1
Lost Trail NWR	1	0.9	0.2	1.1
Lostwood NWR	1	9.0		9.0
Madison WMD	1	28.0		28.0
Marais Des Cygnes NWR	5	29.0		29.0
Monte Vista NWR	1	50.9		50.9
Rocky Mtn. Arsenal NWR	1	1.3		1.3
Swan River NWR	1	0.1		0.1
Upper Souris NWR	1	0.5		0.5
Valentine NWR	1	0.1		0.1
Total	54	1,432.3	624.5	2,056.8

WILDFIRES

Alaska Refuges

<u>Refuge</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Arctic NWR	12	38,146.7	574.0	38,720.7
Innoko NWR	2	6,920.0		6,920.0
Kenai NWR	10	8,361.0	49,854.0	58,215.0
Koyuku NWR	6	44,608.5		44,608.5
Selawik NWR	4	115.5		115.5
Tetlin NWR	4	1.6		1.6
Yukon Delta NWR	8	6,988.0		6,988.0
Yukon Flats NWR	17	30,624.8	5,278.6	35,903.4
Total	63	135,766.1	55,706.6	191,472.7

Fire Use fires are included.

WILDFIRES

California and Nevada Refuges

<u>Refuge</u>	<u># Fires</u>	<u>FWS Acres</u>	<u>Other Owner Acres</u>	<u>Total Acres</u>
Bear Valley NWR	1	0.2		0.2
Bitter Creek NWR	1	0.5	0.5	1.0
Clear Lake NWR	1	25.7		25.7
Colusa NWR	1	3.0		3.0
Delvan NWR	1	0.1		0.1
Desert NWRC	5	0.5		0.5
DE San Francisco Bay NWR	3	3.0		3.0
Ellicott Slough NWR	1	11.0		11.0
Hopper Mountain NWRC	1	1,902.0	56,499.0	58,401.0
Klamath Marsh NWR	1	0.2		0.2
Lower Klamath NWR	1	5.7		5.7
Modoc NWR	2	0.3		0.3
Pahranagat NWR	1	38.0		38.0
Pixley NWR	2	301.0		301.0
Red Bluff Fish & Wildlife Office	1	1.0		1.0
Sacramento NWR	1	1.4		1.4
Sacramento River NWR	1	1.0		1.0
San Diego NWR	3	4,150.0	86,303.0	90,453.0
San Diego NWRC	3	3.4		3.4
San Joaquin River NWR	5	5.0		5.0
San Luis NWR	3	3.0		3.0
Stillwater NWR	1	0.1		0.1
Stone Lakes NWR	2	4.5		4.5
Tijuana Slough NWR	3	0.3		0.3
Tule Lake NWR	2	79.5		79.5
Total	47	6,540.4	142,802.5	149,342.9

WILDFIRES by CAUSE 2007

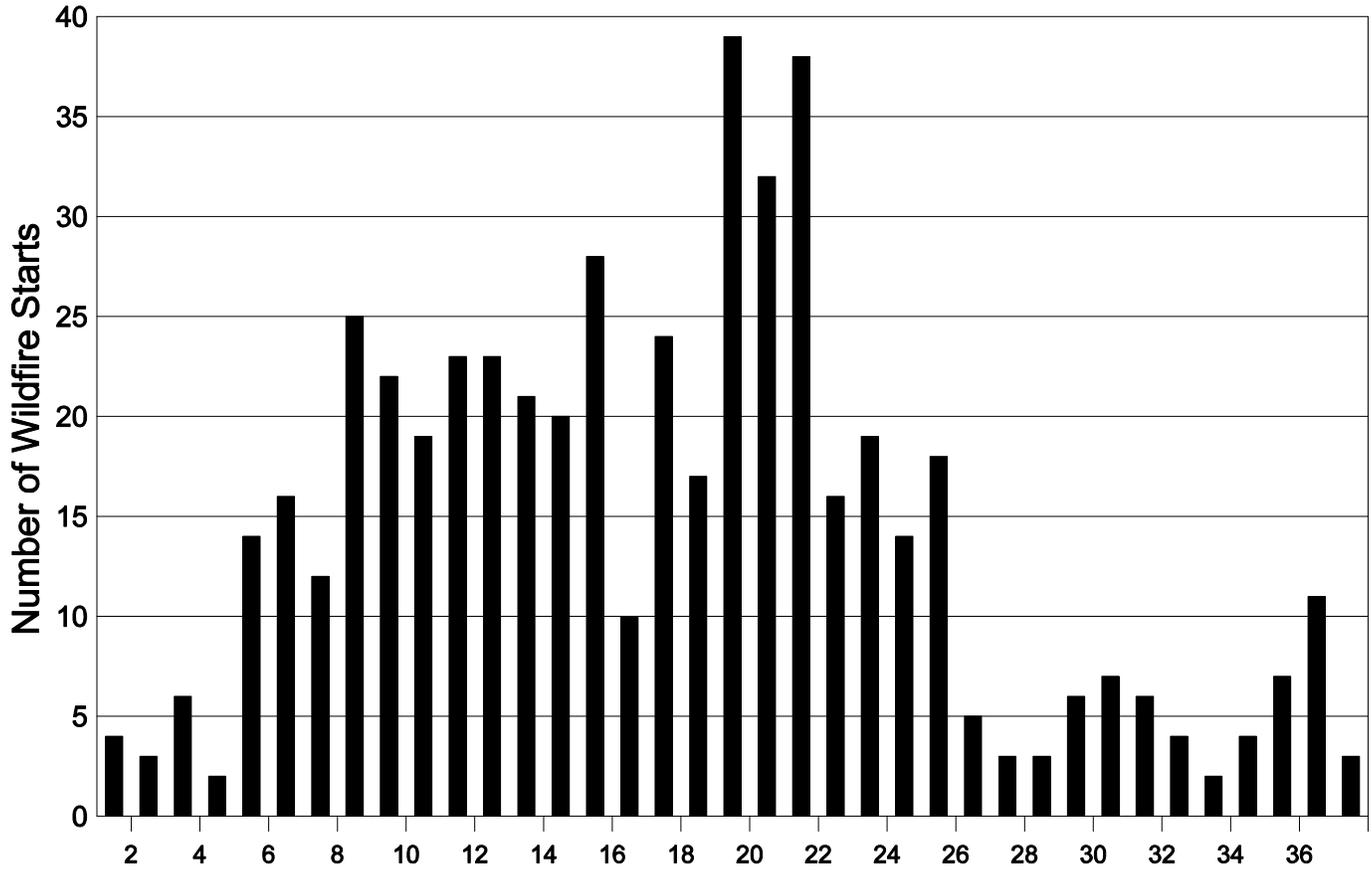
Cause	# Fires	FWS Acres	Other Owner Acres	Total Acres
Natural	172	341,759.2	203,196.9	544,956.1
Debris/Vegetation Burn	52	1,649.7	636.3	2,286.0
Equipment Use	28	6,484.2	49,872.5	56,356.7
Exceeded RX (prescription)	6	444.5	130.0	574.5
Incendiary	56	1,166.6	17,298.8	18,465.4
Misuse of Fire	21	1,344.0	0.0	1,344.0
Open or Outdoor Fire	51	4,722.0	86,328.3	91,050.3
Smoking	4	2.7	0.0	2.7
Other Causes	30	191,559.2	3.2	191,562.4
Undetermined	105	66,096.6	78,446.8	144,543.4
TOTAL	525	615,228.7	435,912.8	1,051,141.5

WILDFIRES by SIZE CLASS 2007

Size Class	# Fires	FWS Acres	Other Owner Acres	Total Acres
A (0 - .2)	157	18.2	57.0	75.2
B (.3 - 9.9)	199	484.1	552.6	1,036.7
C (10 - 99.9)	88	2,671.1	926.6	3,597.7
D (100 - 299.9)	27	5,022.0	2,331.0	7,353.0
E (300 - 999.9)	21	11,063.2	18,445.0	29,508.2
F (1000 - 4999.9)	20	45,104.1	209,541.6	254,645.7
G (5000 +)	13	550,866.0	204,059.0	754,925.0
TOTAL	525	615,228.7	435,912.8	1,051,141.5

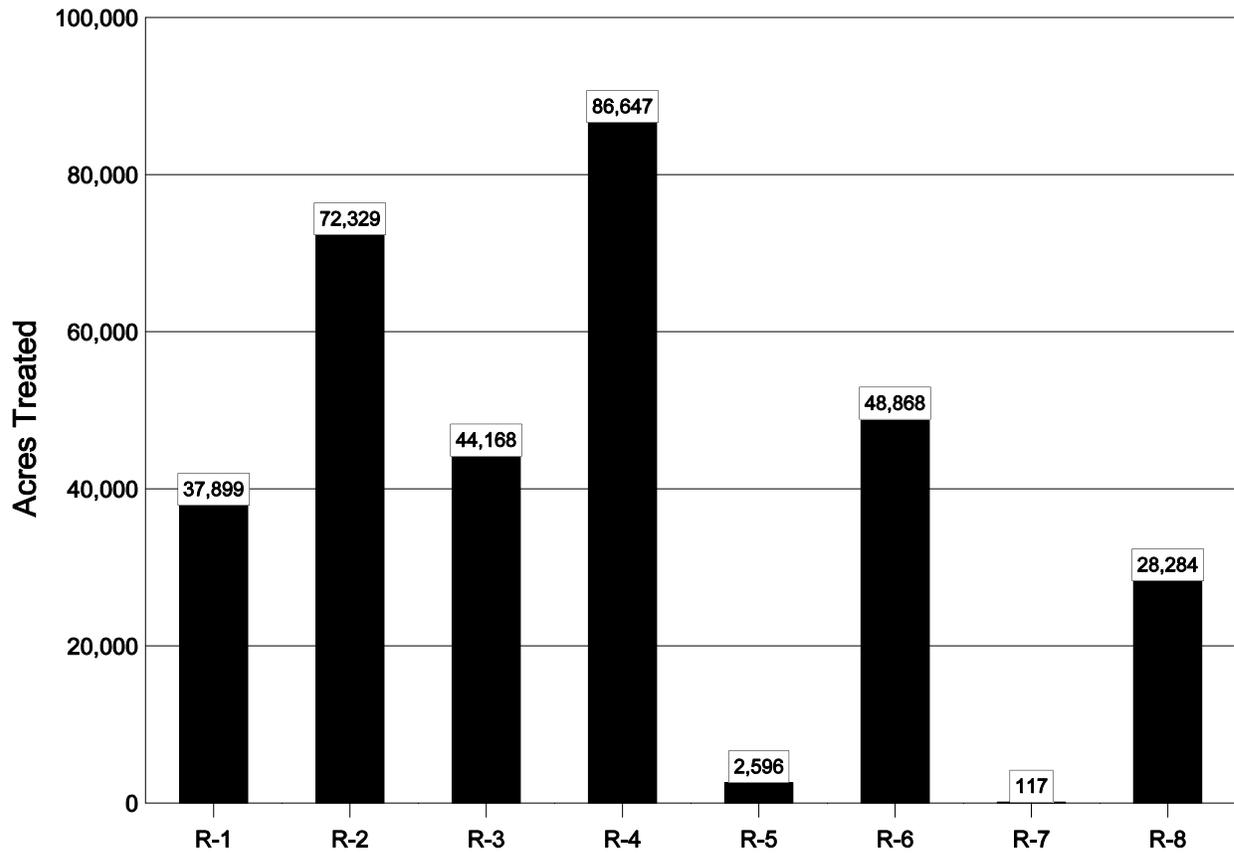
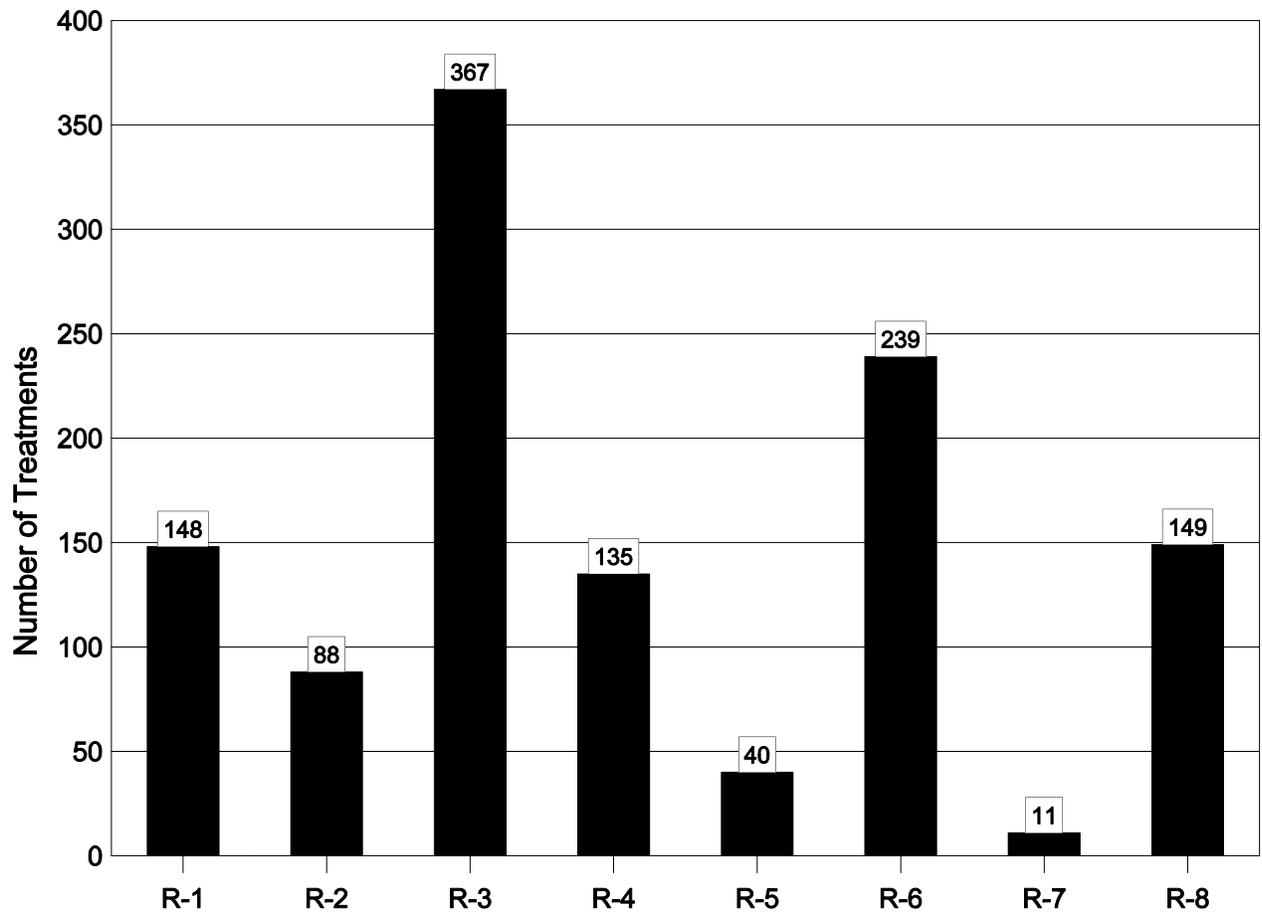
WILDFIRE STARTS - 2007

10-Day Period



<u>Period</u>	<u>Dates</u>	<u>Period</u>	<u>Dates</u>	<u>Period</u>	<u>Dates</u>
1	Jan 01 - Jan 10	13	May 01 - May 10	25	Aug 29 - Sep 07
2	Jan 11 - Jan 20	14	May 11 - May 20	26	Sep 08 - Sep 17
3	Jan 21 - Jan 30	15	May 21 - May 30	27	Sep 18 - Sep 27
4	Jan 31 - Feb 09	16	May 31 - June 09	28	Sep 28 - Oct 07
5	Feb 10 - Feb 19	17	June 10 - June 19	29	Oct 08 - Oct 17
6	Feb 20 - Mar 01	18	June 20 - June 29	30	Oct 18 - Oct 27
7	Mar 02 - Mar 11	19	June 30 - July 09	31	Oct 28 - Nov 06
8	Mar 12 - Mar 21	20	July 10 - July 19	32	Nov 07 - Nov 16
9	Mar 22 - Mar 31	21	July 20 - July 29	33	Nov 17 - Nov 26
10	Apr 01 - Apr 10	22	July 30 - Aug 08	34	Nov 27 - Dec 06
11	Apr 11 - Apr 20	23	Aug 09 - Aug 18	35	Dec 07 - Dec 16
12	Apr 21 - Apr 30	24	Aug 19 - Aug 28	36	Dec 17 - Dec 26
				37	Dec 27 - Dec 31

NON-WUI TREATMENTS



NON-WUI TREATMENTS by State 2007

<u>State</u>	<u># Fires</u>	<u>Rx Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Alabama	5	679.0			679.0
Alaska	11	20.0	97.0		117.0
Arizona	6	4,089.0			4,089.0
California	122	17,267.5	819.0	52.0	18,138.5
Colorado	7	427.4			427.4
Florida	38	21,520.0	3.4		21,523.4
Georgia	44	28,725.0	3,563.0		32,288.0
Idaho	9	498.0	1,283.0	750.0	2,531.0
Illinois	20	1,554.4			1,554.4
Indiana	11	6,937.0			6,937.0
Iowa	38	2,738.6	22.0		2,760.6
Kansas	25	9,714.0			9,714.0
Louisiana	5	22,567.0			22,567.0
Maine	8	32.3	95.6		127.9
Maryland	21	1,442.0		300.0	1,742.0
Massachusetts	1		138.0		138.0
Michigan	10	1,420.0			1,420.0
Minnesota	200	25,027.5	145.0		25,172.5
Mississippi	6	1,422.0			1,422.0
Missouri	19	868.0			868.0
Montana	23	6,533.0			6,533.0
Nebraska	38	5,548.0			5,548.0
Nevada	22	1,343.3	481.0		1,824.3
New Mexico	8	715.5			715.5
New York	2	101.0	70.0		171.0
North Carolina	24	5,401.0	56.0	1.0	5,458.0
North Dakota	92	17,122.3			17,122.3
Oklahoma	11	10,407.1			10,407.1
Oregon	101	22,219.2	16,542.0	65.0	38,826.2

South Carolina	13	2,710.0			2,710.0
South Dakota	53	6,704.0	517.0		7,221.0
Texas	63	57,062.4	55.0		57,117.4
Utah	5	2,442.0			2,442.0
Virginia	8	417.0			417.0
Washington	43	1,297.5	2,059.0	1,506.0	4,862.5
Wisconsin	65	3,554.5	1,556.0	205.0	5,315.5
Total	1,177	290,526.5	27,502.0	2,879.0	320,907.5

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

NON-WUI TREATMENTS Pacific Region

<u>Refuge</u>	<u>Number</u>	<u>Rx Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Baskett Slough NWR	5	110.0			110.0
Bear Lake NWR	1		909.0		909.0
Camas NWR	3	40.0	227.0		267.0
Columbia NWR	12	196.0	696.0	570.0	1,462.0
Grays Lake NWR	1	400.0		400.0	800.0
Hanford Reach /Saddle Mtn	2	22.0	250.0		272.0
Hart Mtn Natl Antelope Refuge	8	697.0	1,205.0	60.0	1,962.0
Kootenai NWR	3	58.0	147.0		205.0
Little Pend Oreille NWR	13	544.5	5.0		549.5
Malheur NWR	51	11,555.0	14,894.0	5.0	26,454.0
McNary NWR	7	224.0	628.0	586.0	1,438.0
Mid-Columbia River NWRC	1		200.0		200.0
Minidoka NWR	1			350.0	350.0
Sheldon NWR	15	548.3	481.0		1,029.3
Turnbull NWR	8	311.0	280.0	350.0	941.0
Umatilla NWR	3	177.0			177.0
William L Finley NWR	14	330.0	443.0		773.0
Total	148	15,212.8	20,365.0	2,321.0	37,898.8

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

NON-WUI TREATMENTS

Southwest Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Oth Acres</u>	<u>Total Acres</u>
Anahuac NWR	13	15,290.4			15,290.4
Aransas NWR	6	3,836.0	12.0		3,848.0
Attwater Prairie Chicken NWR	14	2,534.0	43.0		2,577.0
Balcones Canyonlands NWR	4	522.0			522.0
Bosque Del Apache NWR	3	59.0			59.0
Brazoria NWR	5	1,296.0			1,296.0
Buenos Aires NWR	4	3,497.0			3,497.0
Buffalo Lake NWR	3	352.0			352.0
Little River NWR	1	101.0			101.0
Maxwell NWR	1	8.0			8.0
McFaddin NWR	4	25,611.0			25,611.0
Muleshoe NWR	4	1,265.0			1,265.0
Salt Plains NWR	5	9,112.0			9,112.0
San Bernard NWR	4	1,482.0			1,482.0
San Bernardino NWR	2	592.0			592.0
Santa Ana NWR	1	1.0			1.0
Sevilleta NWR	4	648.5			648.5
Tishomingo NWR	1	357.0			357.0
Texas Midcoast Refuges Complex	3	1,046.0			1,046.0
Texas Point NWR	2	3,827.0			3,827.0
Washita NWR	3	837.0			837.0
Wichita Mtns Wildlife Refuge	1	0.1			0.1
Total	88	72,274.0	55.0	0.0	72,329.0

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

NON-WUI TREATMENTS

Great Lakes - Big Rivers Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Agassiz NWR	15	4,941.0			4,941.0
Big Oaks NWR	11	6,937.0			6,937.0
Big Stone NWR	9	568.0			568.0
Crab Orchard NWR	14	1,157.4			1,157.4
Crane Meadows NWR	6	79.0	8.0		87.0
Desoto NWR	10	412.0			412.0
Detroit Lakes WMD	28	4,100.0			4,100.0
Driftless Area NWR	1	103.0			103.0
Emiquon NWR	1	28.0			28.0
Fergus Falls WMD	28	4,206.0			4,206.0
Fox River NWR	12	212.5			212.5
Great River NWR	1	45.0			45.0
Horicon NWR	10	126.5			126.5
Leopold WMD	19	1,399.5			1,399.5
Litchfield WMD	24	3,604.0	100.0		3,704.0
Mingo NWR	2	60.0			60.0
Minnesota Valley NWR	14	1,113.0			1,113.0
Morris WMD	36	3,850.0			3,850.0
Neal Smith NWR	8	1,494.0			1,494.0
Necedah NWR	15	1,203.0	1,417.0	5.0	2,625.0
Port Louisa NWR	18	485.6			485.6
Rice Lake NWR	1	294.0			294.0
Seney NWR	8	1,282.0			1,282.0
Sherburne NWR	9	28.0	37.0		65.0
Shiawassee NWR	2	138.0			138.0

Squaw Creek NWR	7	581.0			581.0
St Croix WMD	8	570.0	139.0	200.0	909.0
Swan Lake NWR	9	182.0			182.0
Tamarac NWR	3	21.0			21.0
Union Slough NWR	6	529.0	22.0		551.0
Upper MS River-La Crosse Dist.	2	46.5			46.5
Upper MS River-Savanna Dist.	4	224.0			224.0
Windom WMD	26	2,220.0			2,220.0
Total	367	42,240.0	1,723.0	205.0	44,168.0

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

NON-WUI TREATMENTS

Southeast Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Alligator River NWR	13	3,308.0	1.0		3,309.0
Blackbeard Island NWR	1	70.0			70.0
Bogue Chitto NWR	1	85.0			85.0
Cameron Prairie NWR	1	4.0			4.0
Carolina Sandhills NWR	12	2,440.0			2,440.0
Cedar Island NWR	1	29.0			29.0
Currituck NWR	2	234.0		1.0	235.0
E. F. Hollings Ace Basin NWR	1	270.0			270.0
Eufaula NWR	2	605.0			605.0
Florida Panther NWR	2	875.0			875.0
Key Cave NWR	3	74.0			74.0
Lake Woodruff NWR	3	1,926.0			1,926.0
Lower Suwannee NWR	4	1,358.0	3.4		1,361.4
Mackay Island NWR	3	634.0			634.0
Merritt Island NWR	17	11,319.0			11,319.0
Noxubee NWR	6	1,422.0			1,422.0
Okefenokee NWR	6	22,768.0			22,768.0
Pea Island NWR	3	1,171.0			1,171.0
Pee Dee NWR	1	25.0			25.0
Piedmont NWR	37	5,887.0	3,563.0		9,450.0
Pocosin Lakes NWR	1		55.0		55.0
Sabine NWR	3	22,478.0			22,478.0
St. Marks NWR	6	1,148.0			1,148.0
St. Vincent NWR	6	4,894.0			4,894.0
Total	135	83,024.0	3,622.4	1.0	86,647.4

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

NON-WUI TREATMENTS

Northeast Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Chesapeake Marshlands NWRC	14	865.0		300.0	1,165.0
Eastern Neck NWR	7	577.0			577.0
Eastern Shore of Virginia NWR	1	68.0			68.0
Eastern Virginia Rivers NWRC	4	199.0			199.0
Great Dismal Swamp NWR	3	150.0			150.0
Iroquois NWR	2	101.0	70.0		171.0
Maine Coastal Islands NWR	1		21.8		21.8
Moosehorn NWR	6	32.3	68.2		100.5
Parker River NWR	1		138.0		138.0
Rachel Carson NWR	1		5.6		5.6
Total	40	1,992.3	303.6	300.0	2,595.9

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

NON-WUI TREATMENTS

Mountain-Prairie Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Arapaho NWR	1	140.0			140.0
Arrowwood NWR	6	1,380.0			1,380.0
Arrowwood WMD	1	93.0			93.0
Audubon NWR	13	1,240.0			1,240.0
Bear River Migratory Bird Rfg.	1	500.0			500.0
Benton Lake NWR	2	2,130.0			2,130.0
Bowdoin NWR	3	602.0			602.0
Browns Park NWR	2	253.0			253.0
Charles M. Russell NWR	2	1,000.0			1,000.0
Chase Lake NWR	1	90.0			90.0
Chase Lake Prairie Proj. WMD	6	1,227.0			1,227.0
Crescent Lake NWR	8	1,115.0			1,115.0
Crosby WMD	3	288.0			288.0
Des Lacs NWR	14	1,866.3			1,866.3
Devils Lake WMD	5	1,117.0			1,117.0
Fish Springs NWR	2	1,750.0			1,750.0
Flint Hills NWR	7	4,058.0			4,058.0
Huron WMD	8	1,390.0			1,390.0
J. Clark Salyer NWR	7	2,001.0			2,001.0
Kirwin NWR	4	2,883.0			2,883.0
Kulm WMD	4	677.0			677.0
Lacreek NWR	8	2,176.0			2,176.0
Lake Andes NWR	8	275.0	100.0		375.0
Leadville NFH	1	0.5			0.5
Lee Metcalf NWR	2	85.0			85.0

Long Lake NWR	6	1,196.0		1,196.0
Lostwood NWR	3	2,390.0		2,390.0
Lostwood WMD	2	110.0		110.0
Madison WMD	12	623.0	359.0	982.0
Marais Des Cygnes NWR	6	532.0		532.0
Medicine lake NWR	14	2,716.0		2,716.0
Ouray NWR	2	192.0		192.0
Quivira NWR	8	2,241.0		2,241.0
Rainwater Basin WMD	22	2,928.0		2,928.0
Rocky Mountain Arsenal NWR	3	33.9		33.9
Sand Lake NWR	9	1,820.0		1,820.0
Slade NWR	2	260.0		260.0
Tewaukon NWR	3	1,109.0		1,109.0
Upper Souris NWR	11	1,626.0		1,626.0
Valentine NWR	4	1,365.0		1,365.0
Valley City WMD	5	452.0		452.0
Waubay NWR	8	420.0	58.0	478.0
Total	239	48,350.7	517.0	0.0
				48,867.7

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

NON-WUI TREATMENTS Alaska Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Kanuti NWR	1	15.0			15.0
Tetlin NWR	10	5.0	97.0		102.0
Total	11	20.0	97.0	0.0	117.0

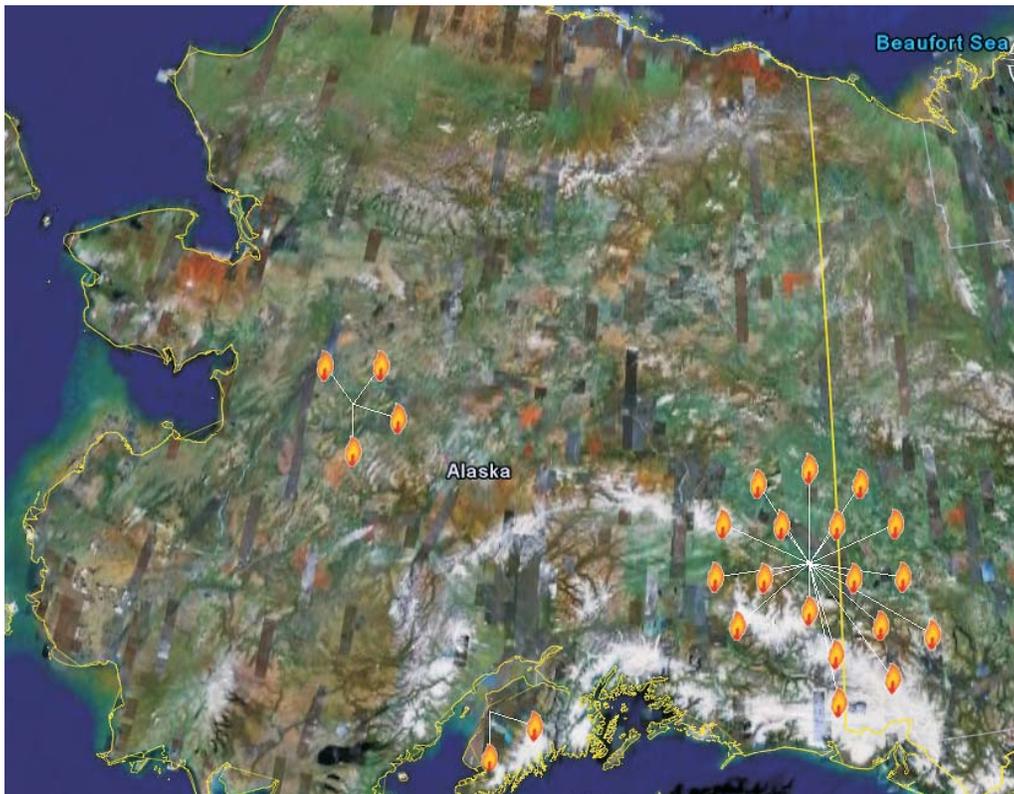
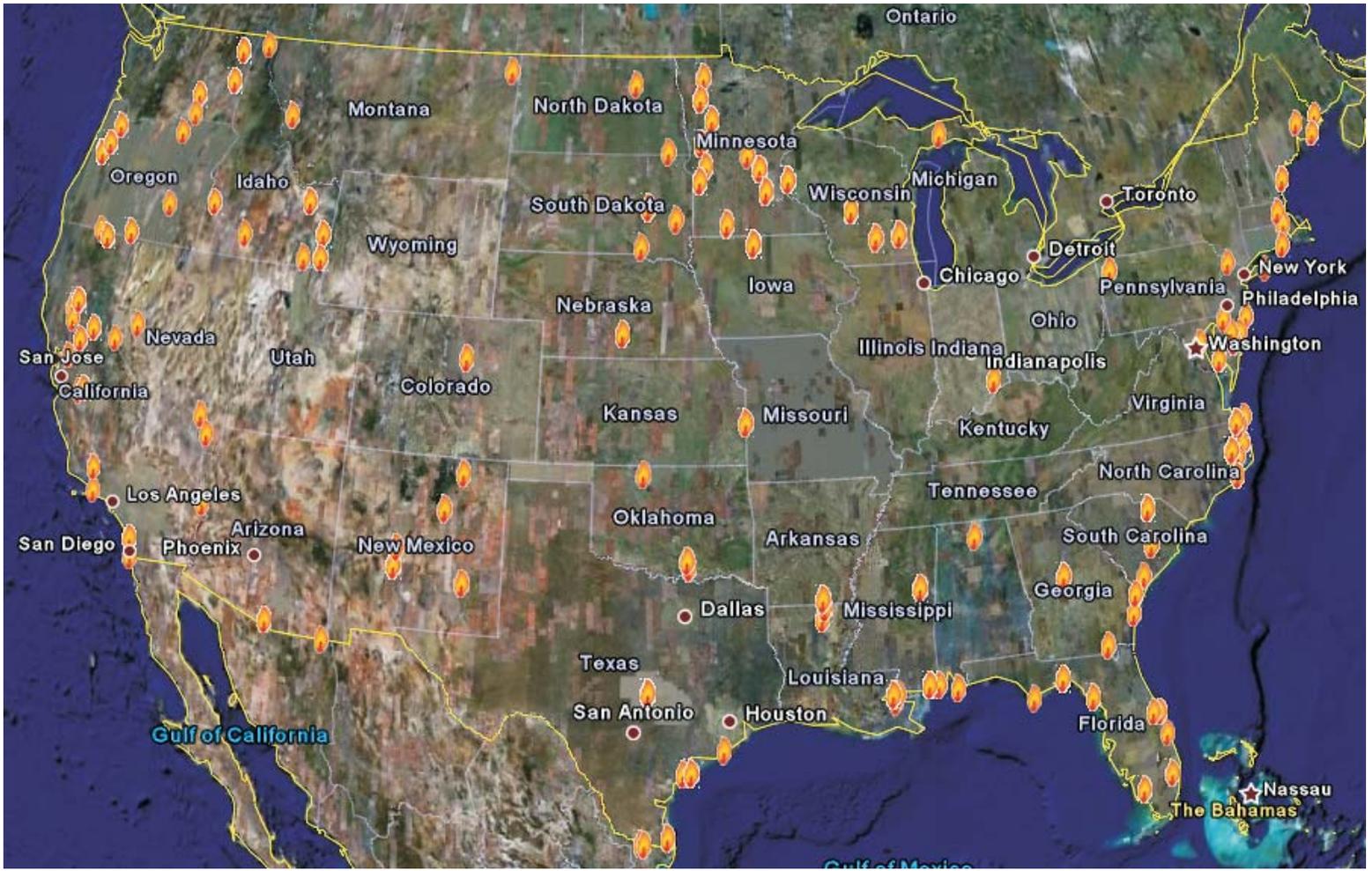
Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

NON-WUI TREATMENTS California and Nevada Region

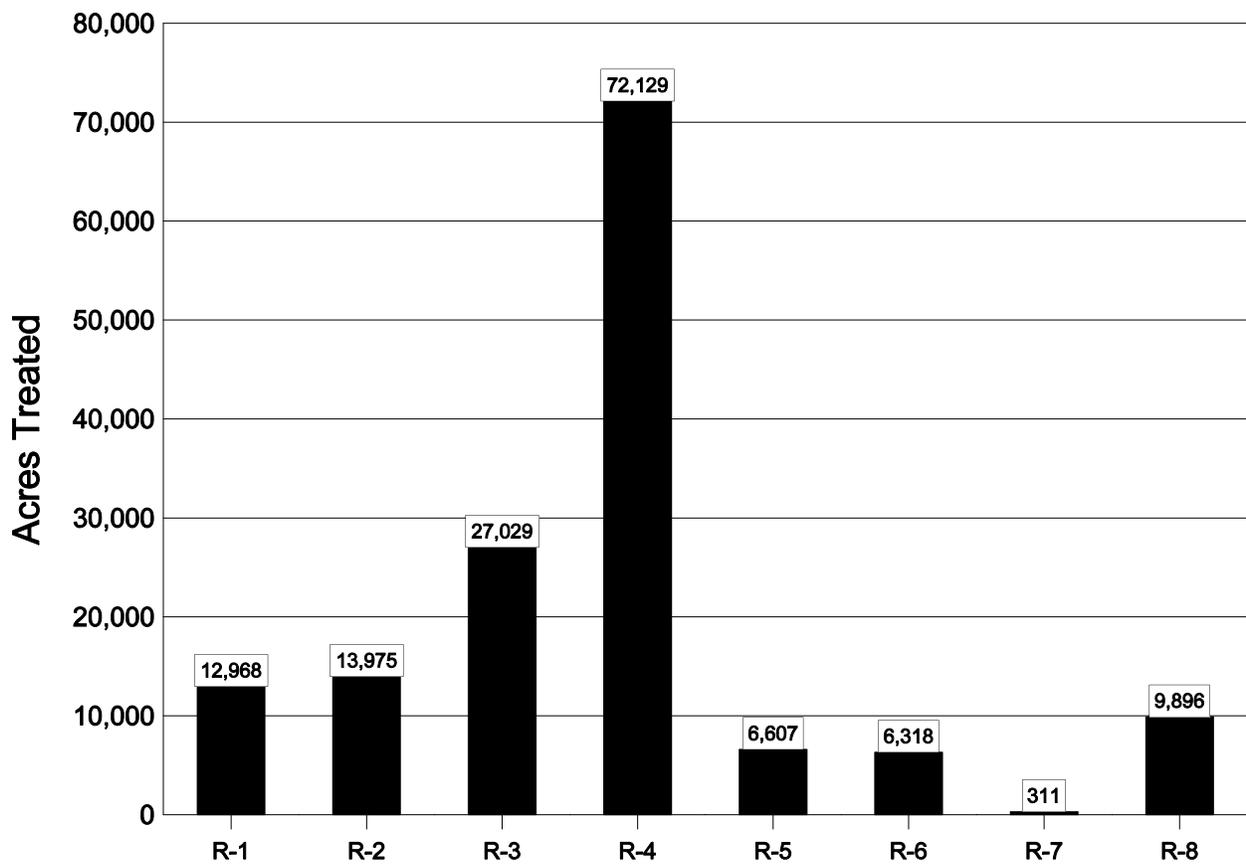
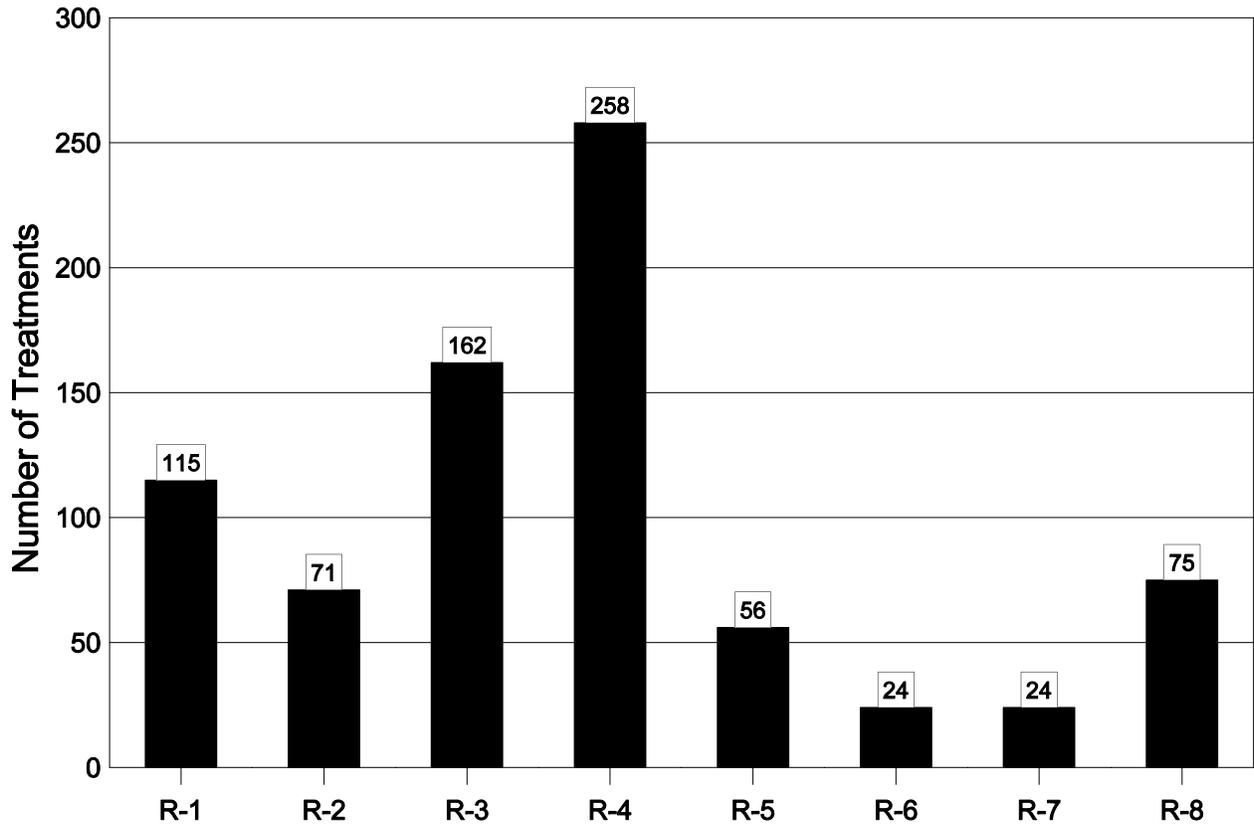
<u>Refuge</u>	<u>Number</u>	<u>Rx Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Colusa NWR	2	62.0			62.0
Don Edwards SF Bay NWR	2		50.0		50.0
Ellicott Slough NWR	1		5.0		5.0
Kern NWR	1		120.0		120.0
Klamath Marsh NWR	2	7,187.0			7,187.0
Lower Klamath NWR	41	7,817.6			7,817.6
Merced NWR	3		325.0	30.0	355.0
Ruby Lake NWRC	5	270.0			270.0
Sacramento NWR	3	164.0			164.0
Sacramento River NWR	5	73.0		22.0	95.0
San Joaquin River NWR	4		157.0		157.0
San Luis NWR	7	900.0	162.0		1,062.0
Stillwater NWR	2	525.0			525.0
Tule Lake NWR	71	10,414.1			10,414.1
Total	149	27,412.7	819.0	52.0	28,283.7

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

2007 WUI TREATMENTS



WILDLAND URBAN INTERFACE Treatments - 2007



WUI TREATMENTS by State 2007

<u>State</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Alabama	3	890.0	23.0		913.0
Alaska	24	179.0	131.0	1.0	311.0
Arizona	7	2,943.0			2,943.0
Arkansas	7	3,168.0			3,168.0
California	70	7,451.9	669.0	1,203.0	9,323.9
Colorado	3	658.2			658.2
Delaware	6	161.0	30.0	2,012.0	2,203.0
Florida	46	31,416.0	5.9		31,421.9
Georgia	9	7,169.0	2.0		7,171.0
Idaho	25	2,961.0	2,697.0	2,045.0	7,703.0
Indiana	5	5,044.0			5,044.0
Iowa	46	3,718.0		180.0	3,898.0
Kansas	3	1,317.0		185.0	1,502.0
Louisiana	31	3,608.0	63.0		3,671.0
Maine	18	84.1	260.2		344.3
Maryland	13	2,305.0		408.0	2,713.0
Massachusetts	3	20.0	10.0	5.0	35.0
Michigan	1		500.0		500.0
Minnesota	64	11,423.5	21.0		11,444.5
Mississippi	84	5,951.0	796.0		6,747.0
Montana	3	2,433.0			2,433.0
Nebraska	5	1,104.0			1,104.0
Nevada	5	687.0			687.0
New Jersey	8	127.0	350.0	450.0	927.0

New Mexico	18	837.0	357.0		1,194.0
New York	1	26.0			26.0
North Carolina	55	10,538.0	548.0	1.3	11,087.3
North Dakota	2	146.0			146.0
Oklahoma	8	207.5			207.5
Oregon	39	900.1	1,024.0		1,924.1
Pennsylvania	2		20.0	20.0	40.0
Rhode Island	3		77.0	41.0	118.0
South Carolina	24	7,951.0			7,951.0
South Dakota	8	465.0	10.0		475.0
Texas	38	9,278.0	347.2	5.0	9,630.2
Virginia	1			200.0	200.0
Washington	51	948.0	2,156.0	122.0	3,226.0
Wisconsin	46	5,639.0	503.0		6,142.0
Total	785	131,754.3	10,600.3	6,878.3	149,232.9

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

WUI TREATMENTS Pacific Region

<u>Refuge</u>	<u>Number</u>	<u>Rx Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Ankeny NWR	7	74.0	265.0		339.0
Bear Lake NWR	5	567.0	1,740.0		2,307.0
Camas NWR	6	120.0	242.0	331.0	693.0
Columbia NWR	6	458.0			458.0
Deer Flat NWR	4		340.0		340.0
Grays Lake NWR	7	2,254.0		1,714.0	3,968.0
Hagerman NFH	1		50.0		50.0
Hart Mtn Natl Antelope Refuge	3	44.1	20.0		64.1
Kootenai NWR	1	20.0			20.0
Little Pend Oreille NWR	21	75.0	774.0	122.0	971.0
Malheur NWR	1	4.0			4.0
McNary NWR	1	93.0			93.0
Oxford Slough Waterfowl Area	1		325.0		325.0
Sheldon NWR	1	116.0			116.0
Tualatin River NWR	3	15.0			15.0
Turnbull NWR	24	415.0	1,382.0		1,797.0
Umatilla NWR	1	8.0			8.0
William L Finley NWR	22	661.0	739.0		1,400.0
Total	115	4,924.1	5,877.0	2,167.0	12,968.1

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

WUI TREATMENTS

Southwest Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Oth Acres</u>	<u>Total Acres</u>
Aransas NWR	3	776.0			776.0
Balcones Canyonlands NWR	16	1,287.0	337.2		1,624.2
Bitter Lake NWR	2	92.0			92.0
Bosque Del Apache NWR	10	297.0	350.0		647.0
Buenos Aires NWR	5	2,927.0			2,927.0
Havasu NWR	1	1.0			1.0
Laguna Atascosa NWR	3	695.0			695.0
Las Vegas NWR	2	100.0			100.0
Lower Rio Grande Valley NWR	4	63.0	10.0		73.0
Matagorda Island NWR	9	5,981.0			5,981.0
Maxwell NWR	2	342.0			342.0
Salt Plains NWR	1	136.0			136.0
San Bernard NWR	1	474.0			474.0
San Bernardino NWR	1	15.0			15.0
Santa Ana NWR	2	2.0		5.0	7.0
Sevilleta NWR	2	6.0	7.0		13.0
Tishomingo NFH	3	61.2			61.2
Tishomingo NWR	4	10.3			10.3
Total	71	13,265.5	704.2	5.0	13,974.7

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

WUI TREATMENTS

Great Lakes - Big Rivers Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Agassiz NWR	3	274.5			274.5
Big Oaks NWR	5	5,044.0			5,044.0
Big Stone NWR	14	2,223.0			2,223.0
Crane Meadows NWR	1	100.0			100.0
Detroit Lakes WMD	7	1,984.0			1,984.0
Fergus Falls WMD	8	923.0			923.0
Horicon NWR	5	989.0			989.0
Iowa WMD	46	3,718.0		180.0	3,898.0
Leopold WMD	4	190.0			190.0
Minnesota Valley NWR	6	262.0			262.0
Morris WMD	5	938.0			938.0
Necedah NWR	17	2,922.0	503.0		3,425.0
Rydell NWR	6	128.0			128.0
Seney NWR	1		500.0		500.0
Sherburne NWR	9	4,393.0			4,393.0
St Croix WMD	20	1,538.0			1,538.0
Windom WMD	5	198.0	21.0		219.0
Total	162	25,824.5	1,024.0	180.0	27,028.5

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

WUI TREATMENTS

Southeast Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Alligator River NWR	21	2,686.0	107.0		2,793.0
ARM Loxahatchee NWR	3	13,123.0			13,123.0
Bayou Sauvage NWR	1	713.0			713.0
Big Branch Marsh NWR	21	1,812.0	63.0		1,875.0
Bon Secour NWR	2		23.0		23.0
Carolina Sandhills NWR	16	5,570.0			5,570.0
Cedar Island NWR	12	5,355.0			5,355.0
Currituck NWR	2		3.0	1.0	4.0
D'Arbonne NWR	3	187.0			187.0
E. F. Hollings Ace Basin NWR	1	580.0			580.0
Felsenthal NWR	7	3,168.0			3,168.0
Florida Panther NWR	5	2,513.0			2,513.0
Grand Bay NWR	2	43.0	15.0		58.0
Harris Neck NWR	2	235.0			235.0
Lake Wales Ridge NWR	2	270.0			270.0
Lower Suwannee NWR	4	2,106.0	5.9		2,111.9
Mackay Island NWR	7	1,526.0	5.0		1,531.0
Mattamussett NWR	1		10.0		10.0
Merritt Island NWR	3	4,277.0			4,277.0
MS Sandhill Crane NWR	75	3,730.0	781.0		4,511.0
Noxubee NWR	7	2,178.0			2,178.0
Okefenokee NWR	2	3,287.0			3,287.0
Pelican Island NWR	1	50.0			50.0
Piedmont NWR	5	3,647.0	2.0		3,649.0
Pocosin Lakes NWR	11	970.0	423.0	0.3	1,393.3

Santee NWR	3	551.0			551.0
Savannah-Pickney Refuges	4	1,250.0			1,250.0
Southeast Louisiana Refuges	1	4.0			4.0
St. Johns NWR	3	1,449.0			1,449.0
St. Marks NWR	24	7,542.0			7,542.0
St. Vincent NWR	1	86.0			86.0
Upper Ouachita NWR	5	892.0			892.0
Wheeler NWR	1	890.0			890.0
Total	258	70,690.0	1,437.9	1.3	72,129.2

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

WUI TREATMENTS

Northeast Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Bombay Hook NWR	1			258.0	258.0
Cape May NWR	1	4.0			4.0
Chesapeake Marshlands NWRC	12	2,299.0		408.0	2,707.0
Edwin B. Forsythe NWR	5	123.0	70.0	450.0	643.0
Erie NWR	2		20.0	20.0	40.0
Eastern Massachusetts NWRC	2	20.0	10.0		30.0
Great Dismal Swamp NWR	2	1.0		200.0	201.0
Long Island NWRC	1	26.0			26.0
Maine Coastal Islands NWR	4	41.4	0.6		42.0
Moosehorn NWR	7	14.7	134.5		149.2
Nattaleboro NFH	1			5.0	5.0
Patuxent Research Refuge	1	6.0			6.0
Prime Hook NWR	5	161.0	30.0	1,754.0	1,945.0
Rachel Carson NWR	5	13.7	21.0		34.7
Rhode Island NWRC	3		77.0	41.0	118.0
Sunkhaze Meadows NWR	2	14.3	104.1		118.4
Supawna Meadows NWR	1		35.0		35.0
Wallkill River NWR	1		245.0		245.0
Total	56	2,724.1	747.2	3,136.0	6,607.3

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

WUI TREATMENTS

Mountain-Prairie Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Devils Lake WMD	1	6.0			6.0
Huron WMD	6	185.0	5.0		190.0
Lake Andes NWR	1	280.0			280.0
Lee Metcalf NWR	2	128.0			128.0
Madison WMD	1		5.0		5.0
Marais Des Cygnes NWR	3	1,317.0		185.0	1,502.0
Medicine lake NWR	1	2,305.0			2,305.0
Rainwater Basin WMD	5	1,104.0			1,104.0
Rocky Mountain Arsenal NWR	3	658.2			658.2
Tewaukon NWR	1	140.0			140.0
Total	24	6,123.2	10.0	185.0	6,318.2

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

WUI TREATMENTS

Alaska Region

<u>Refuge</u>	<u>Number</u>	<u>RX Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Kenai NWR	2	15.0	14.0		29.0
Koyukuk NWR	4	3.0	1.0	1.0	5.0
Tetlin NWR	18	161.0	116.0		277.0
Total	24	179.0	131.0	1.0	311.0

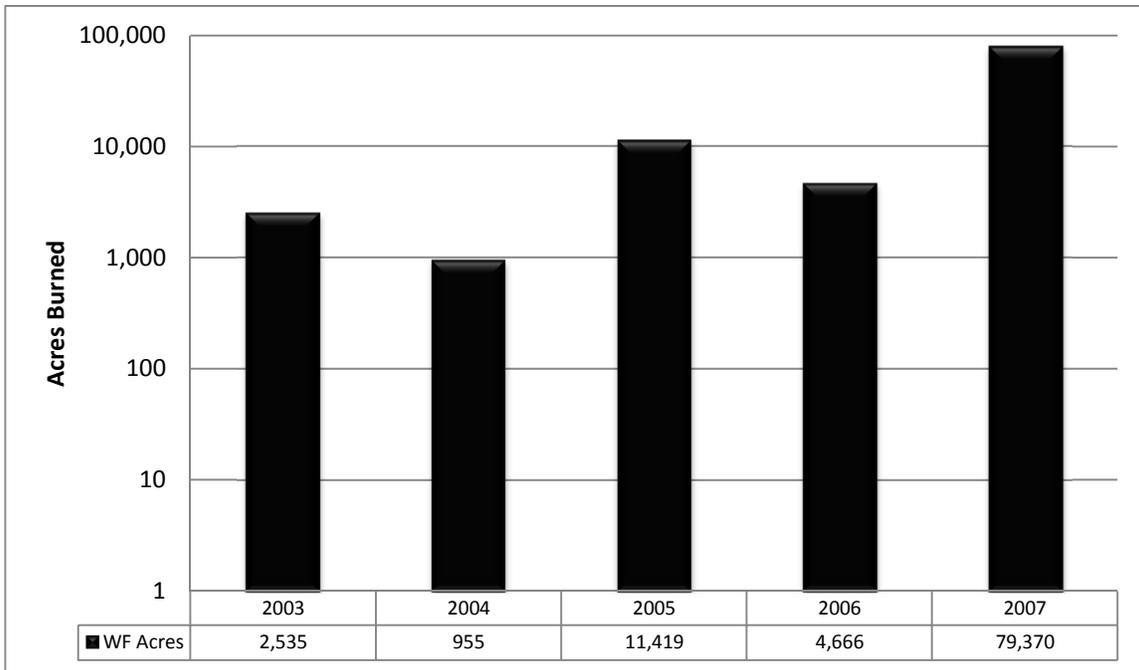
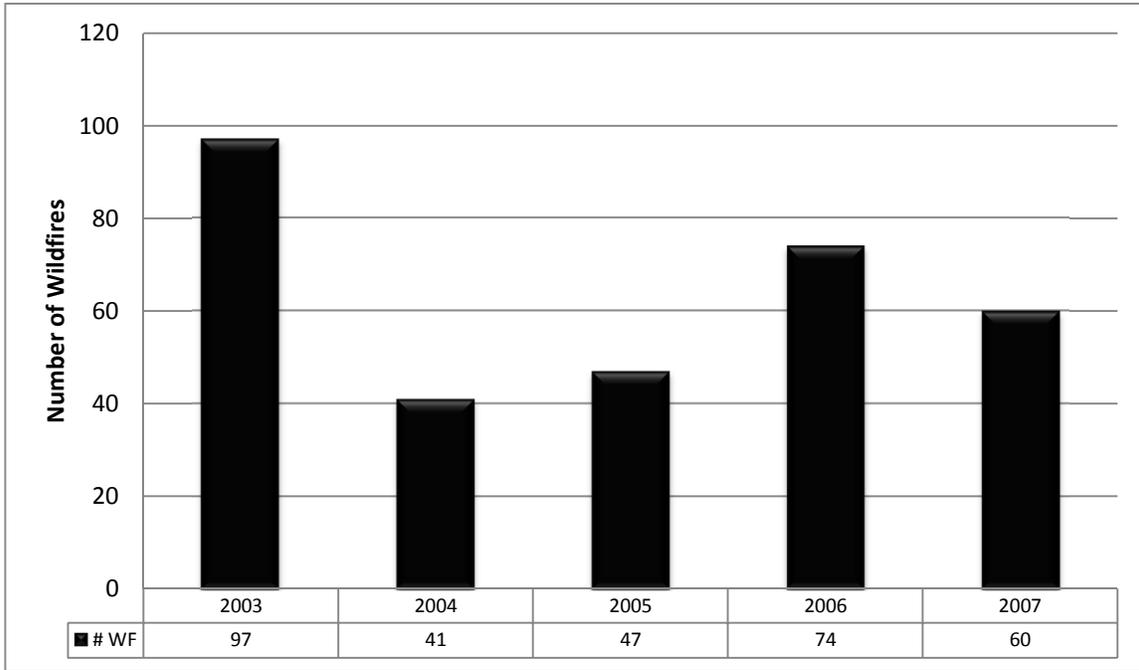
Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

WUI TREATMENTS California and Nevada Region

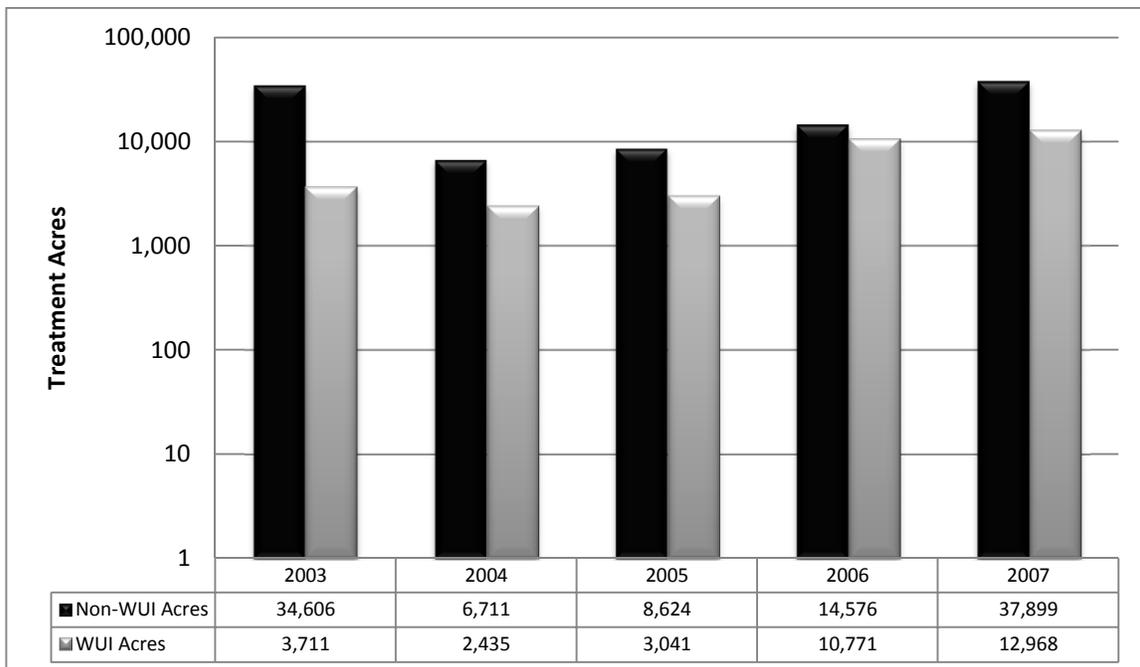
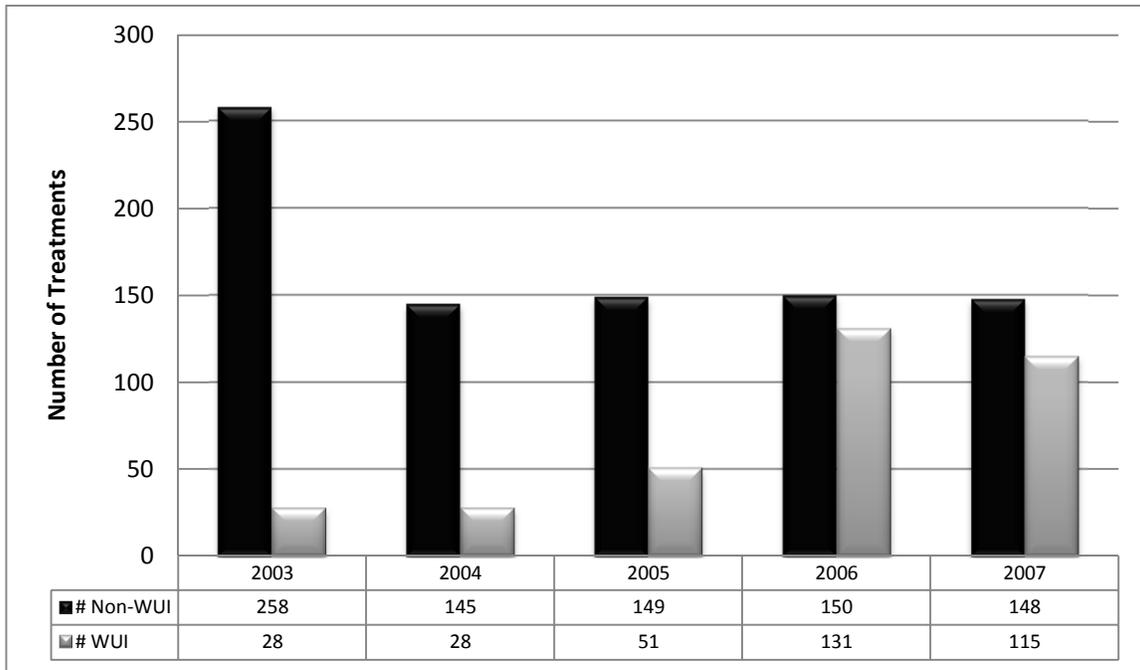
<u>Refuge</u>	<u>Number</u>	<u>Rx Acres</u>	<u>Mech Acres</u>	<u>Other Acres</u>	<u>Total Acres</u>
Antioch Dunes NWR	2		29.0		29.0
Bear Valley NWR	1	1.0			1.0
Bitter Creek NWR	2		100.0		100.0
Colusa NWR	1	50.0			50.0
Hopper Mountain NWRC	1		10.0		10.0
Lahontan NFH	1	30.0			30.0
Merced NWR	6	740.0			740.0
Moapa Valley NWR	1	10.0			10.0
Pahranagat NWR	1	31.0			31.0
Sacramento NWRC	2	80.0	63.0		143.0
Sacramento River NWR	12	459.0	63.0	974.0	1,496.0
San Diego Bay NWR	6		89.0	23.0	112.0
San Diego NWR	10		165.0	5.0	170.0
San Luis NWR	6	1,147.0			1,147.0
San Luis NWRC	1	80.0			80.0
Stillwater NWR	1	500.0			500.0
Stone Lakes NWR	5	136.0	100.0	201.0	437.0
Tijuana Slough NWR	1		50.0		50.0
Tule Lake NWR	15	4,759.9			4,759.9
Total	75	8,023.9	669.0	1,203.0	9,895.9

Other Acres = The number of acres that have been treated by a method other than prescribed fire or mechanical.

PACIFIC REGION Wildfires 2003-2007



PACIFIC REGION Treatments 2003-2007

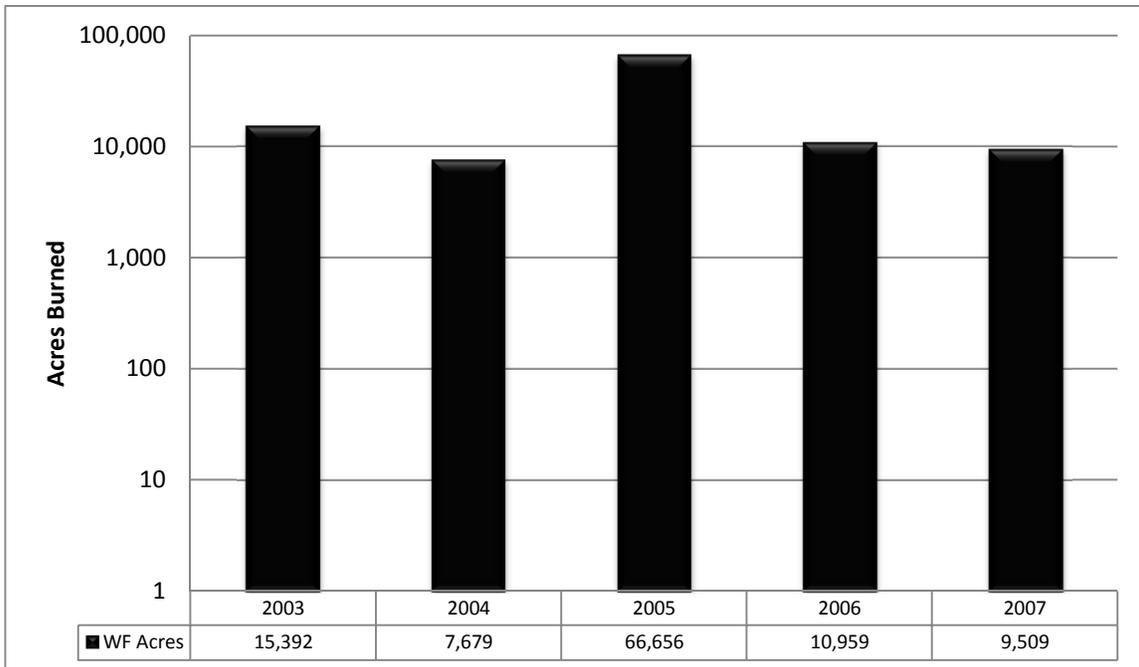
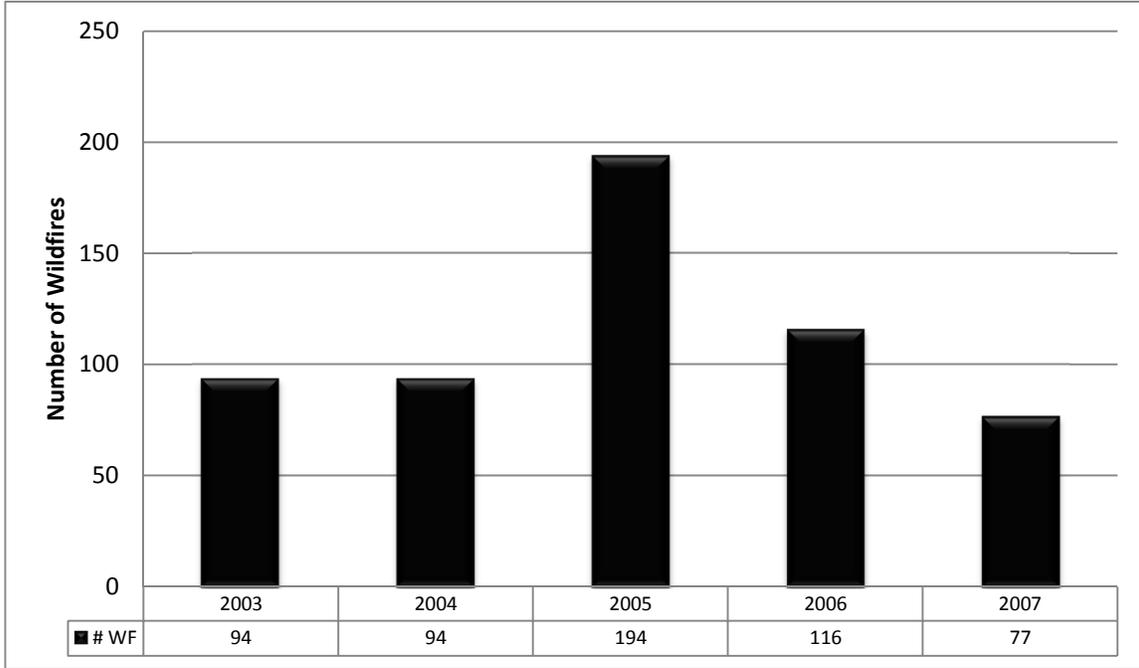


WUI = Wildland Urban Interface

SOUTHWEST REGION

Wildfires

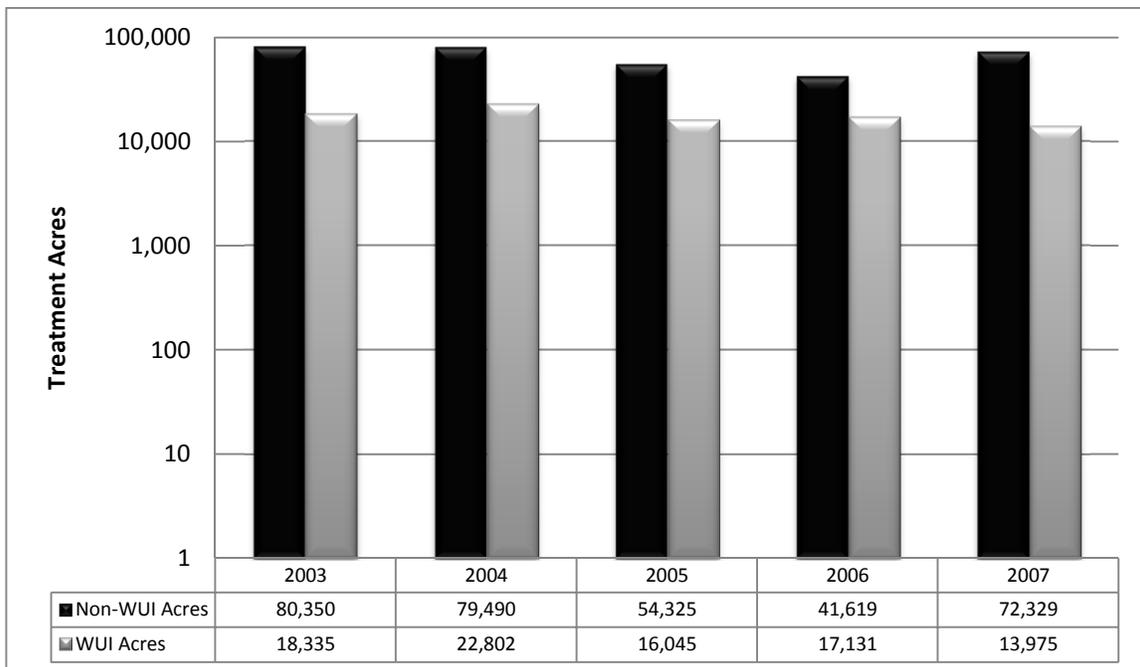
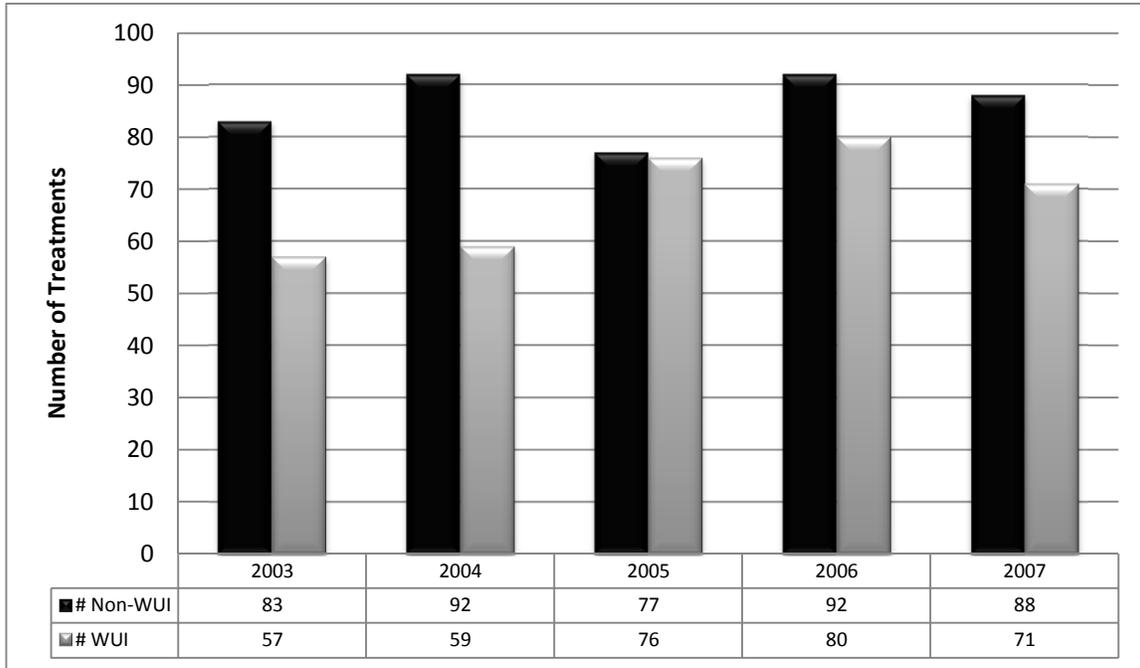
2003-2007



SOUTHWEST REGION

Treatments

2003-2007

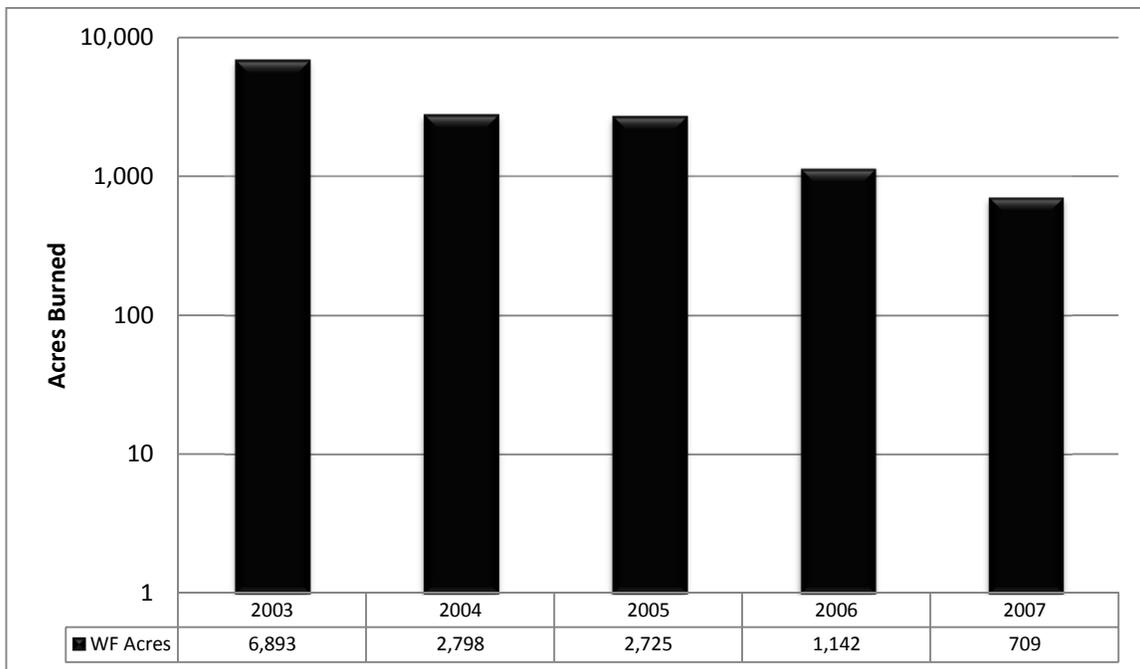
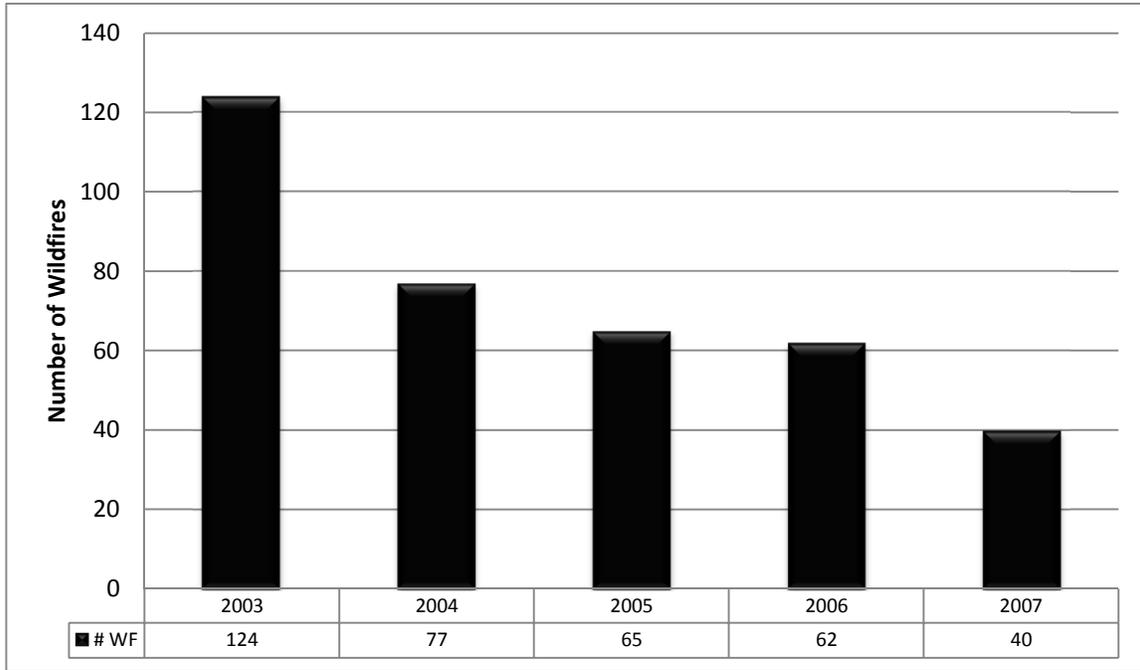


WUI = Wildland Urban Interface

MIDWEST REGION

Wildfires

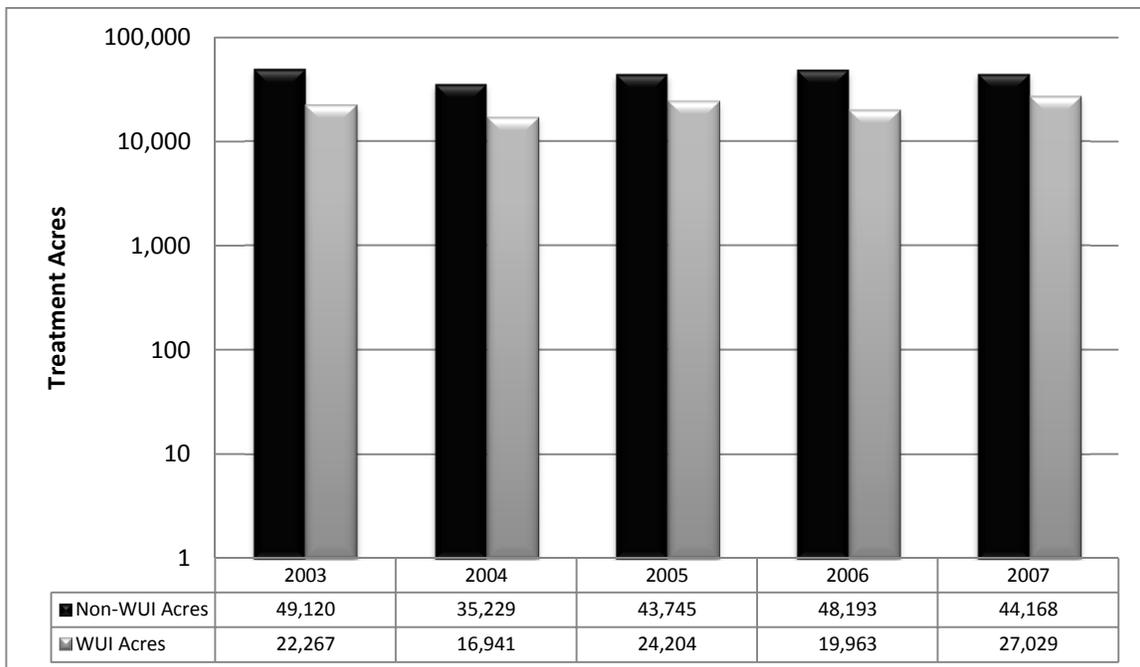
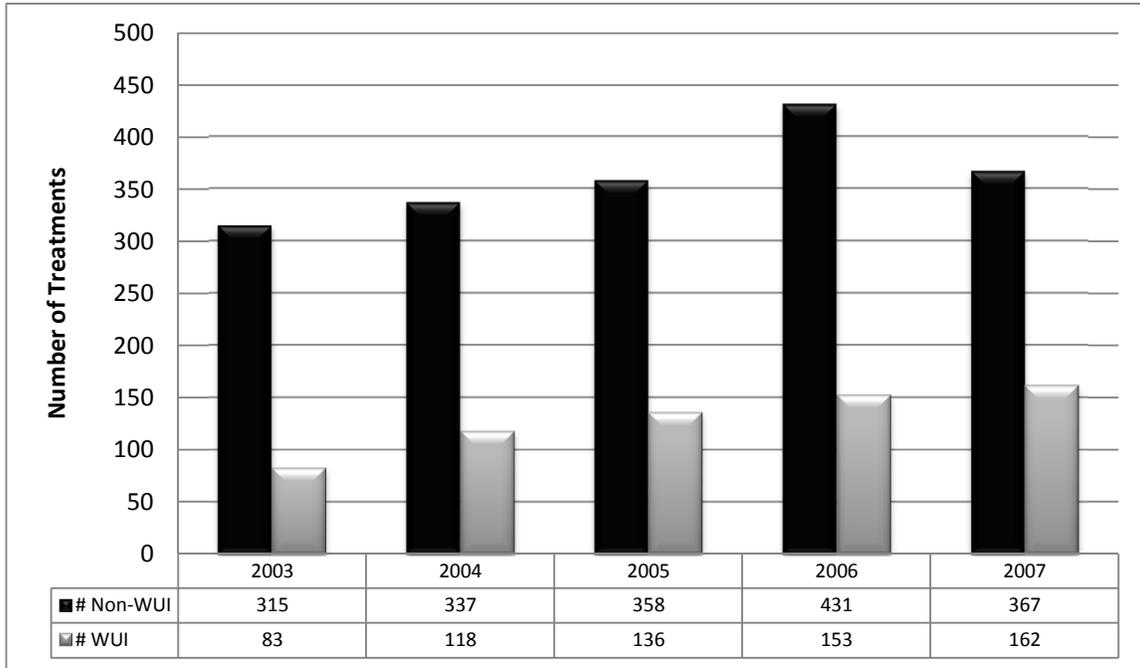
2003-2007



MIDWEST REGION

Treatments

2003-2007

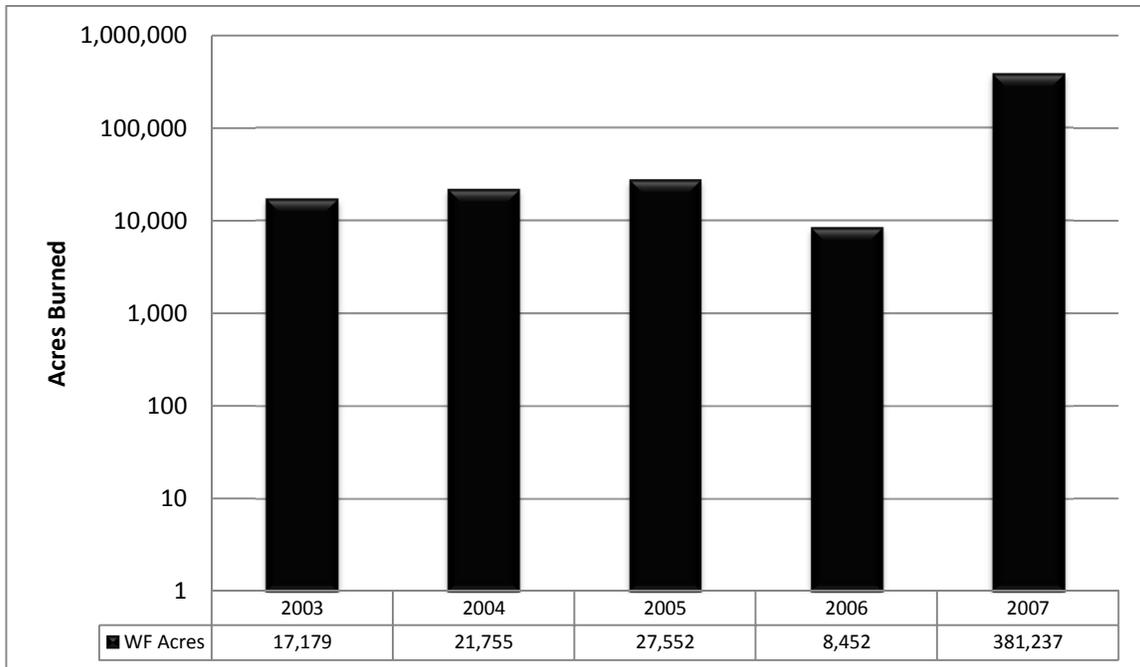
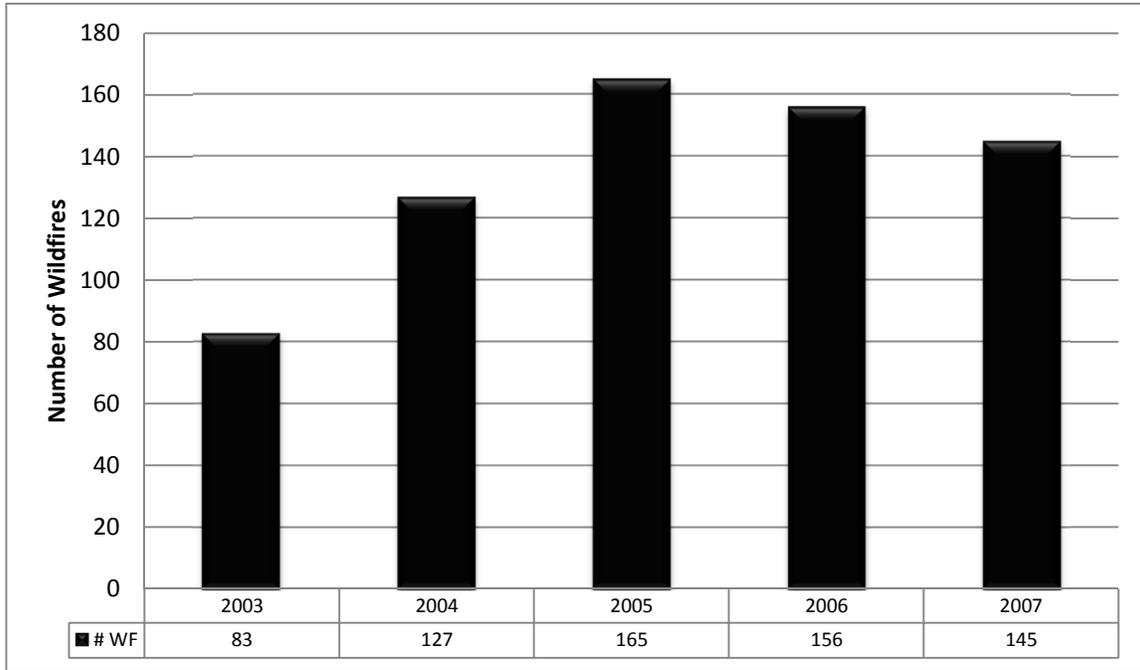


WUI = Wildland Urban Interface

SOUTHEAST REGION

Wildfires

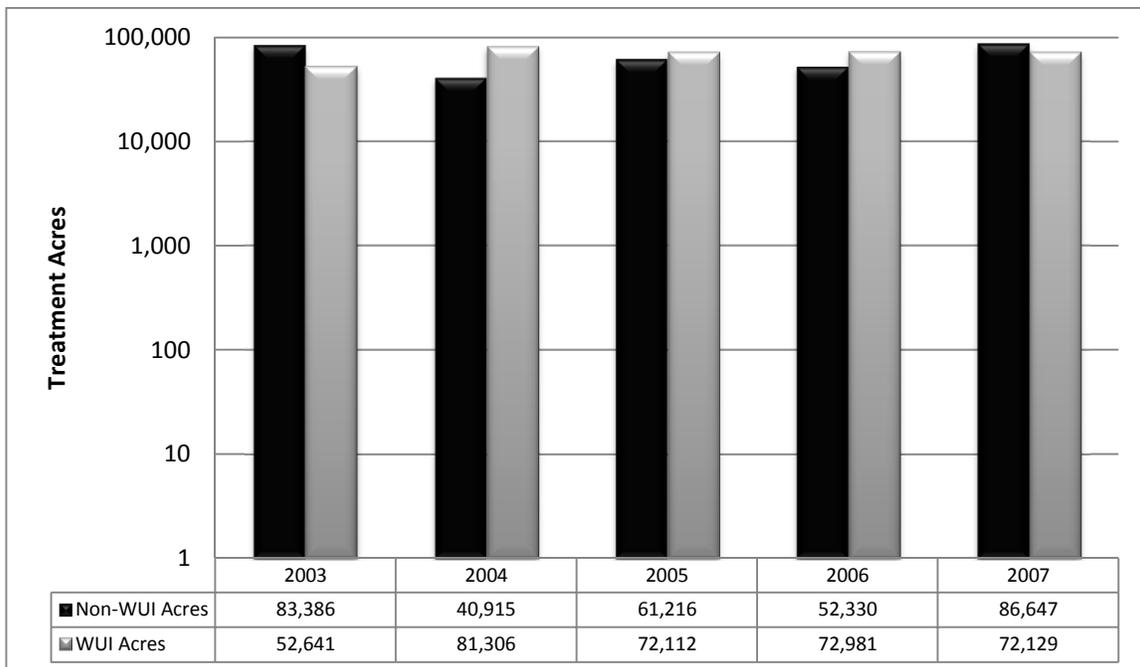
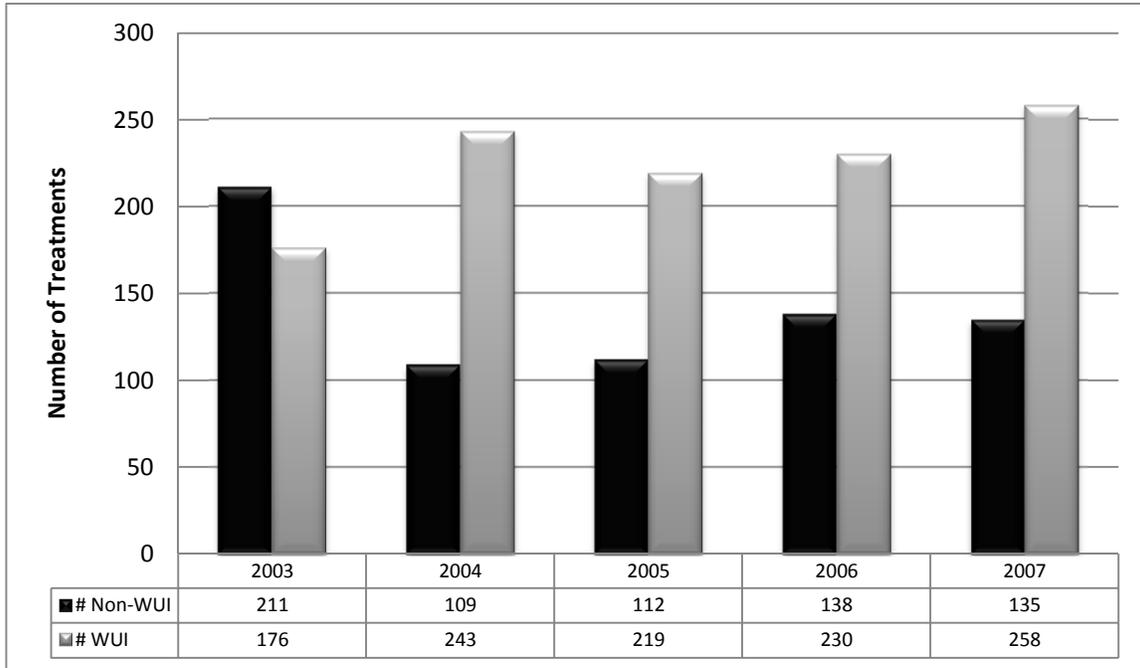
2003-2007



SOUTHEAST REGION

Treatments

2003-2007

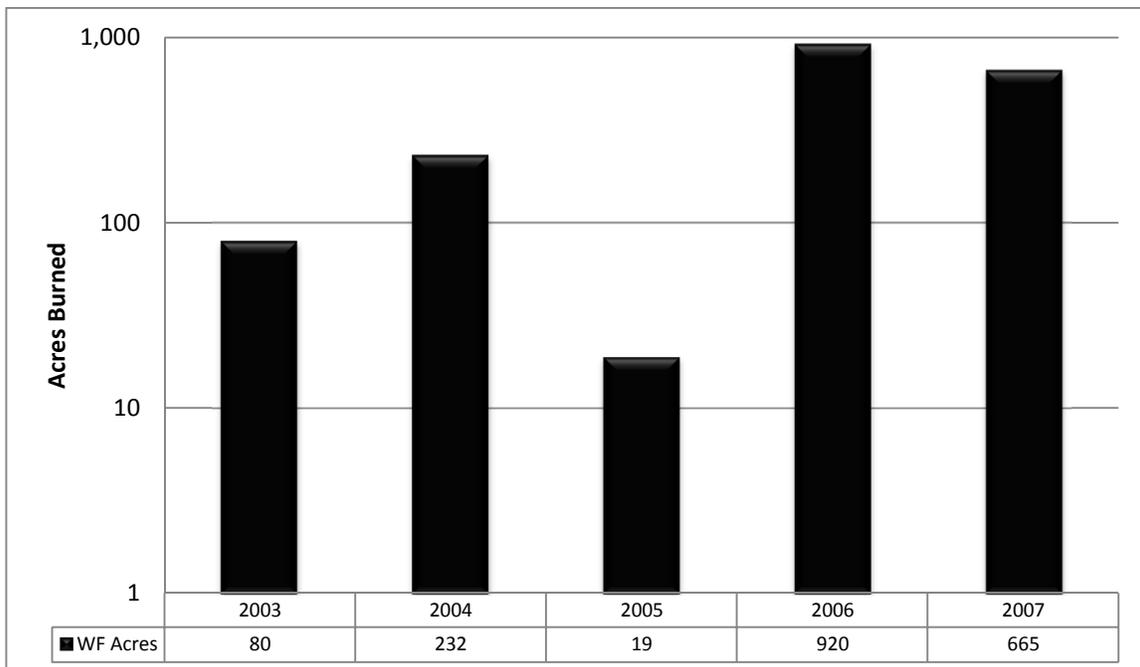
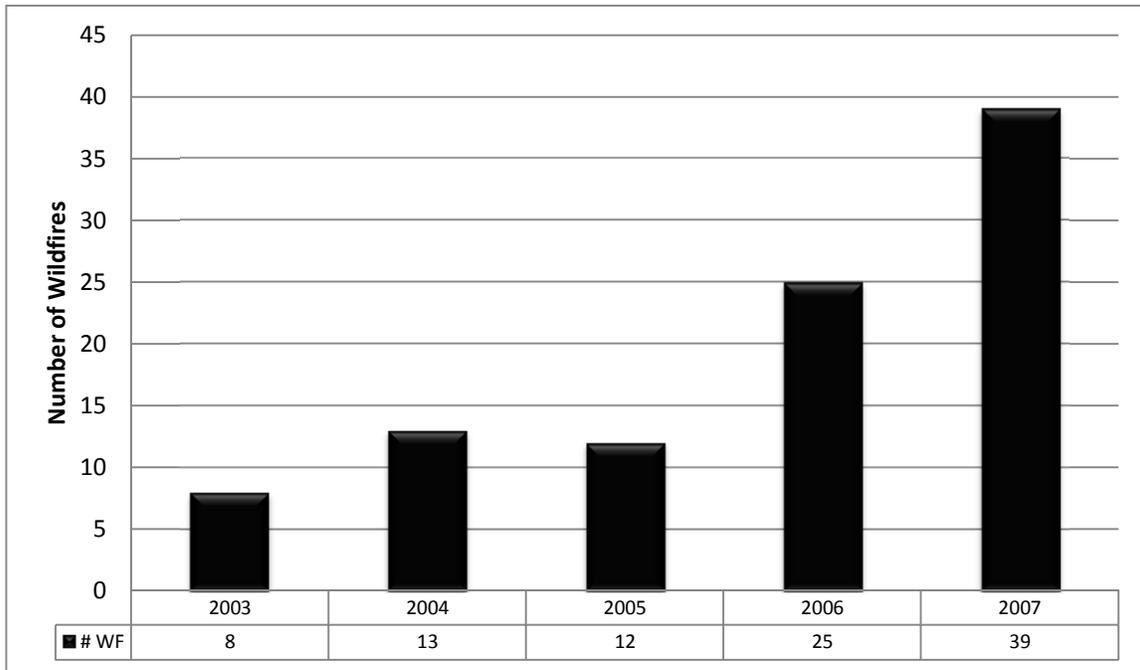


WUI = Wildland Urban Interface

NORTHEAST REGION

Wildfires

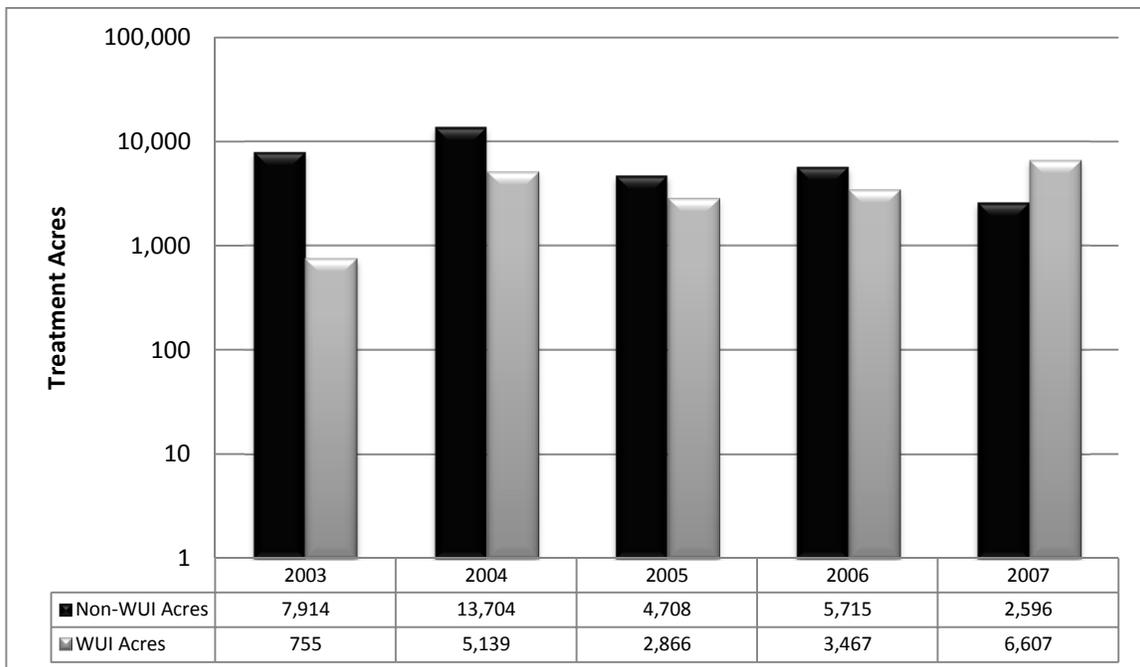
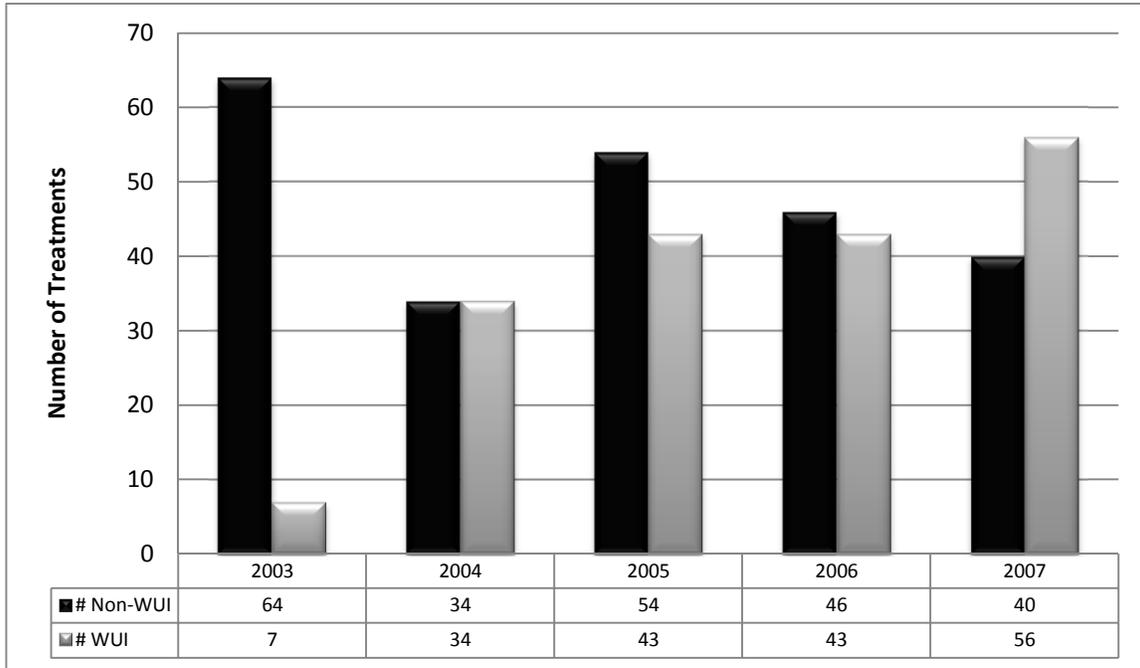
2003-2007



NORTHEAST REGION

Treatments

2003-2007

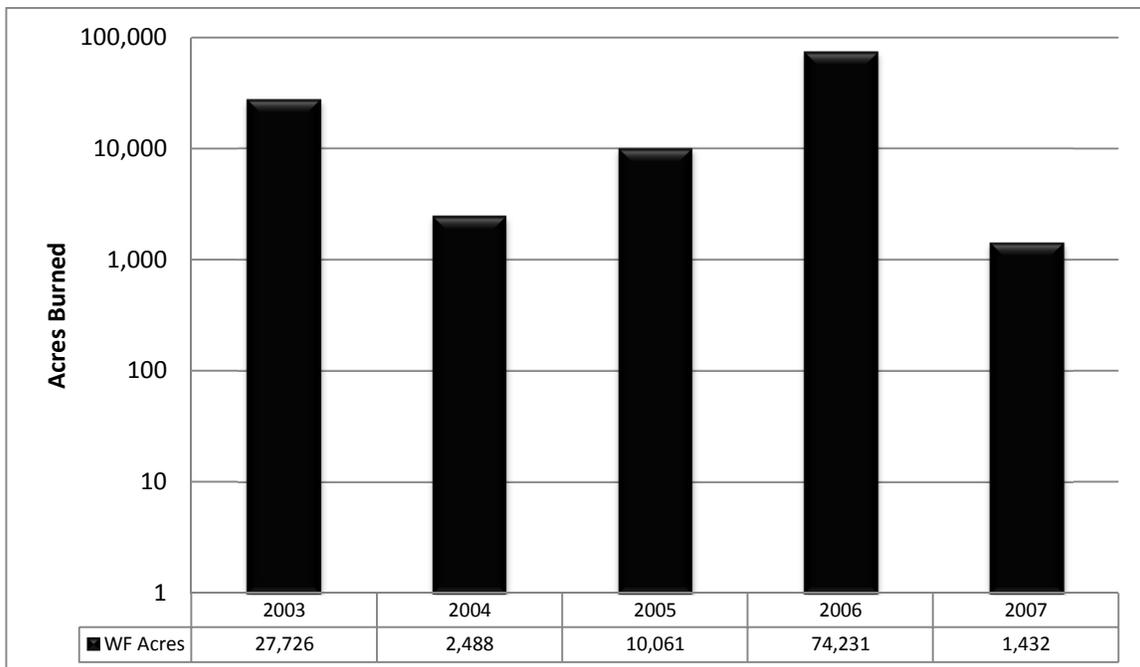
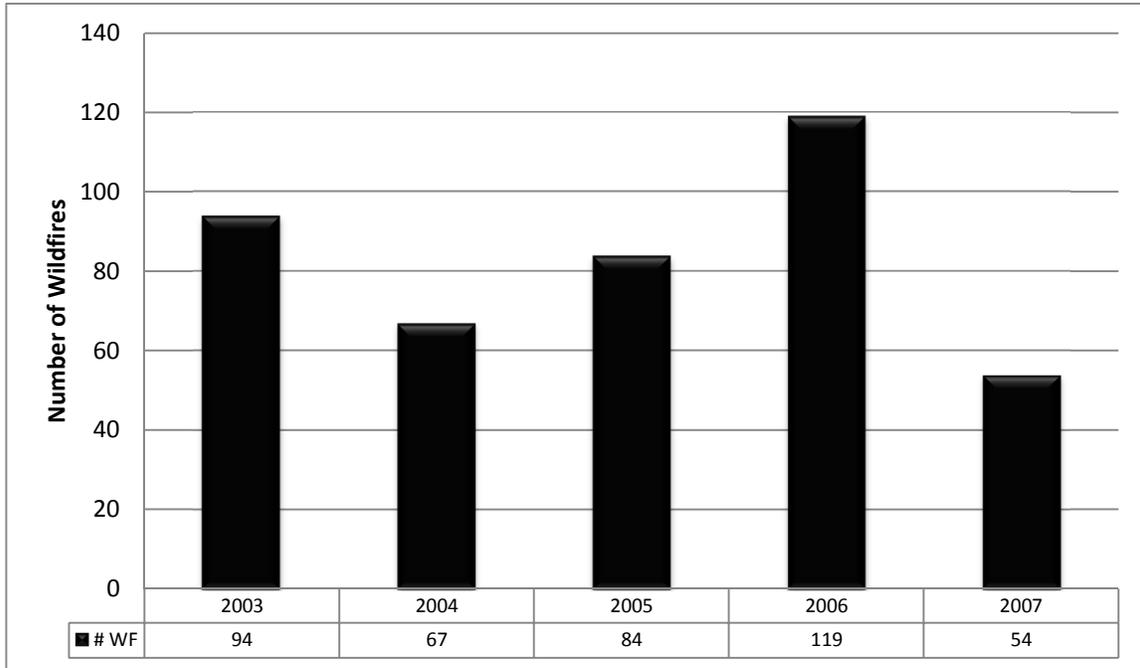


WUI = Wildland Urban Interface

MOUNTAIN - PRAIRIE REGION

Wildfires

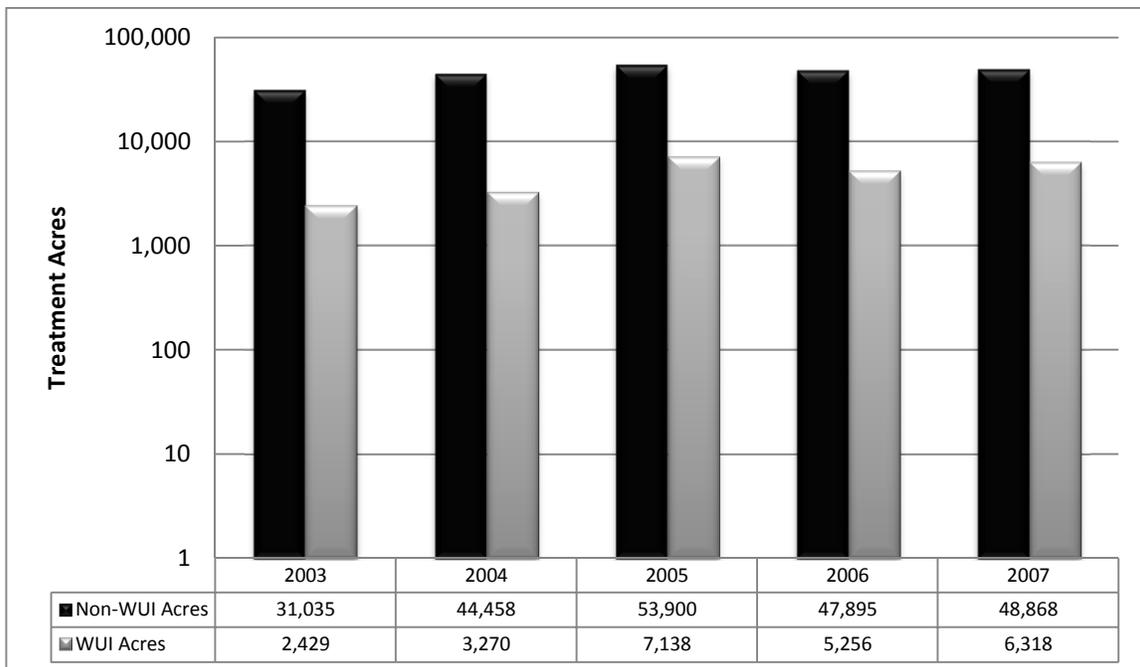
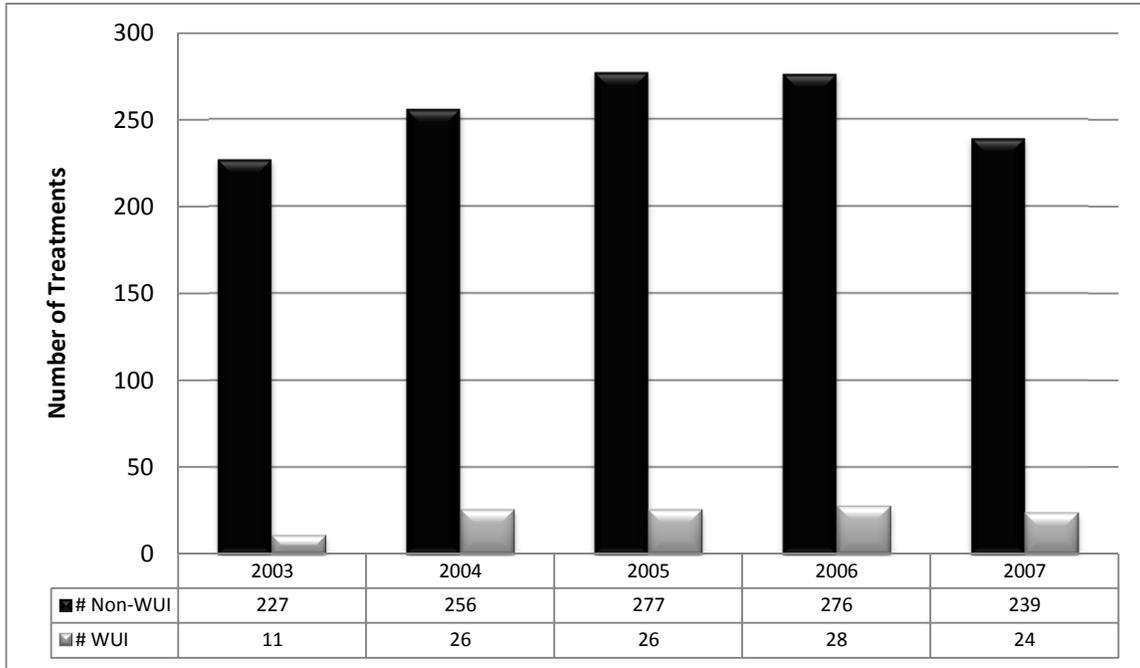
2003-2007



MOUNTAIN - PRAIRIE REGION

Treatments

2003-2007

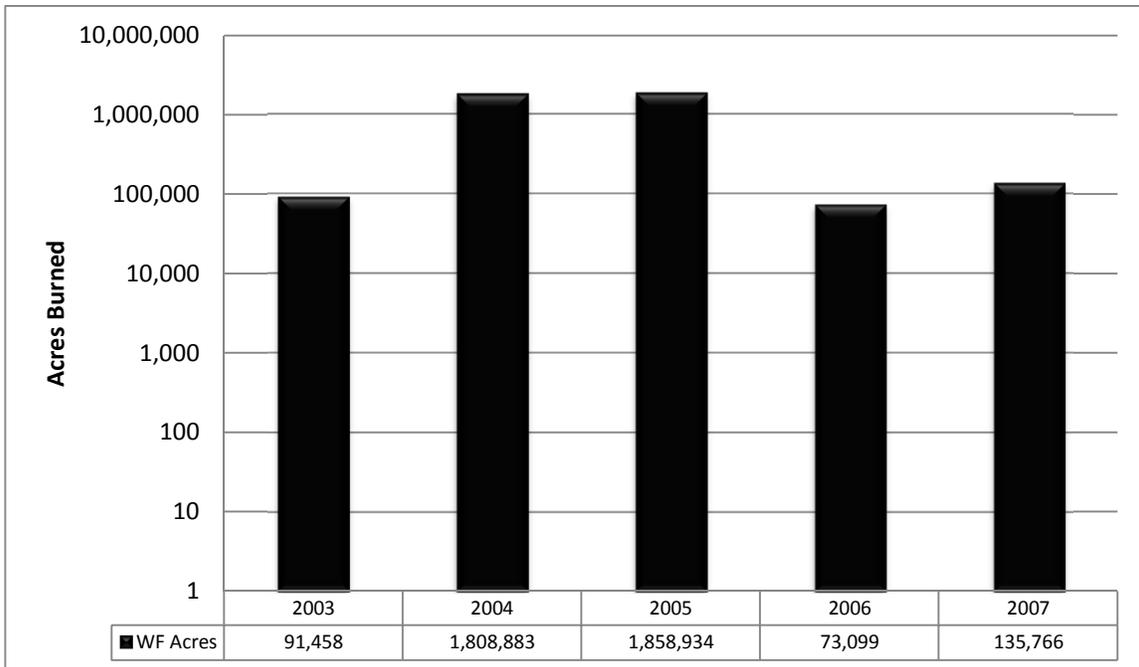
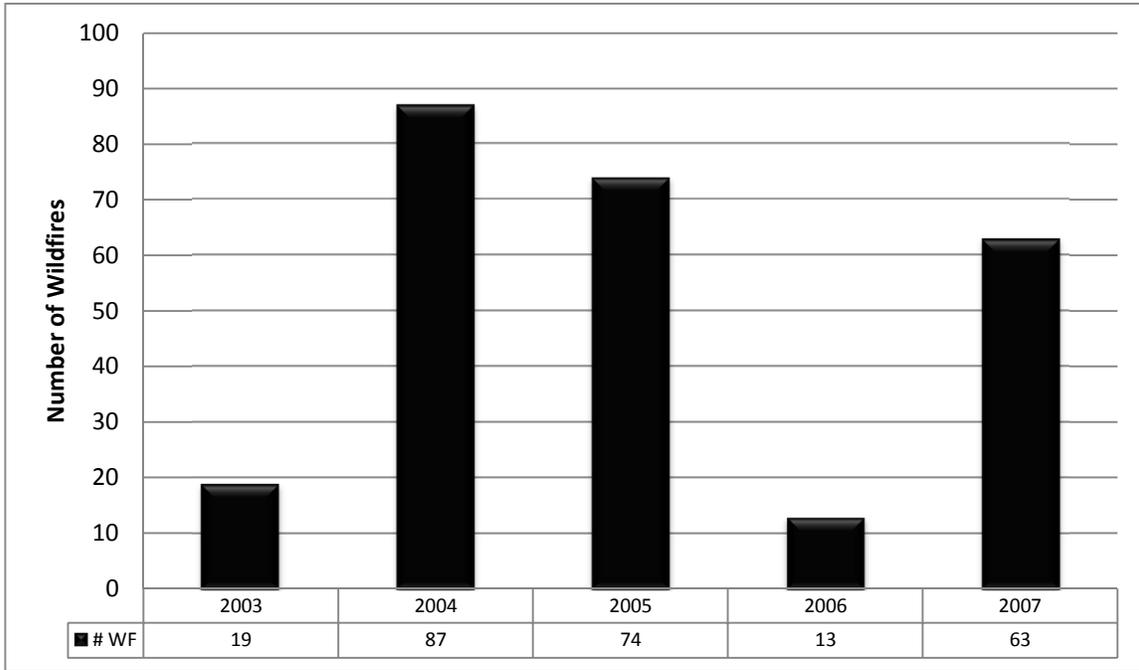


WUI = Wildland Urban Interface

ALASKA REGION

Wildfires

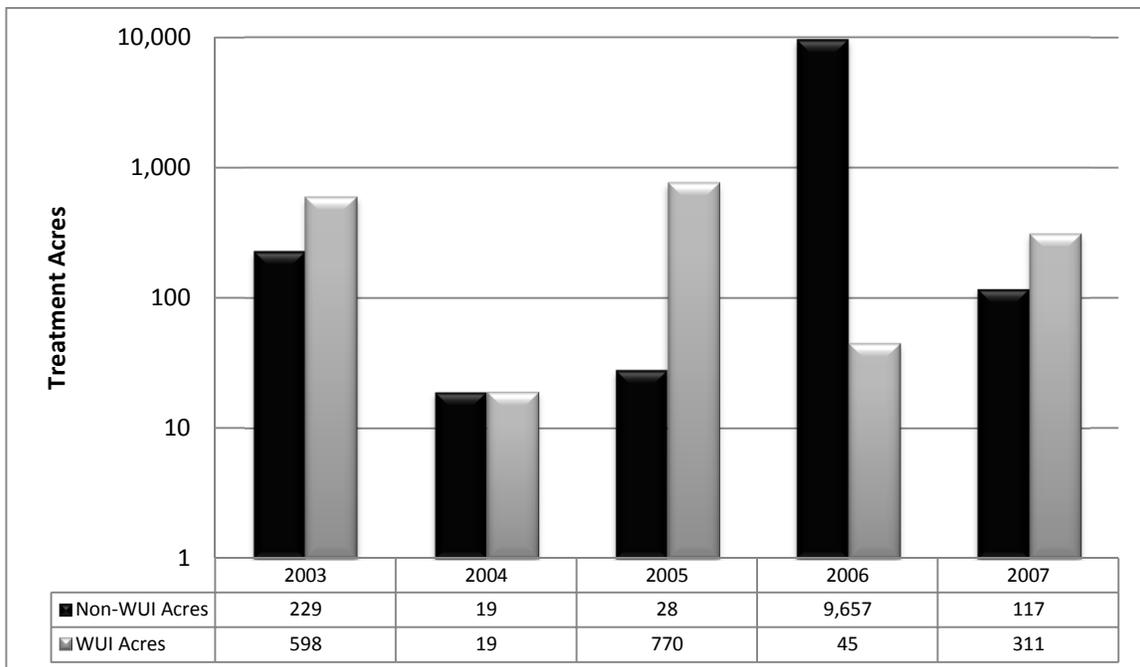
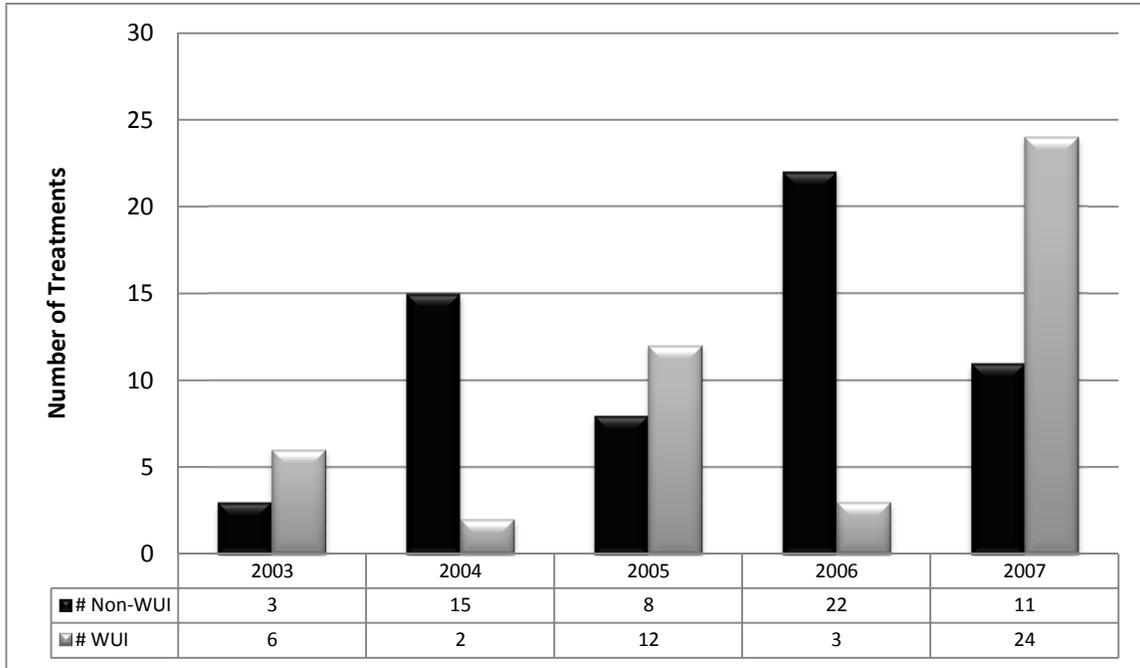
2003-2007



ALASKA REGION

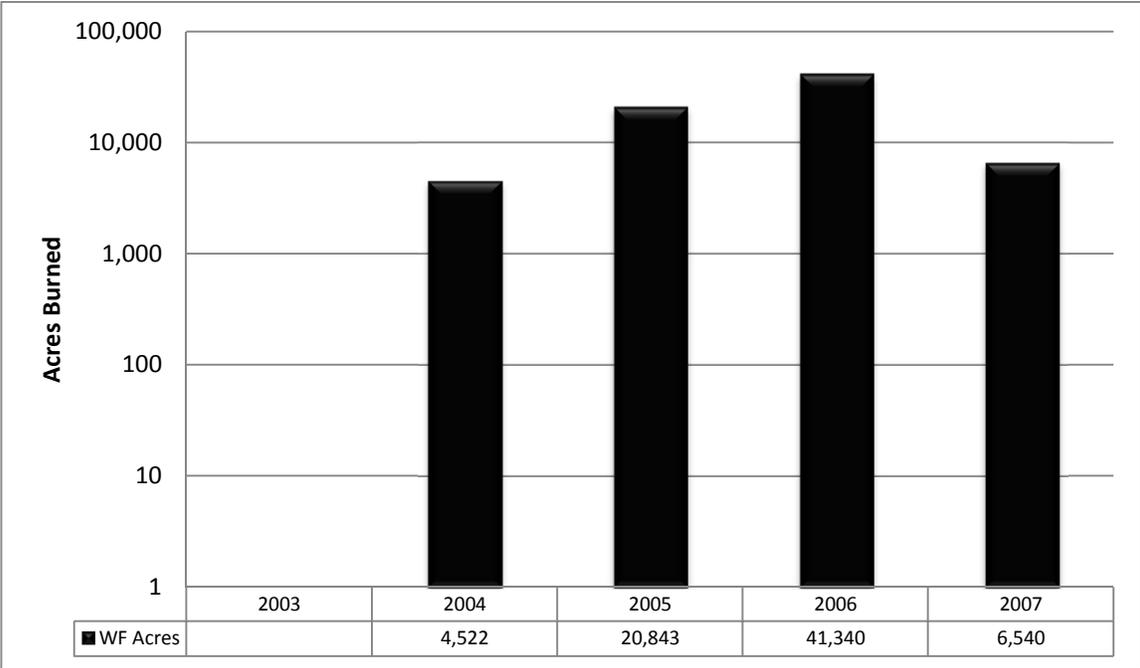
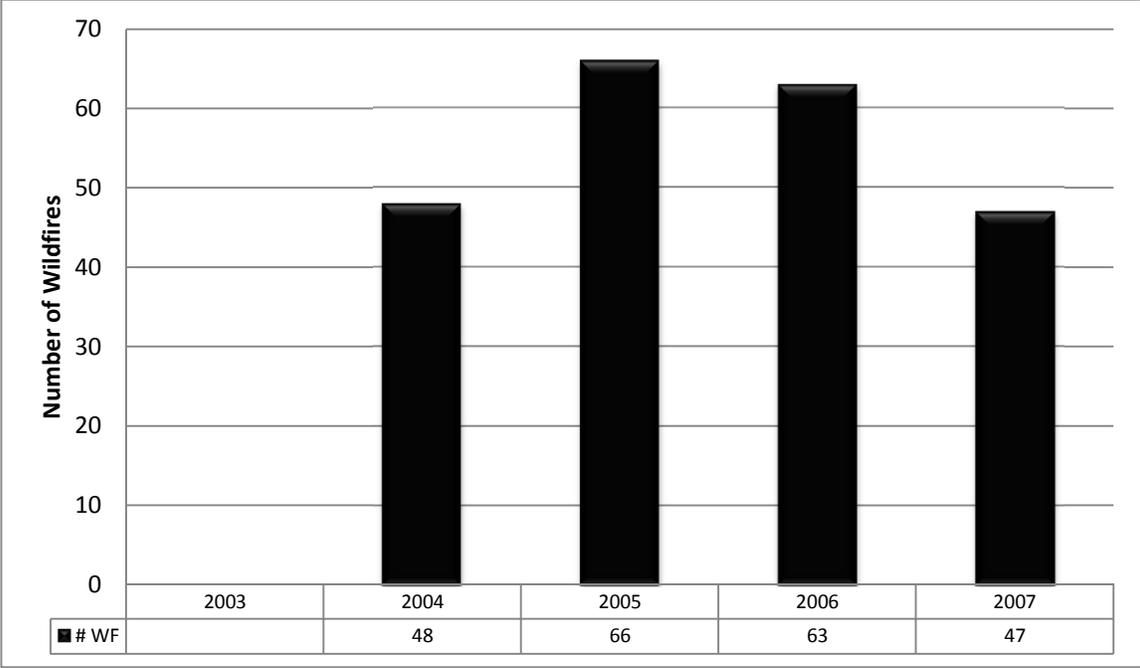
Treatments

2003-2007

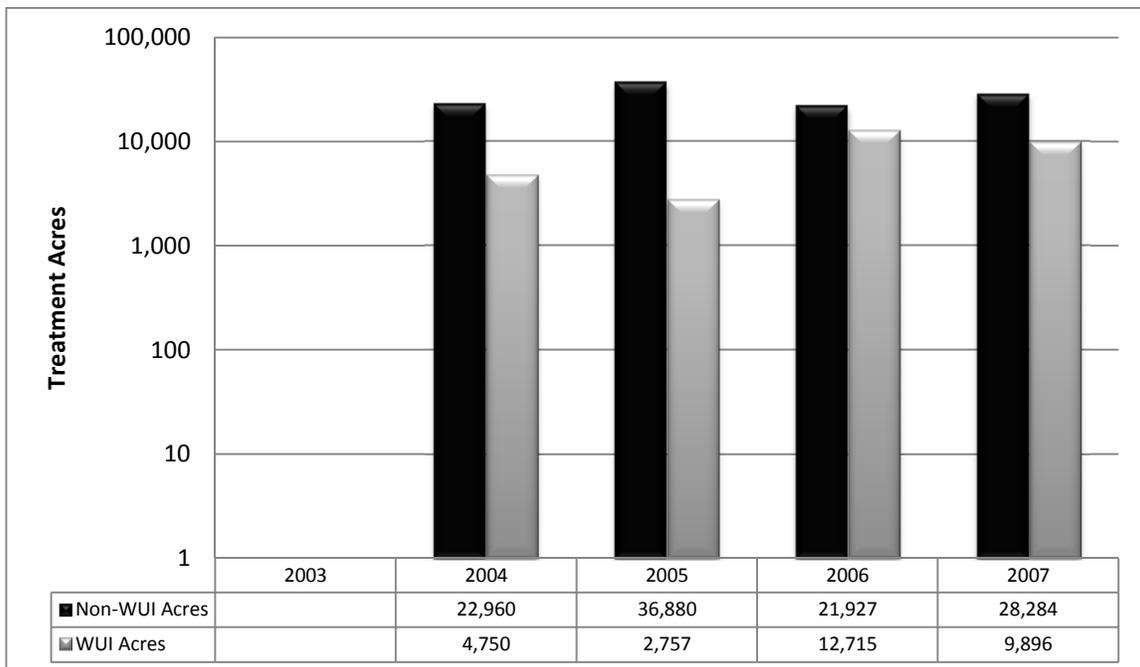
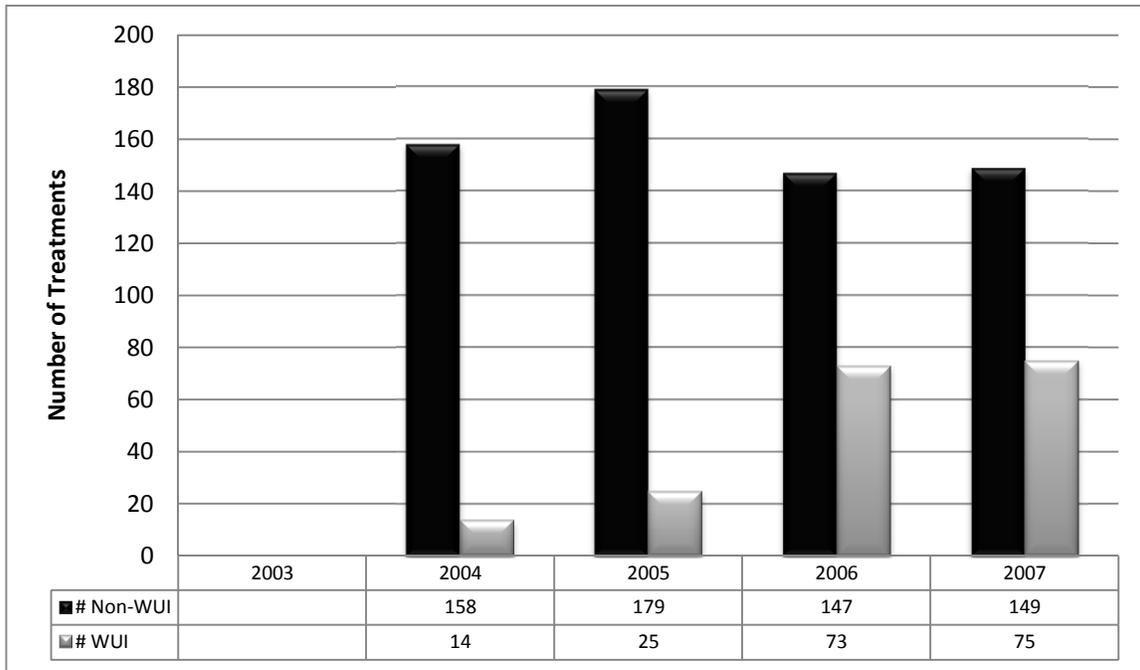


WUI = Wildland Urban Interface

CA/NV Operations Wildfires 2003-2007



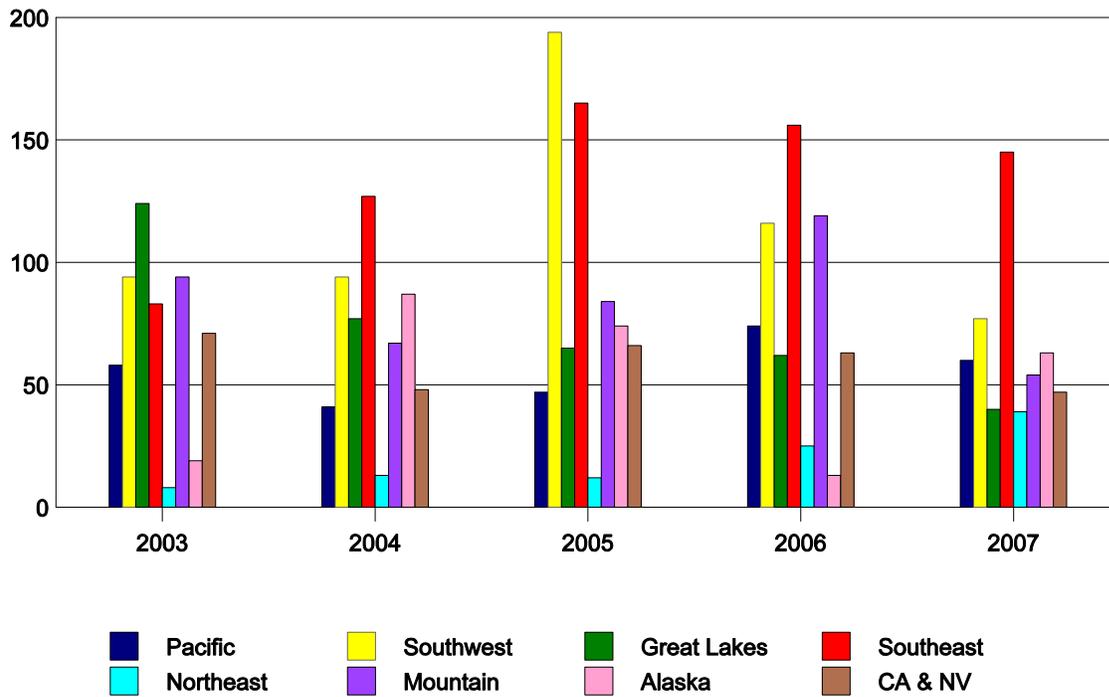
CA/NV Operations Treatments 2003-2007



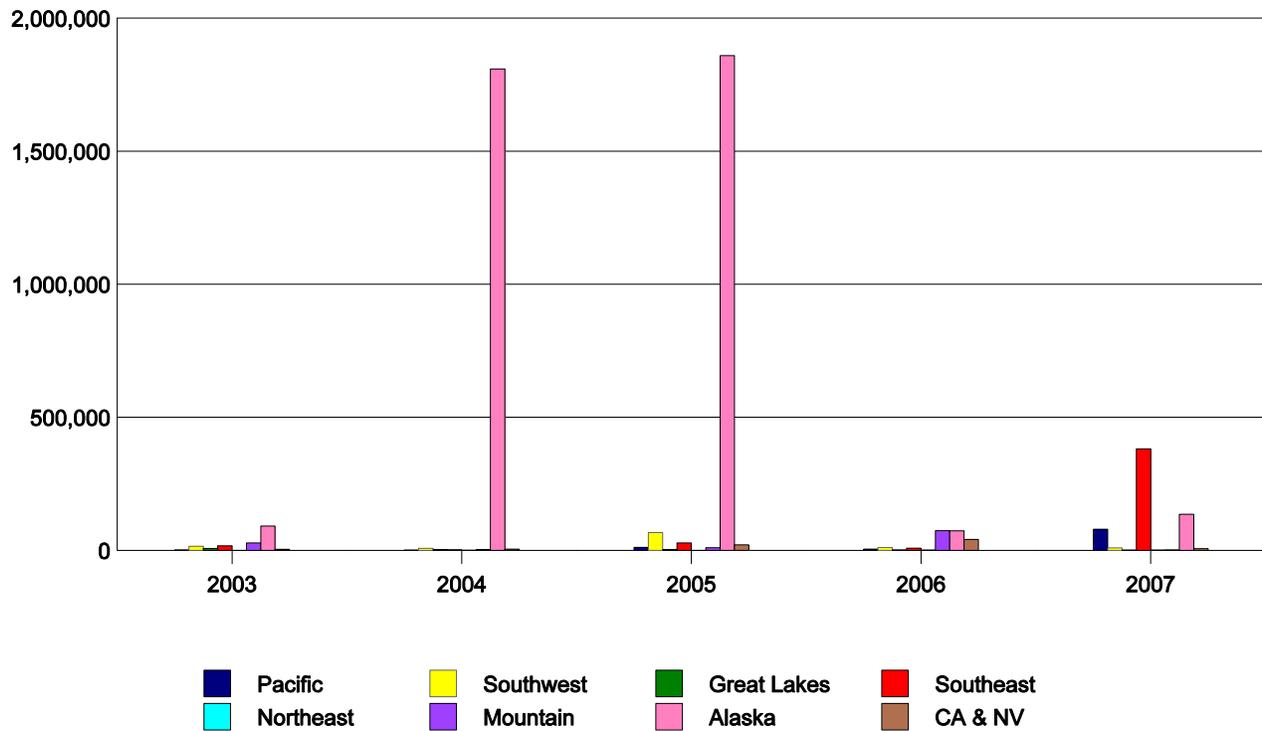
WUI = Wildland Urban Interface

WILDFIRES 2003 - 2007

Number of Wildfires

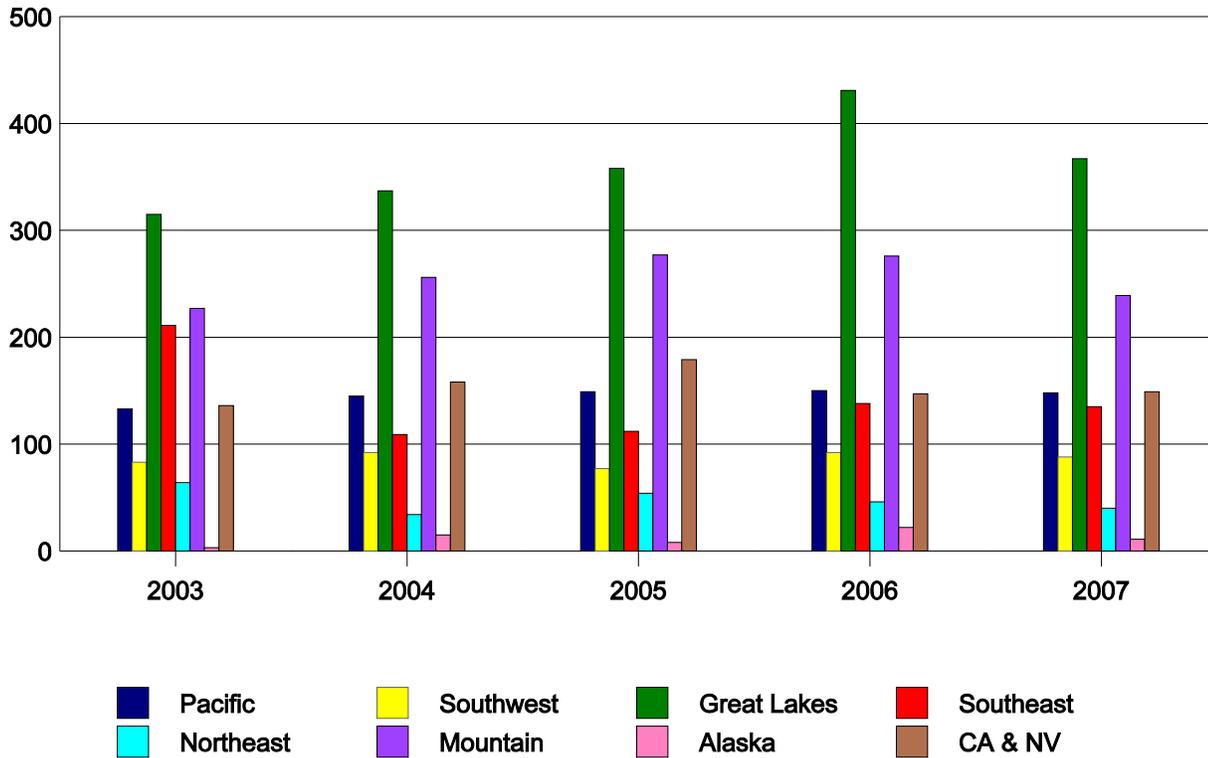


Number of Acres Burned

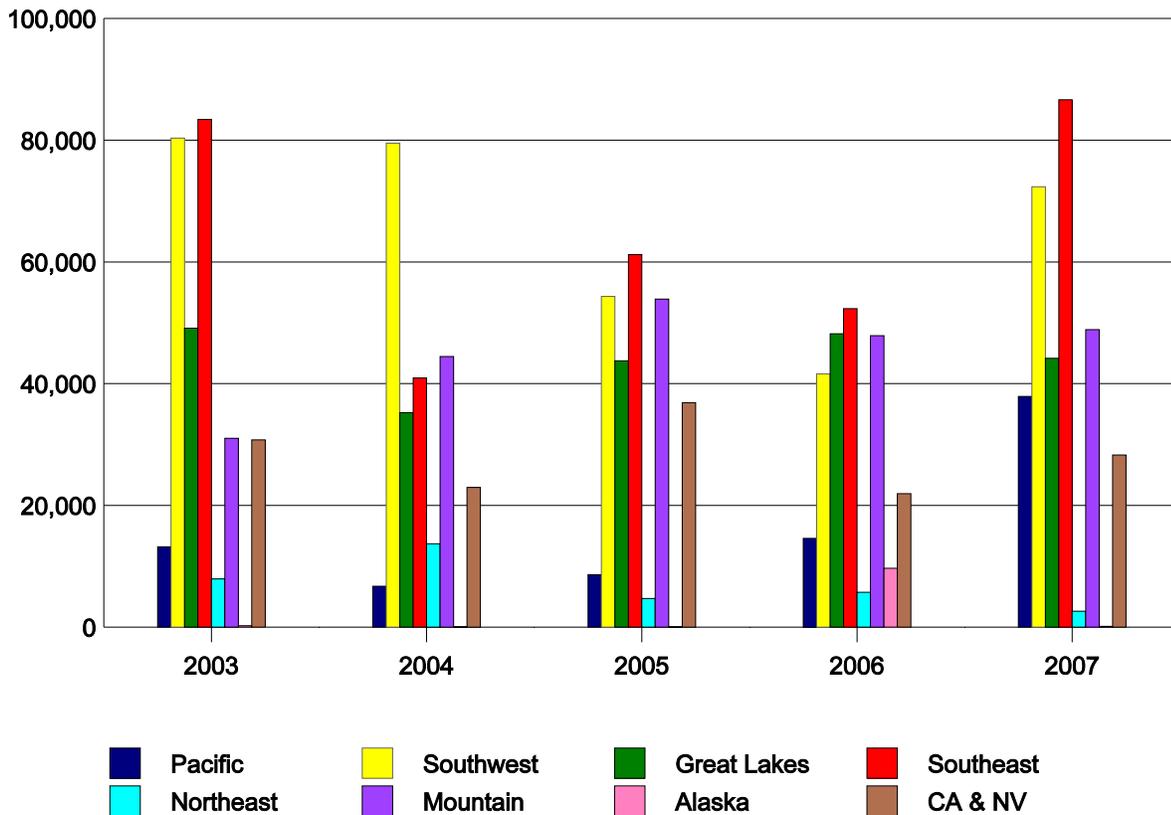


NON-WUI TREATMENTS 2003 - 2007

Number of Treatments

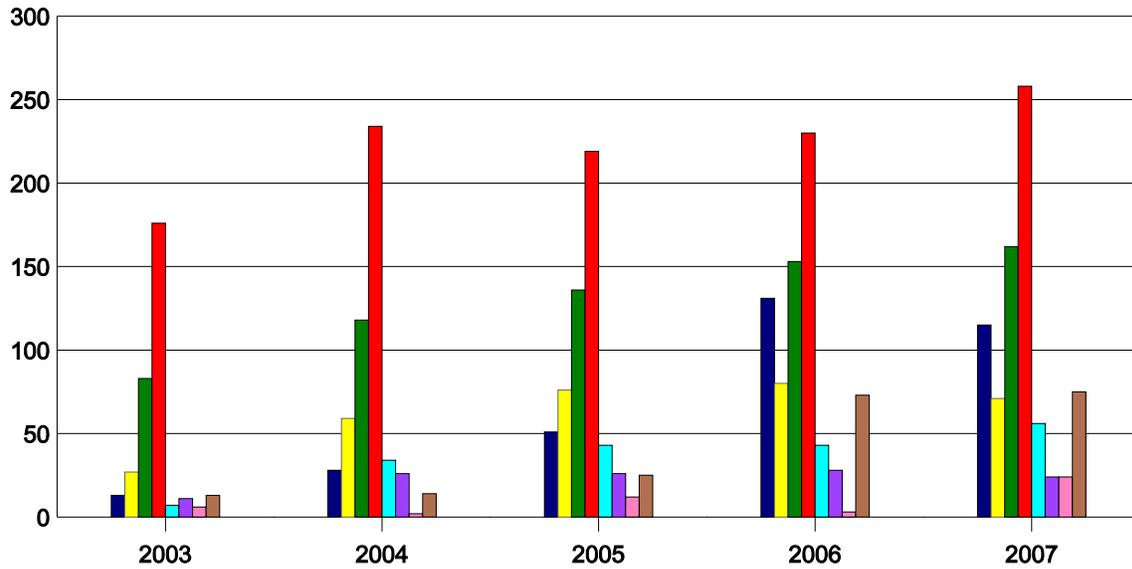


Number of Acres Treated

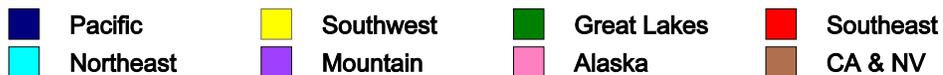
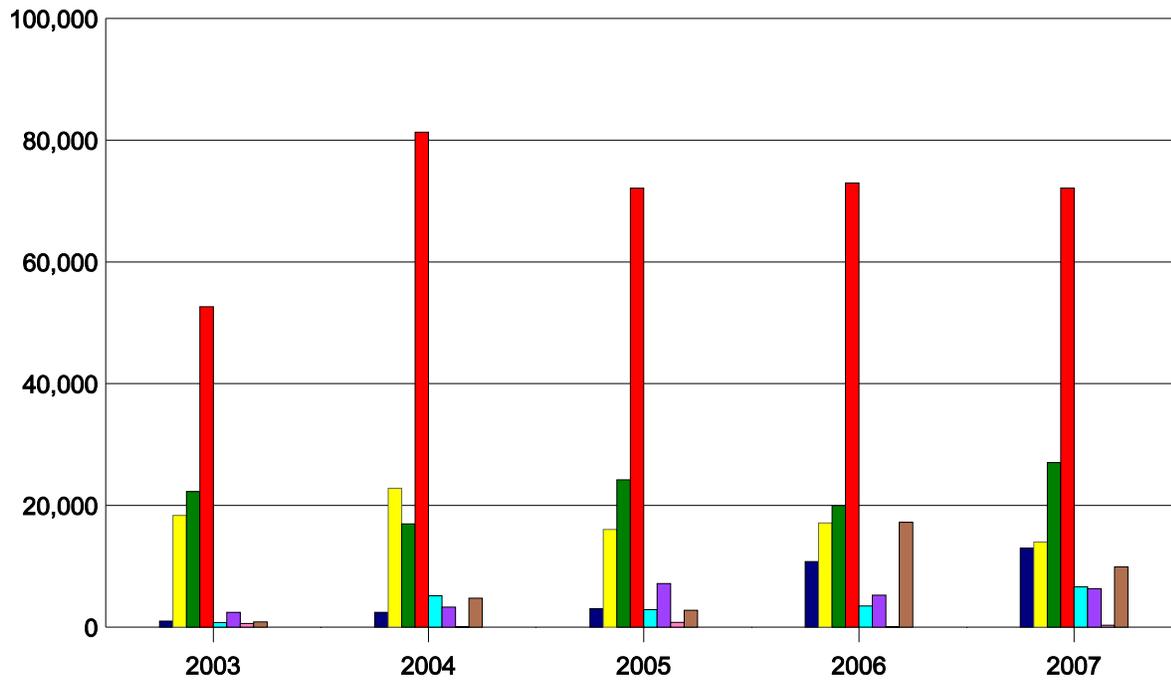


WUI TREATMENTS 2003 - 2007

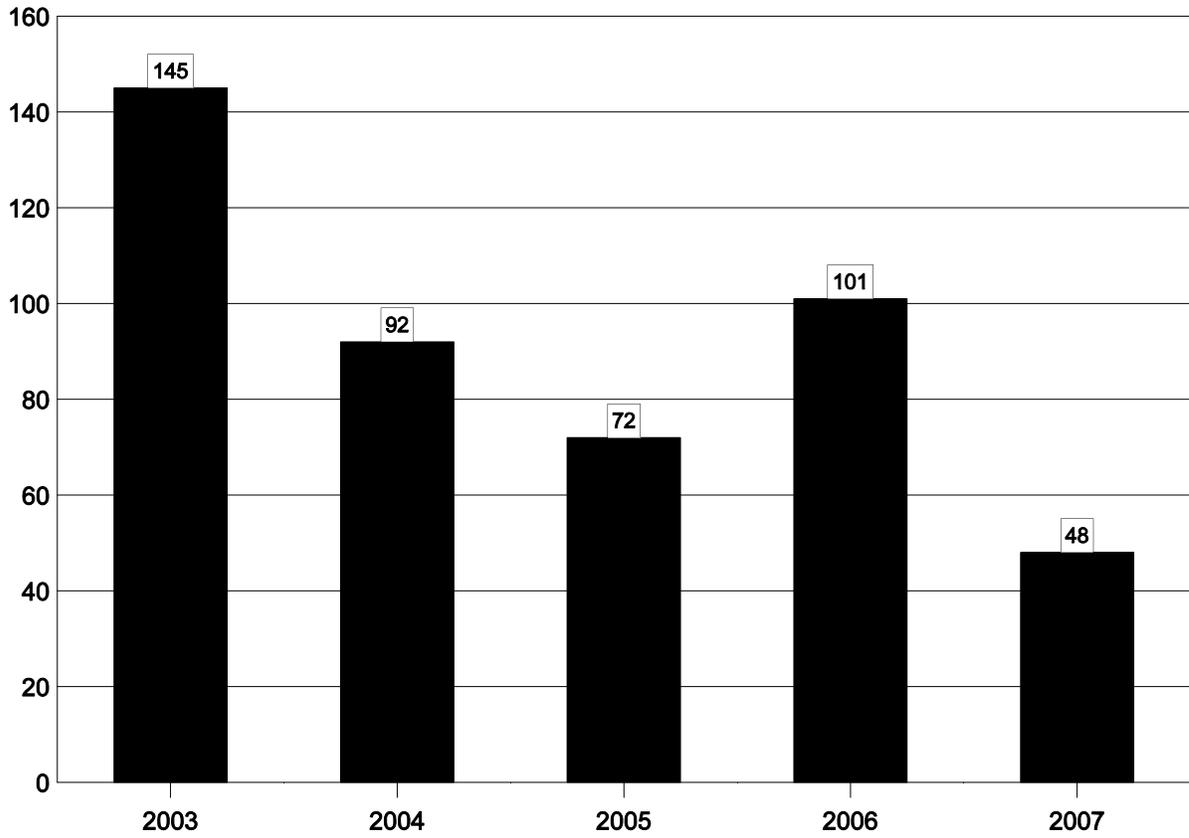
Number of Treatments



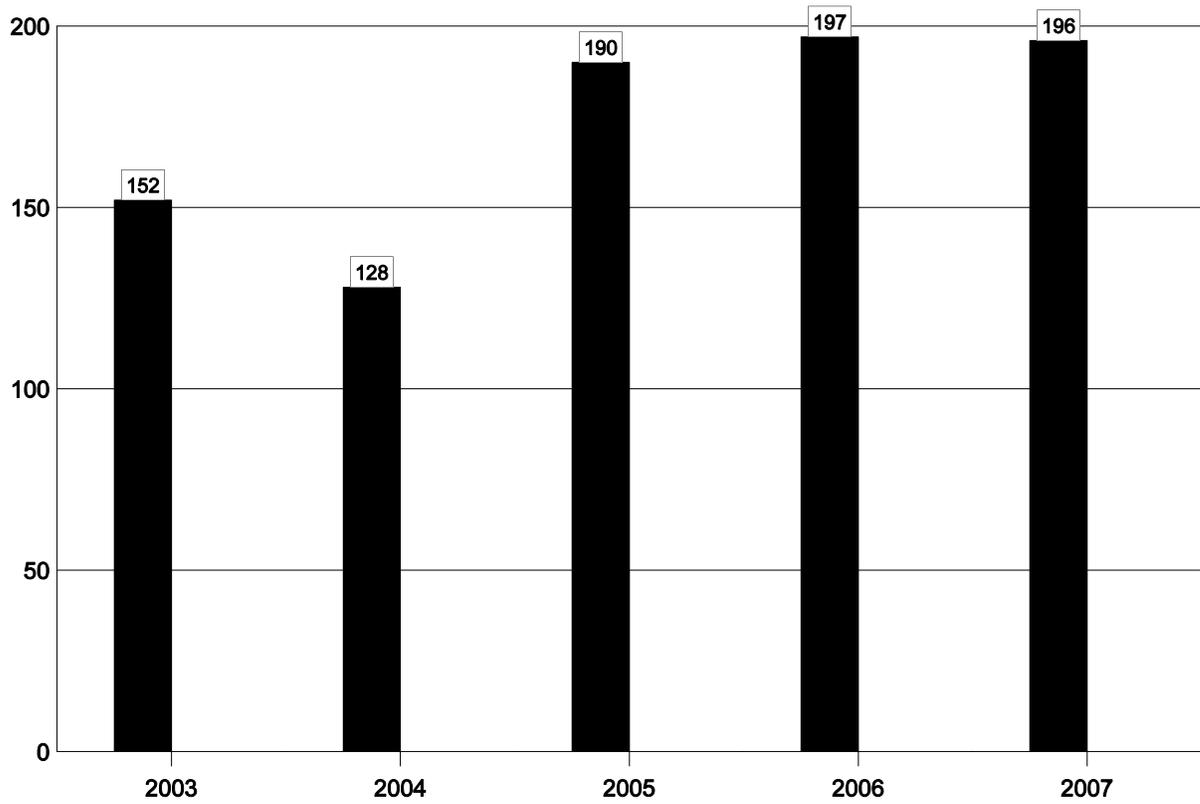
Number of Acres Treated



FALSE ALARMS 2003 - 2007

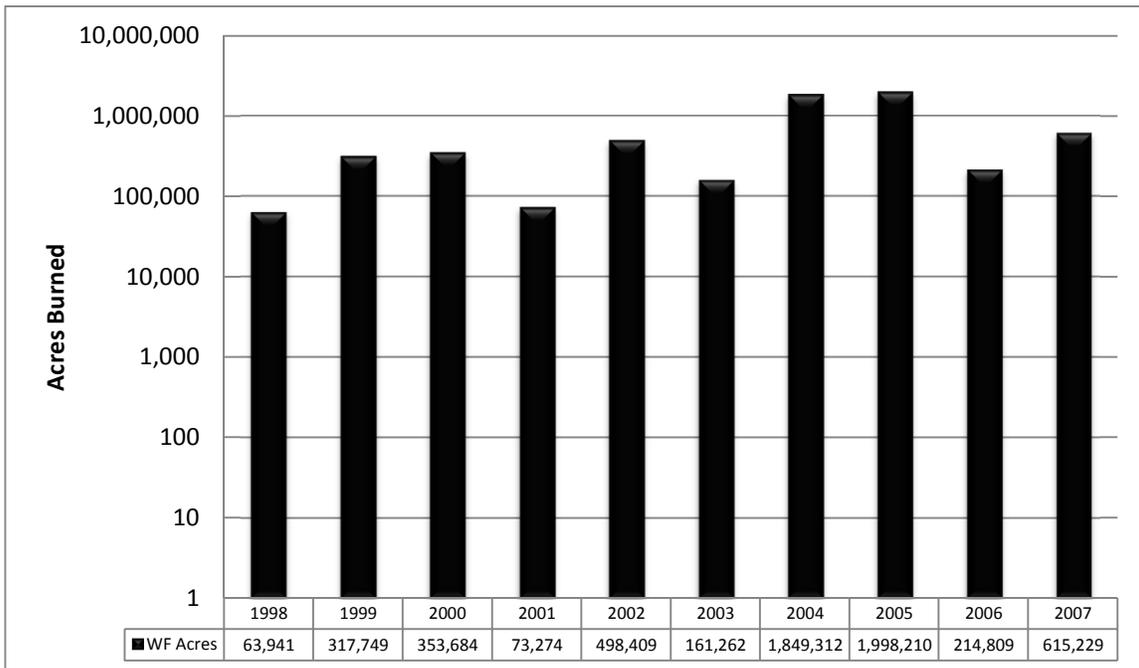
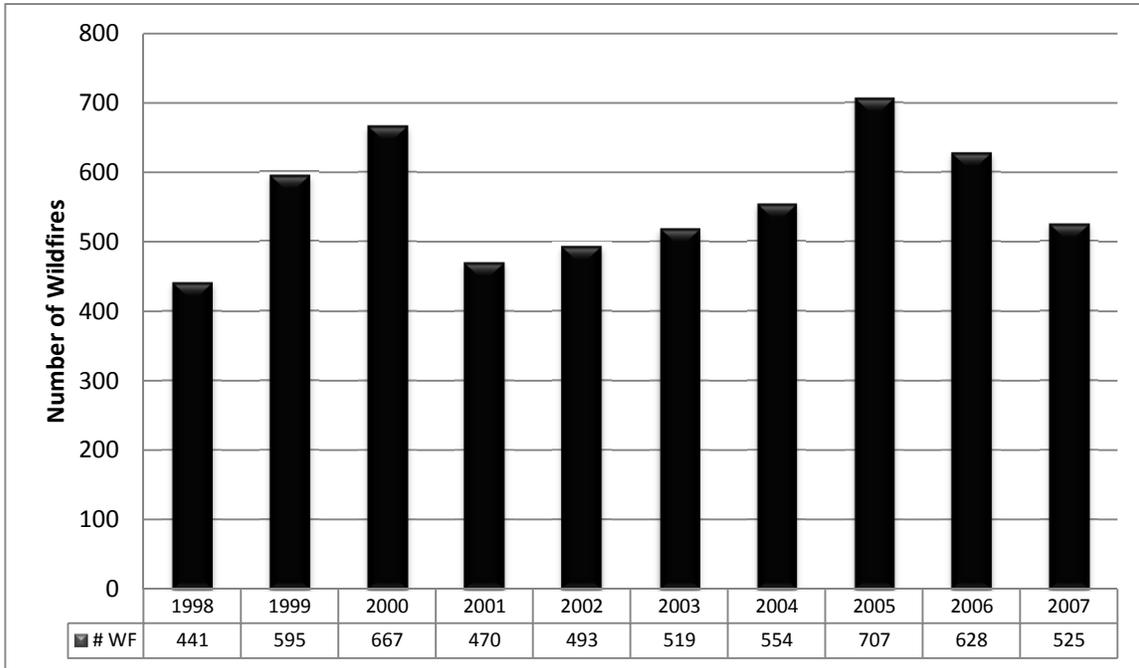


SUPPORT ACTIONS



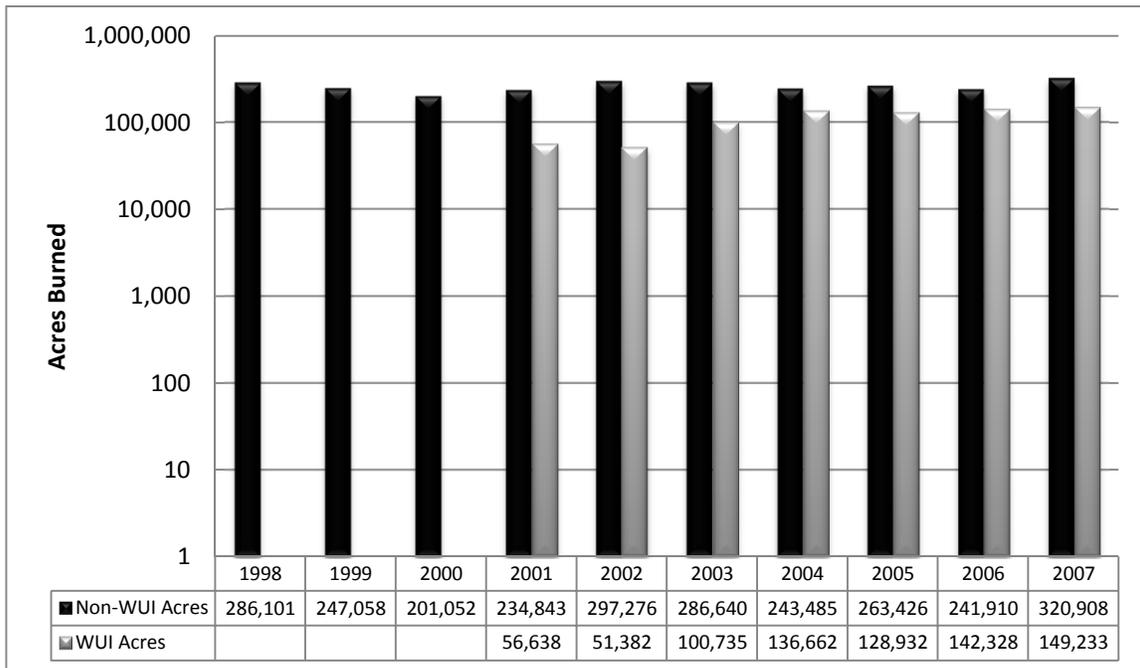
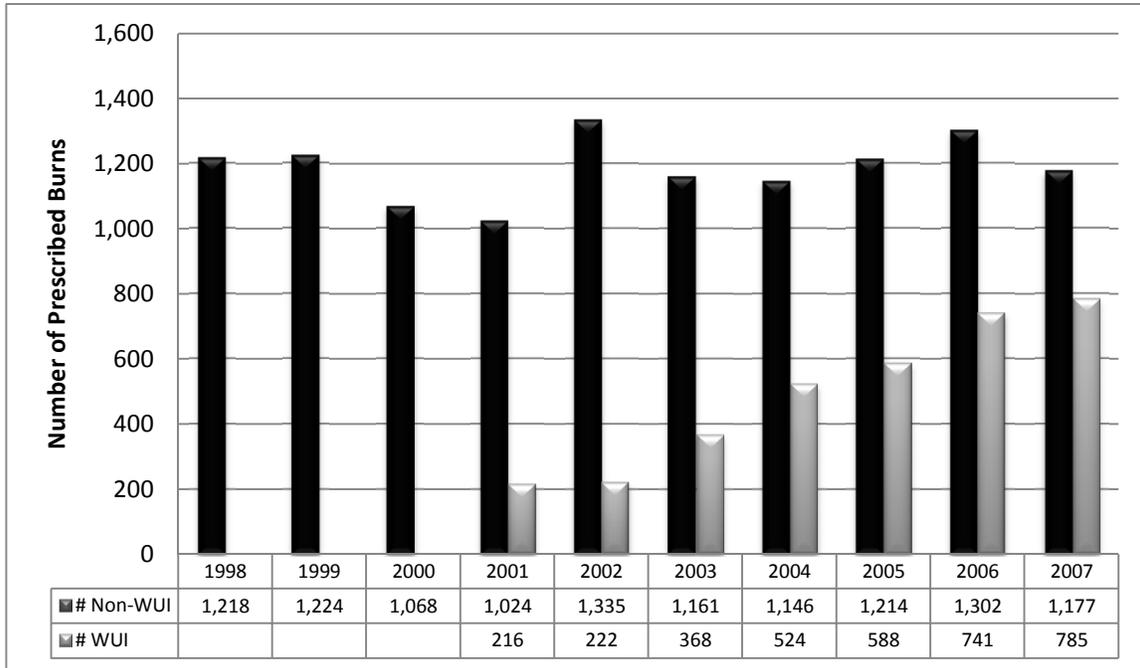
WILDFIRES

1998 - 2007



TREATMENTS

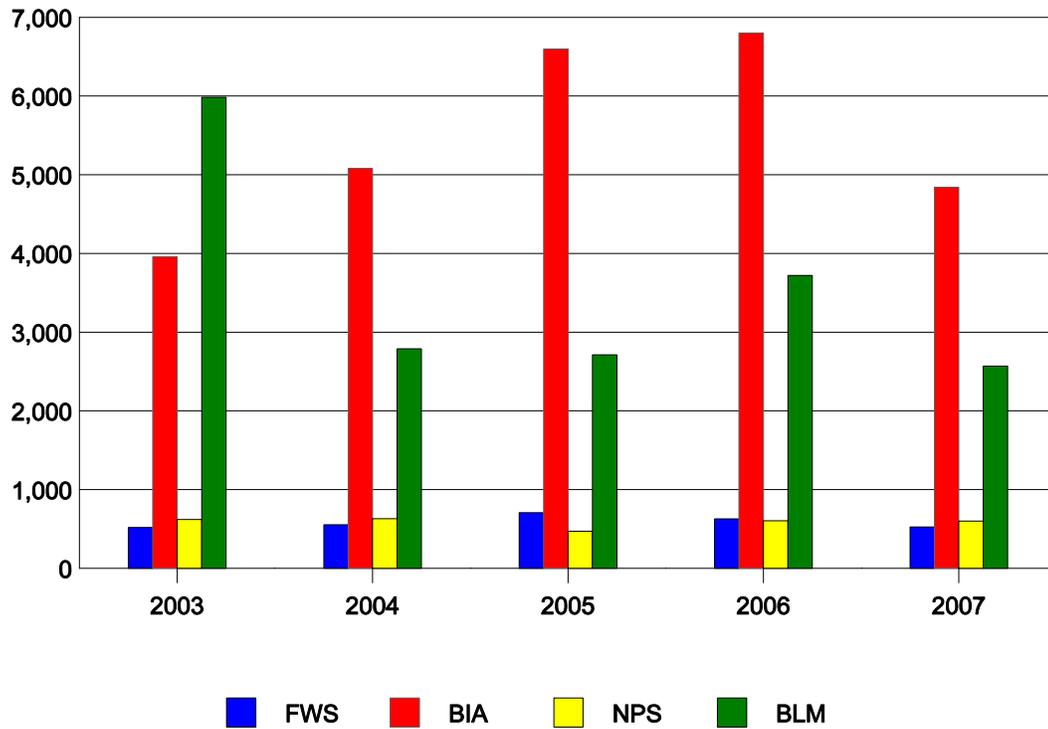
1998 - 2007



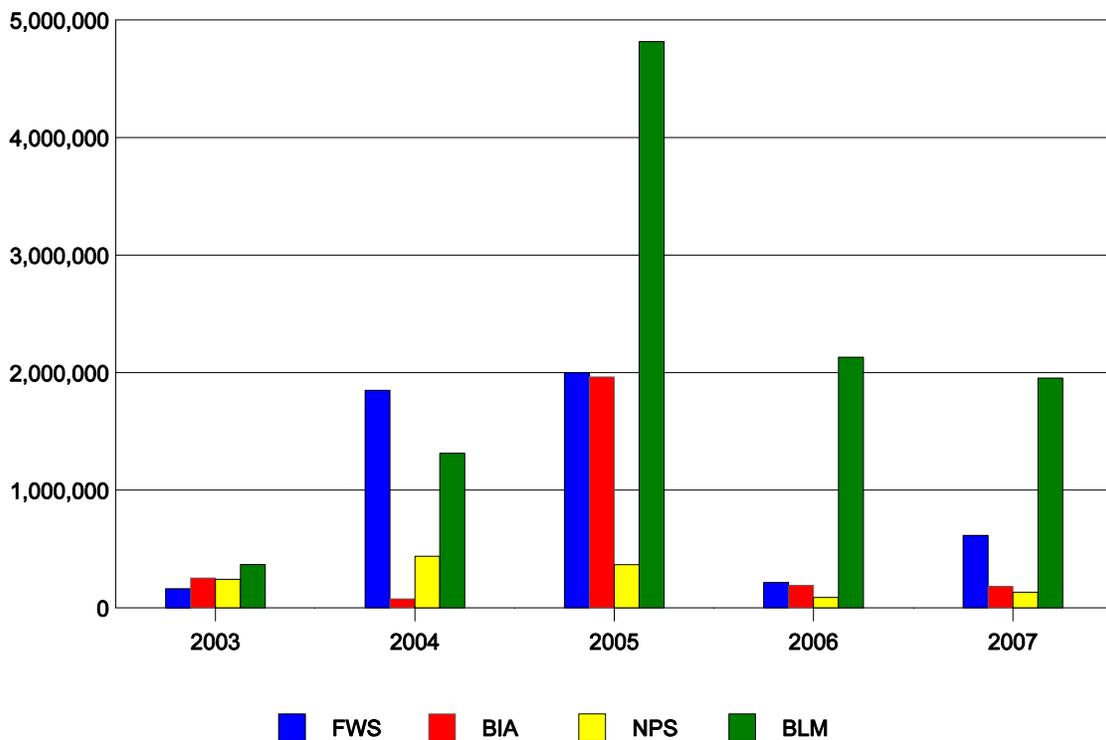
WUI = Wildland Urban Interface

DEPARTMENT OF THE INTERIOR 2003 - 2007

Number of Wildfires

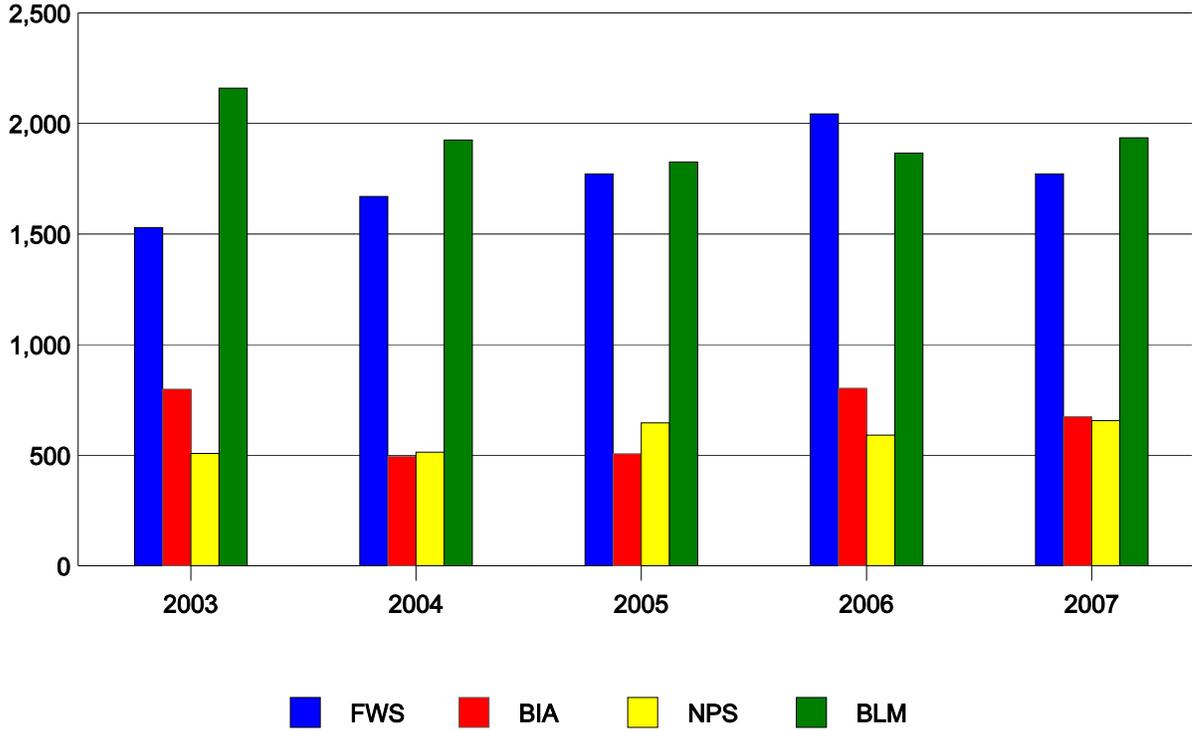


Number of Acres Burned

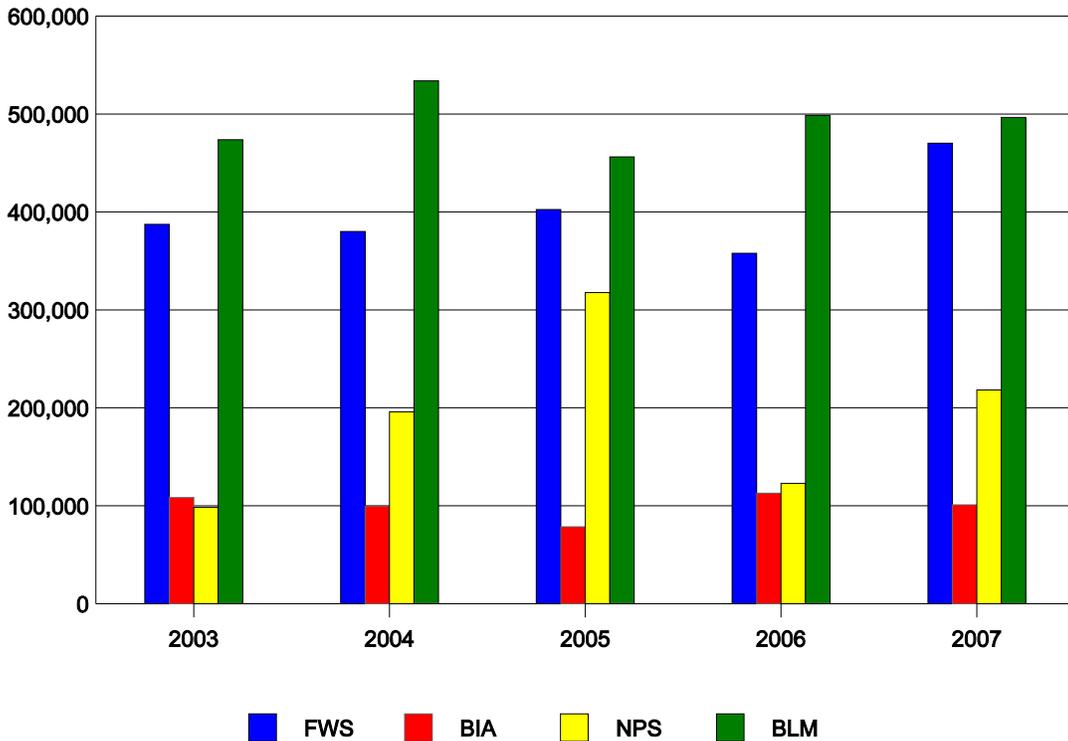


DEPARTMENT OF THE INTERIOR 2003 - 2007

Number of Treatments



Acres Treated



Treatment statistics obtained from NFPORS