

ALL FIRED UP!

The Alaska Division of Forestry
and BLM Alaska Fire Service
Public Affairs Newsletter



October 2008. Editors: Maggie Rogers (DOF) and Doug Stockdale (AFS)

2008 Fire Season Overview

Maggie Rogers, Doug Stockdale

The 2008 Alaska fire season will be remembered by most Alaska firefighters as slow, cool and damp. On the bright side, the wetter weather meant Alaskans were able to enjoy a relatively smoke-free summer.

Alaska's largest pre-season fire for 2008 started March 31 before the snow and ice had completely melted. It burned 206 acres. Unlike most years, firefighters were done with training and all fire aircraft were sitting on runways before there was significant fire activity. On May 19, the Homestead Fire started on the Kenai and within two days, 92 fire personnel were assigned. It was controlled and placed in monitor status on May 25, after burning a total of 260 acres.

The next big firefighting effort wasn't until June 24 when a fire that originated in the Venetie village dump jumped its containment line. Fortunately, the wind spread the fire away from town and towards Venetie Lake. At its peak, it was staffed with 162 firefighters. It was contained on July 4 at roughly 640 acres.

Meanwhile, California was another story. A dry-lightning storm swept through the northern part of the state in late June and caused over 1,300 fire starts in a 72-hour period. The Alaska Interagency Coordination Center started dispatching Emergency Firefighter (EFF) crews to the Lower-48 on June 26, earlier than anyone can remember. By July 16, 706 Alaskans were on fires out of state, most in California. By the end of the summer, 35 EFF crews, all agency-sponsored crews, Alaska's Type 1 Incident Management Team, and numerous other single resource firefighters had participated, even multiple times, in Lower-48 assignments.

Several lightning-caused fires in limited fire management areas in Alaska, including Three Lakes and Blind Luck Fires, started and were allowed to run their natural course, but were monitored throughout the spring and summer. In July the Goose Slough Fire near Bettles started on July 8 and at its peak had 65 firefighters assigned, but was soon controlled. Other fires in July included the short-lived Porcupine Ridge Fire near McGrath and the Bear Creek Fire in the Fairbanks vicinity.

Alaska's unusually quiet season allowed Alaska interagency firefighters to significantly help the national firefighting effort, especially in California, which drew people and resources from across the U.S. Firefighters also came from Australia, New Zealand and Canada.

Alaska Statistics		
Date	# Fires	Acres Burned
9/30/98	411	121,950
9/30/99	486	1,005,390
9/30/00	367	743,404
9/30/01	348	218,093
9/30/02	543	2,186,677
9/30/03	245	602,617
9/30/04	694	6,523,182
9/30/05	624	4,573,430
9/30/06	301	266,267
9/30/07	507	649,412
AVERAGE		
98-07	452	1,689,042
9/25/08	366	103,299

From the Alaska Interagency Coordination Center



EFF on the Iron Complex, CA, 2008.
Photo: Marc Lee

A Memorable 4th of July Outside of Alaska



Jon Larson (AFS, retired)

This summer I was served as a Crew Rep for the Nondalton #1 crew. Billy Trefon was the Nondalton Crew Boss and we shared our assignment with the Hooper Bay #1 crew led by Crew Boss Johnny Mann and accompanied by Crew Rep Matt James. We were assigned to the Yuba Fire Complex on the Tahoe National Forest in California. Among several memorable events was a special Fourth of July.

The two fire crews were at the trailhead ready to begin the daily march into the Fall Fire when we received a request to assist a burnout operation on another nearby fire. While en route to the other fire,

we found ourselves blocked in the town of Washington (CA) by their annual Fourth of July parade. The only way through the one-road town was to march in the parade, followed by our buses (Matt's brilliant idea). It was quite a scene with the townspeople cheering the marching Athabaskan and Yupik firefighters.

At the end of the town, we loaded the buses and continued to our fire assignment. When we reached our destination, we joined other Alaska crews conducting a burnout on the American Fire. The crews observed some exciting fire activity during the successful burnout operation.

After the burnout was complete, our two crews ate dinner and returned to fire camp, located at the Grass Valley Fair Grounds. As we stepped off the buses, the night sky exploded with the beginning of the fireworks show. It was a Fourth of July to be remembered and another story to tell around the campfire.

The Fire Info Kit Web sites

Alaska Interagency Coordination Center (AICC):
<http://fire.ak.blm.gov>

BLM Alaska Fire Service:
<http://fire.ak.blm.gov/afs/>

Alaska Division of Forestry:
<http://forestry.alaska.gov>

Other Contact Info

DOF/AFS Public Affairs
Phone: (907) 356-5511

AICC General Email:
AICC_information@blm.gov



Venetie Village Fire, 2008. Photo: Unknown

The Alaska Wildland Fire Suppression Media Guide is a helpful resource for the media and the public. It briefly covers suppression basics, such as resources, planning and interagency cooperation. It also explains terminology, and contains links to additional information about wildland fire and smoke. You can access it from the front page of the AICC Web site at:
<http://fire.ak.blm.gov>

Alaska Wildland Fire Suppression Media Guide

NEW!

INSIDE
Information-Definitions
Resources-Agencies

2008

QUICK REFERENCES
To Report a Wildland Fire Call: 911 or 1-800-237-3633 (AICC)
AK Interagency Coordination Center (AICC): <http://fire.ak.blm.gov>
General Email Contact: aicc_information@blm.gov
Alaska Division of Forestry (DOF) + BLM Alaska Fire Service (AFS) Fire Info: (907) 356-5511



Top left: John Bell, Scammon Bay EFF crew. **Bottom left:** Incident Commanders Lynn Wilcock and Tom Kurth. **Right:** Karuk 1 fire crew. Photos: Maggie Rogers

The wildland fire community extended condolences to the families and friends of those who lost their lives or were injured this summer while firefighting. In the wake of the Iron 44 tragedy (helicopter crash that killed 9 and injured 4 on the Iron Complex), the Siskiyou Complex showed its support by signing maps, one for each of the 13 families of victims, and collecting donations for the Wildland Firefighter Foundation.

2008 Fire Season Marred by Death and Injuries

Don Bergstrand (AFS)

The wildland fire community took a hit this season with a series of accidents, injuries and deaths incurred on fires in the Lower-48. In a season riddled with tragedy, it is hard to understand the “why,” especially for accidents that involved highly trained personnel and well-maintained aircraft.

This year’s damage came primarily from air and ground transportation incidents. In air operations, two single engine air tankers and a P2V air tanker crashed; a Siskorsky S-61 helicopter crashed; and a mid-air collision between two air ambulance helicopters occurred, one

while performing a firefighter medevac. By ground, two brush engines collided, a brush engine rolled on its side, a vehicle ran off the road, a volunteer fire department engine collapsed a bridge, a crew bus and two water tenders rolled while in transit, and two dozers rolled over.

Additionally, there were five fire entrapment incidents with seven associated burn injuries and one fatality. The fatality occurred on the Panther Fire in northern California with an experienced and highly-qualified firefighter from Washington. This was the second case in two years where a Division Supervisor became fatally

entrapped when fire behavior suddenly changed.

By any measure, these accidents are unacceptable. It would be easy to merely write off this summer’s tragedies to individual complacency or carelessness, yet the answers have to be more substantial than that. We have an obligation to be on top of our game whenever we’re on or traveling to the fireline. The “been there, seen that, done that” mentality easily gets in the way of our continual safety awareness that we owe to ourselves, our co-workers and our families.

Updates

Parks Highway Fire Settlement



Parks Highway Fire. Photo: Adam Kohley

Dean Brown (DOF)

Recently, DOF received funds from a settlement that was finalized this summer for the 2006 Parks Highway Fire. In an attempt to recover some of the 2.9 million dollars in non-reimbursable suppression costs incurred by the State, the State filed a claim in July 2006 against the property owner responsible for the fire. The law provides that the State may recover double the amount of its suppression costs from a person responsible for starting a wildland fire. The property owner then deposited with the Court the liability limits of his homeowner's policy, but had little beyond that to satisfy claims.

The end-of-August settlement resolved the litigation concerning the fire and awarded the State \$90,000. The settlement was reached with all parties that experienced damage, including Toghothlele Native Corporation and private property owners who received payments.

Nenana Ridge Prescribed Burn Rained Out

Adapted from the interagency news release

Weather conditions drenched all hopes of conducting the prescribed burn at the Nenana Ridge research site this summer. National and local researchers, National Geographic staff, local media and fire fighting resources were on the scene when unexpected widespread rain forced the burn to be postponed until next year. With the amount of investment in, and anticipation for, this research burn, it was a disappointment to have to delay yet another year. Next season, if conditions permit the event to occur, firefighters from DOF and AFS will ignite, monitor and control the burn. Smoke will be visible but is not expected to impact communities.

Accomplishing the prescribed burn is important for many reasons. Fire's natural presence in the interior boreal forest ecosystem poses a concern to people with homes or property located in the highly fire-prone black spruce forest. State and Federal fire managers use fuel treatments near communities as a method of protection from wildland fires; however, no prescribed fire experiments have been conducted to quantify their actual effect on fire behavior in Alaska.

The need to determine how fire behaves in relation to fuels treatments was identified by the Alaska Wildland Fire Coordinating Group (which represents Federal, State and Native landowners) as a number one Alaska fire science research priority. In response, the Nenana Ridge research site was established 30 miles southwest of Fairbanks in a typical interior Alaska black spruce stand.

The project area consists of three units, each approximately 250 acres, separated by a fireline cleared to mineral soil. Within two of the units are several five-acre fuel treatments in which trees have either been thinned by fire crews or removed with a bulldozer.

Researchers from the University of Alaska, Pacific Northwest Research Station, Rocky Mountain Research Station, the University of Idaho, Missoula Fire Laboratory, and Canadian Forest Service (Yukon Territory) are interested in how thinning and bulldozing effect fire behavior and the effectiveness of the fuel treatments at slowing fire. Results from this project will guide fire managers and the general public in protecting homes and property. Another benefit will be an increase in Ruffed Grouse habitat that is maintained by the Department of Fish and Game.

In addition to national research attention, the project has gained significant media attention. Personnel from National Geographic came to Fairbanks to document the burn. Even though it did not occur, their short trip helped them gain further insight into how the documentation process can best occur and how equipment (fire safe camera boxes) should be improved.

The benefits of the burn will include the research data that is collected, photo/film documentation, and experience gained. All of it is for the purpose of creating a better understanding of how Alaskans can live wisely in the fire-prone forest.

Did You Know? . . .



Logo Design: Tony Chapman and Karen Scholl



Picture of Tony Chapman with logo. Photo: Doug Stockdale

AFS Fire Specialist Section (FSS) - 30th Anniversary

Tim Epp (AFS)

Created after a record fire season in 1977, the Fire Specialty Unit filled a need for mid-level fire overhead. Since then, duties have expanded to include: AFS zone coverage, training, prescribed fire, fire operations cache, and aviation modules. The FSS have also grown in personnel with detailed and permanent positions in the Galena, Tanana and Upper Yukon zones, and Fairbanks pool. After thirty years and a few name changes (Alaska Smokechasers, Fire Suppression Specialists), the FSS continues to fill a primary role in extended attack fire suppression throughout Alaska.

Fire Hazard or Firewood?

Maggie Rogers (DOF), Jeff Hermanns (DOF)

Areas where wildland fires have burned are usually great sources of firewood. The wood is dried and cured, the limbs may have burned off, and after a period of time, the bark will fall off.

Protecting your house from wildland fire may also provide you with a source of firewood. With the high cost of heating oil, firewood is in high demand throughout central and interior Alaska. For those who live in the boreal forest, it is wise to remove any flammable vegetation (especially black spruce) from a zone of at least 30 feet surrounding any value that may be at risk should a wildland fire occur. This zone should be created around homes, garages, sheds, and other values at risk.

The trees that you remove can then be used for firewood or sold if you do not have a wood-burning stove. Remember, firewood needs to be covered to cure, and should not be burned for at least six months after splitting, and make sure to keep woodpiles outside of that 30 foot zone, as they provide a great source of fuel for a wildland fire.

An example of a larger scale hazard fuel reduction project is the school in Tok. Trees are being removed from around the school and then stacked into log decks. The piles of logs are the future fuel source for the school.

For information about preparing your house for wildland fire, visit:

<http://forestry.alaska.gov/pdfs/06Firewise.pdf>

For information about wood energy, visit:

<http://forestry.alaska.gov/wood/index.htm>

For information about firewood, visit:

<http://forestry.alaska.gov/wood/firewood.htm>



Tok school fuels reduction project.
Photo: Jeff Hermanns

USFS Smokejumpers in Alaska for the Season

Doug Stockdale (AFS)

Alaska Fire Service hosted 12 U.S. Forest Service (USFS) smokejumpers this summer from bases throughout the Lower-48.

USFS smokejumpers traditionally use round parachutes. They came to Alaska to train on BLM square ram-air parachutes to gain experience and familiarity with the chutes for potential future adoption in their program.

New Interagency Aviation Tools

Chip Houde (AFS), Bob McAlpin (DOF)

As a result of cooperative effort between AFS and DOF, two Convair 580 (CV-580) Large Air Tankers gained approval for interagency use for a probationary period by the Interagency Air Tanker Board last spring.

Tanker 452, based in Palmer, and Tanker 455 based at Fort Wainwright (near Fairbanks) were contracted from Conair Group Inc. of Abbotsford, British Columbia for 90 days by DOF. The two aircraft flew a combined total of 58.5 hours on interagency fires. They were used on the Kenai, in the Mat-Su Valley, Anchorage, southwest Alaska (where they

were prepositioned in McGrath base), and in the interior. They dropped nearly 100,000 gallons of retardant.

Three of the fires that the CV-580s really proved their worth on were: the Homestead Fire on the Kenai, north of Anchor Point; the Venetie Village Fire; and the Porcupine Ridge Fire, five miles north of McGrath. The combination of fast

response and turnaround speed with the 2,100 gallon load-capacity of the CV-580s was a major factor on holding these fires to a manageable size.

Both agencies look forward to continuing this spirit of cooperation while effectively utilizing all available firefighting resources regardless of agency affiliation.



CV-580 on the runway in Palmer, early fire season. Photo: Unknown

New Engines to Support Prescribed Fire

Tami DeFries (AFS) (Photo: J. Dollard)

The AFS Military Zone, through a support agreement with the US Army AK, provides wildland fire suppression assistance on Army lands in the state. The cooperative arrangement utilizes the firefighting expertise and resources of AFS to keep military training ranges free of excessive flammable vegetation and to suppress fires started by military training.

AFS recently acquired two Type 6 wildland fire engines, excessed by the BLM in Wyoming, to enhance the capabilities of the Army fire departments in wildfire response. The heavy duty trucks are outfitted with water tanks and pumps, and can be used on dirt roads and trails in the training ranges. Engines provide increased flexibility for firefighters to respond to fires that could impede military training schedules. More importantly, they will allow firefighters to provide additional protection for adjacent communities and resources.

Where to Find Maps of Fires and Lightning Strikes

Sean Triplett (AFS)

The Alaska Interagency Coordination Center (AICC) Web site includes an Internet Mapping Site (IMS). This Web site allows the interagency fire community and the general public access to the latest information on current fire locations, size, weather, lightning, historical fire perimeters, and when available updated fire perimeter locations. Users of the Web site have the ability to view fire data with various background layers such as Digital Raster Graphics (USGS Quads), Satellite and Aerial Photography, and Land Status.

The IMS site includes some custom features that allows users to share and exchange information. These include the ability to export fire perimeters to Keyhole Markup Language for use in Google Earth. Users can “markup” maps and email the maps allowing them to share information about specific areas, export maps to PDF, and export selected datasets to MS Excel or ESRI shapefile formats.

To access the Web site click on the Maps/Imagery/Geospatial link from the AICC Web site <http://fire.ak.blm.gov> and choose a link under “AICC ArcIMS Mapping Products.”

Interagency Opportunity in the Future of Firefighting

Lynn Wilcock/Tom Kurth (DOF), Kent Slaughter (AFS)

Three agencies provide suppression services in Alaska: The Bureau of Land Management-Alaska Fire Service (AFS), the State of Alaska Department of Natural Resources-Division of Forestry (DOF), and the U.S. Forest Service (USFS). The protection agencies provide wildland fire suppression services to land management agencies and implement actions documented and directed by the 1998 Alaska Interagency Wildland Fire Management Plan (AIWFMP).

The DOF-protected Southwest District (SWD), based out of McGrath for the past 23 years, represents an excellent geographical locale in which to further develop an interagency model of fire suppression. Increasing workloads, demands on budgets, and recruitment issues have created an incentive to examine efficiencies of fire suppression in areas that are difficult to support logistically. Each agency has the pieces and parts to combine into a more efficient work model (whether they are personnel, aircraft, infrastructure) that could serve Alaska for the future. For example, DOF-contracted Convair 580 air tankers can cover long distances in a short time to reach areas that do not have water sources from which AFS-contracted water carrying air tankers can scoop from. In another example, AFS smokejumpers play a significant role in protecting values at risk or completely suppressing remote area fires, including those in the SWD. To support smokejumpers, air tankers, helicopters, and other fire fighting resources, the western Alaska infrastructure (currently established in Galena and McGrath for seasonal use) is of utmost importance.

McGrath has served as base for wildland fire operations almost as long as wildland fires have been fought in Alaska. Originally an Area Office under the BLM Anchorage District Office, the McGrath station was host to many firefighters and fire managers who went on to leadership positions throughout Alaska and the Lower 48. It was considered one of the premier duty stations in Alaska and there are still many stories told of experiences in McGrath and of fires that were supported from there.

Beginning in the late 1970s, as land received through statehood entitlement began to be transferred to state ownership, the State of Alaska began to incrementally take over fire suppression responsibilities from the BLM. In 1981 the BLM made the decision to reconfigure its fire program into the Alaska Fire Service, with headquarters in Fairbanks. This led to discussions on who would be responsible for wildland fire suppression in the southwest part of the state. A landmark decision was made that would divide the state (outside of the Tongass and Chugach National Forests) into two protection areas, with DOF responsible for protecting the southern half of the state and AFS protecting the northern half. This resulted in the southwest portion of Alaska becoming the final piece of land that transferred to state responsibility.

While BLM maintained ownership of the station, the first state employees were assigned to McGrath in 1984 and state suppression responsibility began in 1985. While DOF instituted some changes, such as building a new office/dispatch building, fires in the southwest were, and still are, managed much the same way. Smokejumpers, helitack, air tankers and local crews provide the backbone for suppression under state protection just as they did for the BLM. This means that the success of providing fire management services in southwest Alaska requires strong collaboration between suppression partners.

Future Issues:

With the implementation of the AIWFMP, changes in land use, and other changes in fire management, the question is how to divide the suppression workload for the future. Shouldn't we as suppression agencies look at how we can best utilize resources? It is time to look more closely at how the Federal and State wildland fire management agencies can provide the best possible service to the land management agencies and the citizens of Alaska. Fire managers from AFS and DOF have had several discussions along this line and are working to collectively come up with a plan, using the SWD as a pilot program, that will match currently available resources with where they are needed and most efficient for the majority of Alaska.

DOF Perspectives / Experiences

An Interagency Engine Academy Opportunity

Tom Kurth (DOF)

One noteworthy achievement for 2008 is the DOF Engine Academy. The idea evolved considerably from a workshop to a more extensive curriculum that now involves vehicle and pump maintenance, emergency vehicle operation, and water handling.

Instructors were able to first attend a Lower-48 academy in California, Arizona, or Oregon before instructing in Palmer. Interagency cooperator participants came from the Yukon, the Forest Service in southeast Alaska, and the local fire departments.

Engine utilization got a big boost in 2007 when ten Alaska engines were transported to the Northern Rockies Geographic Area Coordination Center in Missoula to spend two months on incidents.

The 2008 Palmer academy provided the opportunity to garner local knowledge, interact with local cooperators, and fulfill requirements for Type 4 Incident Commander, Engine Boss, or related single resource task books. A direct result was that DOF was fortunate to have detailers from the AFS Fire Suppression Specialists and Smokejumpers. These individuals were a welcome supplement, particularly for the early spring fires season.



Engine Academy in Palmer, April 2008. Photo: Phil Blydenburgh

We appreciate those that participated in this year's cross-training experience. In April 2009 there will be another academy, located in Palmer. Interagency participation is encouraged and may lead to job details, engine familiarization and task book validation.

History of Fire Suppression and Thoughts for the Future

Lynn Wilcock (DOF)

Alaska is a big state; according to the State Web site, it is 365,000,000 acres. The vast majority of that landmass is wildland that is prone to fires. The two primary landowners in Alaska, the State of Alaska and the Federal Government, are tasked with providing wildland fire suppression and related management for much of Alaska. Currently, the Reciprocal Fire Protection Agreement between DOF and AFS provides for two contiguous protection areas, where each agency provides fire suppression on all lands within their protection area, regardless of ownership. This foundation has served land management agencies since the early 1980s, when the protection areas were first identified.

While planning to cooperate on an interagency basis was wisely ahead of its time, it is hard to determine today how the original division of workloads were determined. We do know that there was a desire to balance the duties between AFS and DOF. A statement from a 1982 briefing paper discussing the future of fire suppression in Alaska states: "It has been mutually agreed the most efficient statewide

protection program would be to divide the state into two zones with one agency responsible for protection of all lands in each zone. This would minimize duplication of capital improvements and attack organizations by BLM and the State." This agreement was made prior to the advent of the Alaska Interagency Fire Management Plans, and there is documented discussion of "burnable acres" and acres warranting "pre-suppression funding," without the terms being fully defined. None the less, the boundary between Federal and State protection was finalized in 1985 and has been adjusted very little in the ensuing 23 years.

Interagency cooperation continues to provide the most effective and efficient way to fight fire, but it is important to acknowledge that wildland fire management has evolved significantly. Though DOF and AFS maintain specific responsibilities outlined in law and regulation, both agencies protect human life and provide fire suppression. While it may not be perfectly clear today what the future of wildland fire management will look like, we do know that providing the best possible service to Alaskans and land management agencies requires a collective effort to challenge traditional thinking and consider all options for future operations.

The Ongoing Evolution of AFS

Kent Slaughter (AFS)

Over the past two years there have been changes to the structure of AFS with more changes yet to come. This is a part of the ongoing evolution of AFS that began with the creation of the Alaska Fire Control Service in 1939, continued through the creation of AFS in 1982, and is still ongoing. Since 1982 the staffing and structure of AFS has expanded and contracted to reflect changes to the mission and budgets.

The core mission of AFS remains the same: to provide for the safety of the public and firefighters while providing cost effective management of fires for the Department of the Interior and Native Corporations in Alaska, as well as leading the BLM's Fire and Aviation programs in Alaska.

Some of the changes in the past two years have included personnel changes ranging from new hotshot crew members, cooks, warehouse workers and other support staff to new Fire Management Officers (FMOs) in the Galena, Tanana, and Upper Yukon Zones. In the Galena Zone, Marlene Eno-Hendren has succeeded Dave Whitmer, who was promoted to Branch Chief, Fire Operations after Ed Strong retired this past spring. Ken Coe's retirement in the spring of 2007 provided an opportunity for Dave Jandt to step into the role of Tanana Zone FMO. Finally, Steve Theisen assumed the role of Upper Yukon FMO in September 2007.

At the same time as organizational changes are taking place, the physical structure of AFS is changing and shrinking.

The Tanana station will be fully decommissioned by the end of 2009,

due to being located too close to the runway center-line and low use. The Galena station infrastructure is being evaluated in light of its age, condition, environmental safety concerns, and the support needs for fire management in western Alaska. We are working with the DOF and the BLM's Anchorage Field Office to assess the McGrath physical plant and mitigate safety and environmental hazards there.

The Fort Yukon station has new barracks and restrooms, replacing ATCO units from the mid-1970s. Planning is moving forward on realigning the aviation facilities there. This will reduce lease costs, reduce the possibility of fuel spills, and put the aircraft parking further from the runway center-line.

Over the next several years there will be more changes as AFS continues to evolve to meet the needs of the land managers.

AFS is working closely with the State of Alaska and other Department of Interior agencies to ensure that we are optimally utilizing all our resources. The AFS South Zone FMO and Assistant FMO spent much of this past summer in McGrath and Soldotna, working closely with DOF personnel and helping to fill critical shortages in those organizations. This winter we will be evaluating those efforts and deciding where we can improve, based on each agency's strengths.

Through agency agreements, several DOF and National Park Service employees are currently stationed within AFS. They work side-by-side

with BLM employees in the Alaska Interagency Coordination Center and other offices to improve communication, coordination and cooperation. They share office space, computers, telephones and equipment. The casual observer would never know they work for different agencies. And because they work together as a team, when coordination issues do occur, solutions are developed and they get resolved pretty quickly. Other partners such as the Forest Service and Fish and Wildlife Service are considering options and may soon station some of their personnel here too. We look forward to working with them.

AFS and DOF already cooperatively share personnel and fire aircraft across jurisdictional boundaries to control wildland fires to protect lives and property. AFS and DOF are also discussing if it makes sense logistically to combine AFS and FDO warehouses and fire caches to improve efficiency and cost effectiveness.

Exploring new and non-traditional ways to work together will help ensure that our limited budgets are wisely and efficiently used and a strong, well trained and dedicated workforce of fire personnel is maintained throughout Alaska.



Interagency meeting on the Kenai. Photo: Ric Plate

Agencies Work Together to Develop a new Fire Season Forecast

Randi Jandt (AFS), Paul Duffy (UAF)

Interior Alaska, between the Brooks Range and the Alaska Range, contains over 200 million burnable acres. Despite its pervasive economic and ecological impacts, the fire regime in Alaska is poorly understood and each spring even “old hands” are reluctant to try and predict the summer fire season. Factors commonly used in the western states such as winter snowpack, drought, and NDVI (“greenness” index of vegetation) have limited utility when dealing with permanently frozen soils, 24-hour solar days, and fuels which burn well when “green” due to low live fuel moisture. While analyzing data for a Joint Fire Science-sponsored study of fire regime and climate in 2005, Paul Duffy, who was pursuing his PhD at UAF, found striking correspondence between phases of large-scale weather patterns and annual acreage burned in Alaska. Despite the seemingly obvious links between climate and

fire, previous attempts to link climate and fire had met with limited success. Paul developed a linear regression model which explained an impressive 79% of the variability in year-to-year burned acreage (Duffy et al. 2005). He subsequently improved the technique so that over 90% of inter-annual burn acreage variation was explained (Fig. 1). Agencies charged with fire suppression and fire management responsibility in Alaska were receptive to the management implications of this new data on fire season severity. Could this relationship be used to predict a big or small fire season before it happens?

At the 2007 Interagency Fall Fire Review, representatives from Alaska Fire Service, USFWS, BIA, NPS and the State of Alaska Department of Natural Resources decided to pool their resources and contract with Paul, now a respected biostatistician with his own company, to build a predictive model for the 2008 fire

season as a pilot project. Paul put the banks of computers in his lab to work and churned out the first Alaska Fire Season Forecast in mid-April, followed by re-tooled forecasts in May, June, July and August using new weather data as it became available. The key to the predictive models are indices which measure intensity of large-scale weather patterns and atmospheric anomalies called “teleconnections.” El Niño is the most familiar of these patterns, but several others affect Alaska, including the Polar and Pacific Teleconnections (see next page for explanation).

The best predictive model in 2008 seemed to be the first one in mid-April, developed using the Western Region Climate Center’s March data. Paul correctly predicted a “Low” acreage fire season in Alaska (meaning <500,000 acres) with the regression model yielding 342,000 acres (Fig. 2). By the end of September Alaska had burned only 103,300 acres: a resounding “Low” season by any standards!

Subsequent months saw a weakening La Nina and other changes which tipped the May, June and July predictions more toward a “Moderate” season.

Agency partners extended the contract for Paul to do some tinkering, or as he calls it “optimization” routines on the models, to see which of the monthly forecasts is most trustworthy. The early season prediction is the one we need the most— especially if a potential “Big” season is looming, as it might lead to “severity” funding or help justify staffing and aircraft requirements.

Jandt, Duffy continued next page...

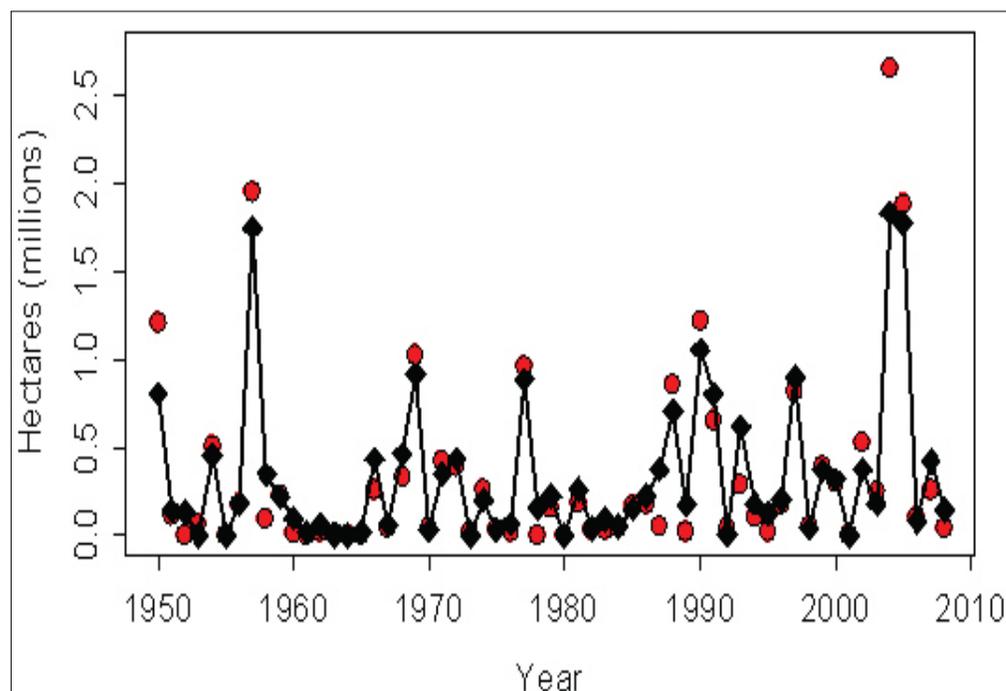


Figure 1. Number of hectares burned by naturally-ignited wildfires (circles) in 1950-2008 vs. estimated burned area (diamonds) from Paul's statistical model using gradient boosting techniques ($R^2 = 0.91$). A hectare is about 2.5 acres.

It's encouraging that by mid-April key "macro-weather" teleconnection indices are available and Paul's analyses indicates they should have sufficient predictive power to make this a useful tool. The Alaska Center for Climate Assessment and Policy has taken notice and has obtained a grant to continue development, establish a Web site for posting predictions, and cooperative work with NOAA and climate and fire scientists:

www.uaf.edu/accap/index.htm.

Q: How are teleconnection indices related to acreage burned?

A: We all recognize the immediate effects of weather on fire behavior. Extreme fire behavior at a stand level can occur almost any summer in the black spruce fuel type, given a couple weeks of dry, sunny weather, relative humidity < 30% and a breeze. At the other end of the weather scale, however, are the longer-term ocean and atmosphere circulation patterns which drive local weather events. For example, in El Niño years summers in the Northwest tend to be dry, while the southwest is warmer and wetter, whereas La Niña often brings Alaska more rain—which she certainly did in 2008! This phase of the equatorial Pacific ocean pattern recurs every 3 to 7 years. Another pattern affecting the Pacific rim ocean waters in the Pacific Decadal Oscillation (PDO), which, as the name suggests, cycles on a 20-30 year rotation. So, you can begin to

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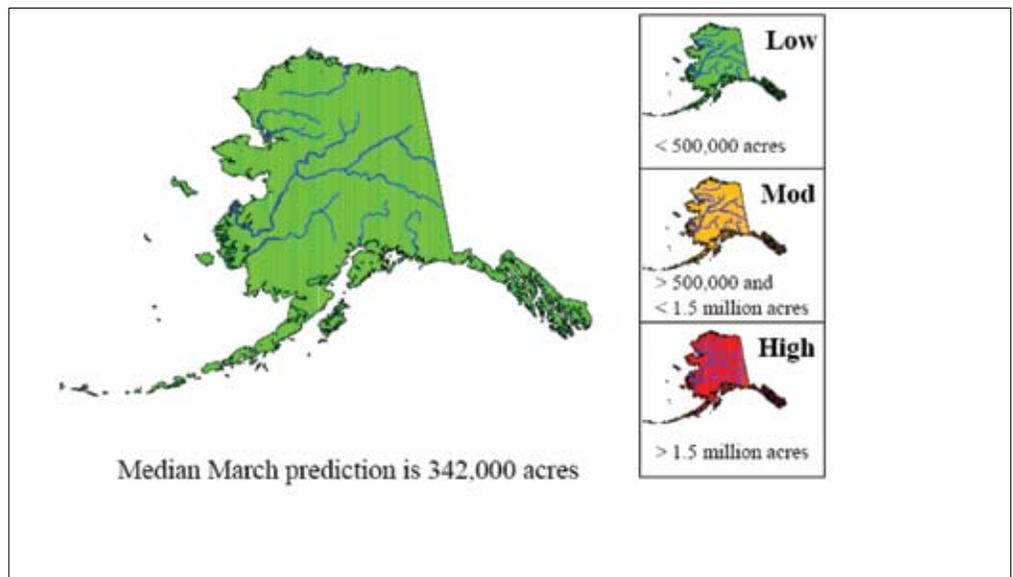


Figure 2. Forecast of area burned in 2008 based on March data, which was provided to managers in April, 2008. Currently the forecast is for the whole state, although eventually it may be possible to regionalize the forecast.

see how the cumulative effects of different indices could be used to indicate what kind of summer weather may prevail. Now consider that most of the acres burned in Alaska come from the large fires which may burn over weeks or months, often in areas designated for Limited suppression action. The striking correlation illustrated in Fig. 1 then begins to make sense.

Q: The model explains past burn acreages quite well, but how realistic is it to predict the coming fire season given all the other factors that come into play (fuels, management strategies, short-term weather events, human ignitions)?

A: The real test will come if we are able to predict the next big fire season using the teleconnection indices and weather factors. Those are the

years that tax Alaska's firefighting resources, and most people don't realize that more than 75% of the area burned in the last 40 years burned in the 10 worst fire seasons (Kasischke, et al. 2002). This summer, Paul tested prediction models based on the relationships in Fig. 1 by "predicting" past fire seasons as if we didn't know the outcome. He used teleconnection and monthly average weather data that would have been available, and ran the model 1000 times with 10 cases randomly held out to get a median prediction for that year and a certainty for the prediction. The model anticipated most of the "Big" years. We plan to try this out for a few seasons and see if it continues to provide an accurate forecast.

From the Editors



Tanana Valley State Fair fire information display. Photo: Maggie Rogers.

“All Fired Up” is a wildfire newsletter cooperatively produced by DOF and AFS Public Affairs. It is modeled after Fireline, the AFS fire newsletter that was diligently produced for years by the late Andy Williams, a long-time AFS Public Affairs Officer.

The purpose of this newsletter is to broaden the focus to include DOF information and to highlight the many ways DOF and AFS work together and cooperate with other agencies.

The AFS and DOF public affairs personnel share an office located at AFS. Since each agency’s fire protection areas and responsibilities are not well known by the public, the office provides a single point of contact and a familiar phone number (907-356-5511) for obtaining fire information.

Although we work for and support different agencies, sharing an office results in less duplication and better sharing of agency-specific information. We help support the Alaska Interagency Coordination Center by posting Morning Highlights, contribute to the interagency fire community, and help support each other in our duties, and most importantly, provide timely and accurate fire information to external audiences.

Maggie Rogers, formerly with AFS and now the Information Officer for DOF for Wildland Fire and Forest Resources, and Doug Stockdale, Public Affairs Officer for AFS and BLM’s Fairbanks District Office, staff the Public Affairs Office located at Alaska Fire Service.