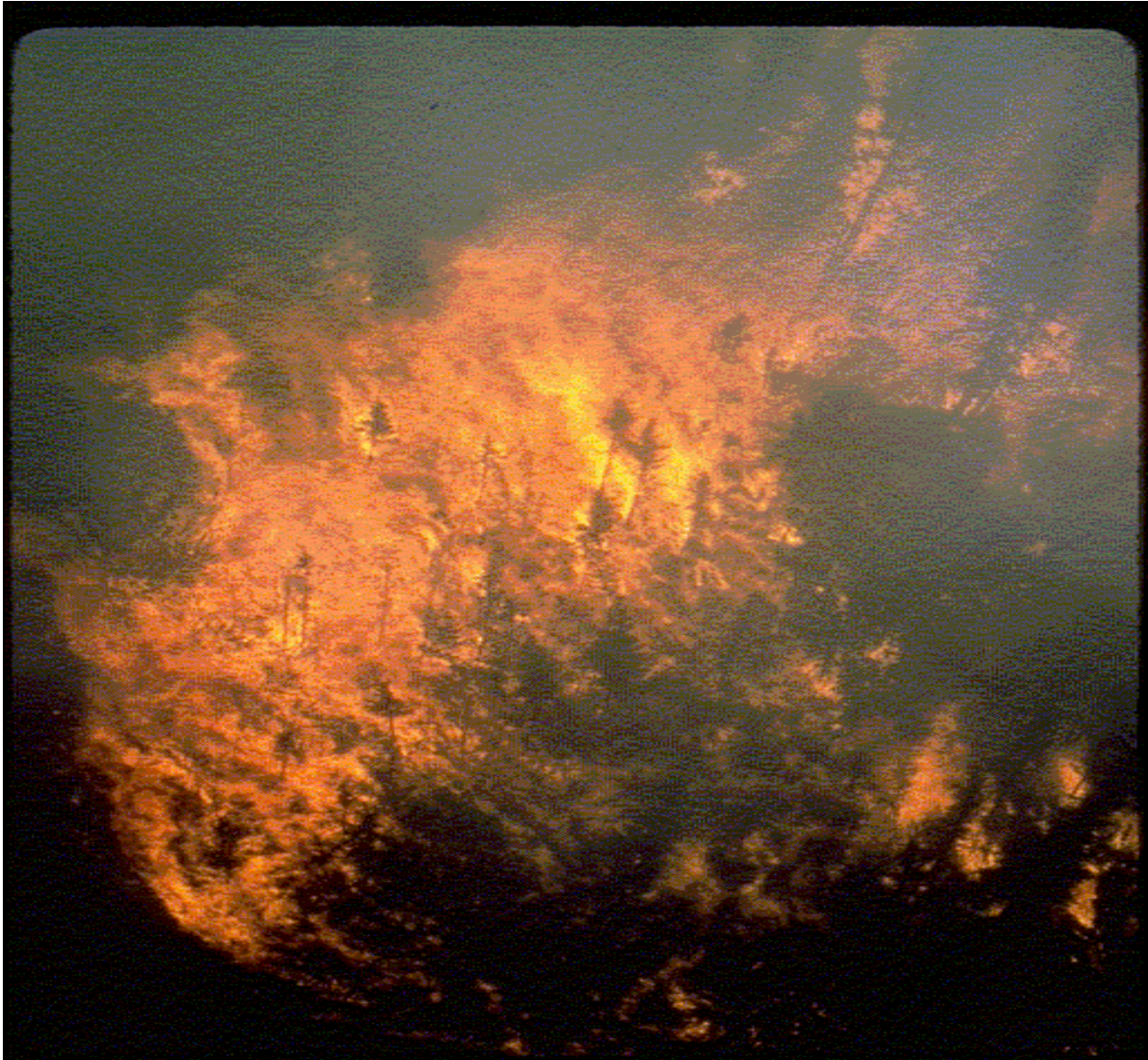


State of Alaska
Department of Natural Resources
Division of Forestry



Wildland Fire & Aviation
Basics

THE BASICS

STATE RESPONSIBILITY FOR FIRE PROTECTION

Alaska Statutes Section 41.15.010 - 41.15.240 mandates the Department of Natural Resources the responsibility to manage the wildland fire program for the State of Alaska. Department of Natural Resources **Department Order 113** delegates this responsibility to the Division of Forestry.

Alaska Statutes Section 41.15.210 establishes a Fire Suppression Fund in the state treasury for use of the Department. Department Order 113 delegates the responsibility for expenditure of the suppression fund to the Division of Forestry. The Division of Forestry is the only entity in the State of Alaska authorized to spend/obligate funds from the Fire Suppression Fund to suppress wildland fires on private, state, or municipal lands.

The **goal** of the Division of Forestry Fire & Aviation Program is to **provide safe, cost-effective, and efficient fire protection services** and related fire and aviation management activities to protect natural surface resources, man-made improvements, and human life on State, private, and municipal lands commensurate with the values at risk.

The **objectives** of the Division of Forestry are to:

- Protect human life
- Emphasize aggressive and effective initial attack suppression operations on critical and full fires
- Protect developed public and private property and cultural resources
- Promote an interagency approach to managing wildland fire
- Minimize cost and resource damage consistent with values at risk
- Prevent unplanned human-caused ignitions
- Promote public understanding of fire management programs and objectives
- Organize and maintain a fire management capability to consistently apply the highest standards of professional and technical expertise
- Investigate all human-caused fires



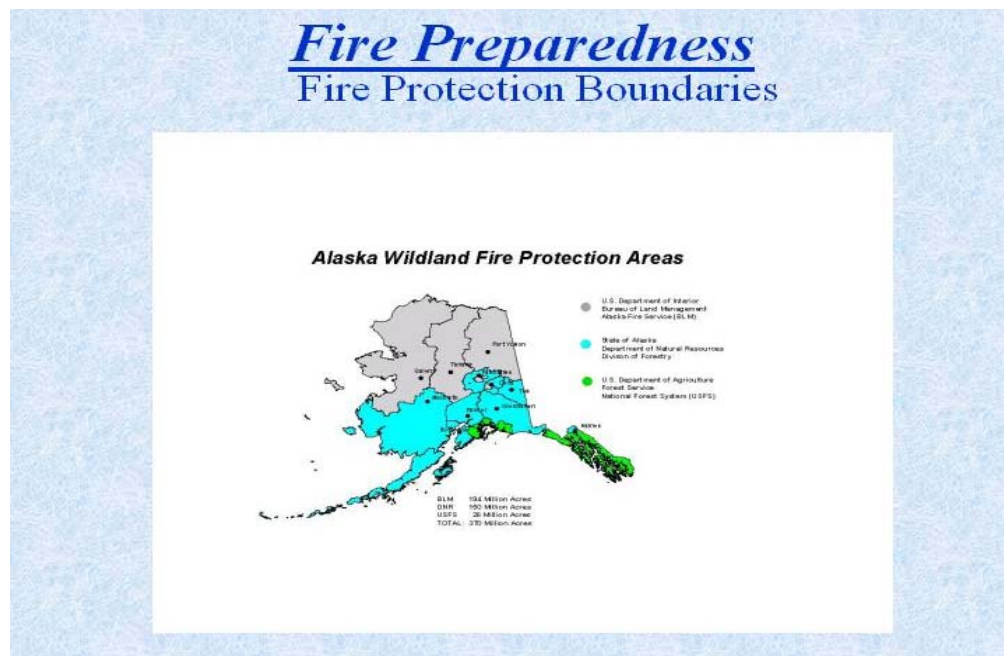
IMPORTANT ASPECTS OF THE FIRE & AVIATION PROGRAM ARE:

WILDLAND FIRE SAFETY

Safety of firefighters and the public is the highest priority. All fire and aviation activities related to the suppression of wildland fires will reflect this commitment. The Division of Forestry has a very good safety record, and the safety attitude is reflected in all levels of the organization.

INTERAGENCY COORDINATION & COOPERATION

Fire management planning, preparedness, suppression operations, prescribed fire, and related activities will be coordinated on an interagency basis with the full involvement of DOF and its state, federal and local government cooperators. **Alaska has been divided into three fire protection areas** through formal agreements between the state and the federal government.



The **Division of Forestry, Bureau of Land Management, and the U.S. Forest Service**, fight fires within their protection areas on all land ownerships which reduces the duplication of facilities and services. None of the agencies in Alaska have all of the resources required to accomplish the fire protection job on their own. The Division of Forestry **has cooperative agreements** with the Departments of Agriculture and Interior, and numerous local government and volunteer fire departments to help get the job done. The state and federal agencies routinely utilize each other's personnel and resources to both manage and fight fires. This is efficient and cost effective.

The three suppression agencies are responsible for their own preparedness costs in order to be ready to fight fire on all lands in their protection area regardless of ownership. When fire activity occurs, the appropriate suppression agency responds to the fire guided by the level of

protection selected by the land owner/manager in the Alaska Interagency Fire Management Plan. At the end of the fire season, the agencies cross bill each other for the suppression costs based on ownership. **The State of Alaska is responsible for the suppression costs on all state, private and municipal lands.**

The closest forces concept is most effective in catching fires while they are small. In some areas of the state the closest forces are **local government and volunteer fire departments**. Local government and volunteer fire departments assist in responding to wildland fires when their higher priority of structure protection allows. Wildland firefighting and structure fire fighting are very different, requiring different training and equipment.



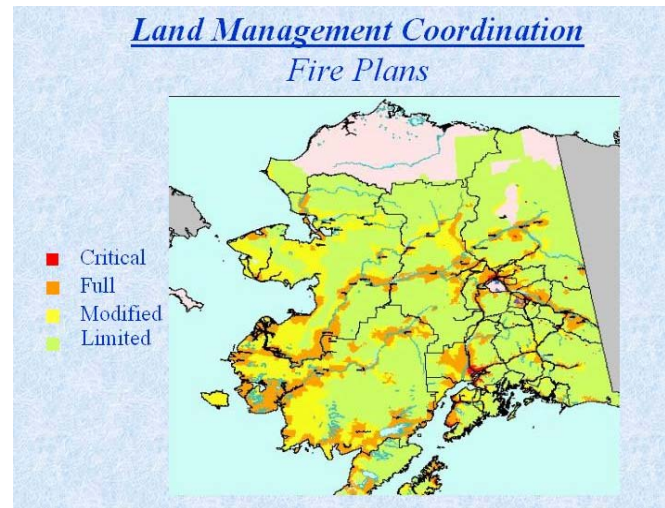
Forestry and Volunteer Fire Department personnel responding to an incident.

The response to wildland fires statewide is coordinated by the **Alaska Interagency Coordination Center** located in Fairbanks. This center is jointly staffed and managed by state and federal employees, and coordinates the mobilization of interagency personnel and resources to fires statewide. Duplication of separate facilities for state and federal suppression agencies is avoided, resulting in fast and efficient response to wildland fires.

The State of Alaska has adopted the **Alaska Interagency Fire Management Plan** (Fire Plan) as its basic guideline for managing wildland fire in Alaska. The fire plan was developed and signed in the 1980s to provide a coordinated and cost effective approach to fire management on all lands in Alaska.

Alaska is the only state having implemented one interagency fire plan that covers all land ownerships. Reliance on the fire plan greatly aids fire managers because decisions on which

areas to protect and at what levels are already made. The fire plan categorizes all wildland fire-prone lands into **four different fire management options**.



Critical Management Option – Created to give the highest priority for suppression action on wildland fires that threaten human life and inhabited property.

Full Management Option – Protects cultural and historical sites, uninhabited private property and high-value resource areas.

Modified Management Option – Lands in modified generally receive the same level of protection as those in the Full management option in the early fire season. Later in the fire season, fires in Modified are allowed to burn.

Limited Management Option – Limited management option lands are generally very remote, difficult to protect, have minimal resource value and as such receive no fire protection.

FIRE TRAINING & QUALIFICATIONS

In 1984 the State of Alaska adopted the **National Interagency Incident Management System Incident Command System** concept for managing its fire suppression program. The Incident Command System guiding principles are followed in all wildland fire management operations. **All state Departments adopted the Incident Command System in 1996 through the Governor's administrative order.** Personnel are trained in specific Incident Command System positions and meet national standards. This allows Forestry to call upon fire professionals from across the nation when needed, and makes Alaskan firefighters marketable to "lower 48" fires. A cost saving is directly realized by not having to train and staff to a "worst case" level for fire response.



Fire Shelter Training in McGrath

The Division of Forestry has adopted the **National Wildfire Coordination Group Wildland Fire And Prescribed Fire Qualifications System Guide** (PMS 310-1) as the basis for its wildland fire qualifications system. Personnel must meet the appropriate training, experience, fitness, and qualifications (red card) requirements for all fire and aviation tasks assigned. Training is also provided to meet other mandated requirements such as Hazardous Materials, blood-borne pathogens, Commercial Drivers Licenses, etc.

Personnel management is the most difficult and rewarding aspect of fire management. Personnel must be trained to national standards for every Incident Command System job, must be prepared to react immediately to a variety of dangerous situations, ensure that procedures and policies are followed, and that the most cost-effective decisions are made. **Seasonal employees budgeted for 5 months a year fill many of the critical fire positions.** A top fire position may require up to 15 years of training and experience. Retention of such an individual is extremely important to a cost effective and safe fire program.

A single decision can save the state millions of dollars, and often it must be made immediately by a highly qualified seasonal firefighter during the initial attack phase of a wildland fire.

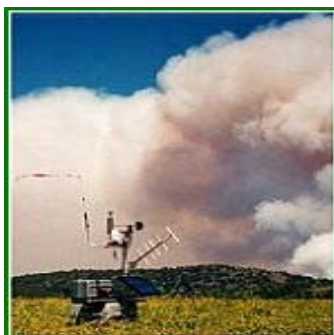
PREPAREDNESS

“In order to be ready when needed, you must also be ready when not needed.” **Preparedness is one of the most important aspects** of the Division’s Fire & Aviation Program. Division of Forestry’s fire managers are responsible for providing a safe, cost-effective fire management program through appropriate planning, staffing, training, and equipment levels. No one can predict exactly where or when fires will occur, but there will be wildland fires. Firefighters, equipment, facilities, and all the support elements it takes must be ready before a wildland fire starts. **Preparedness reduces the risk of escaped fires and saves the state money.**

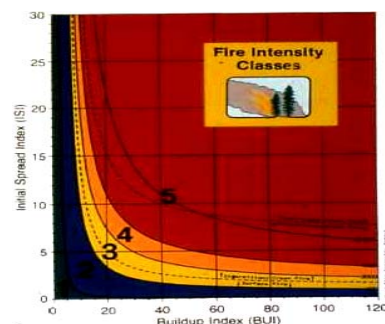
DETECTION

The faster a fire is located, the quicker firefighters are on the scene. Bush pilots and commercial airlines report many fires, but a sophisticated **lightning detection system** identifies areas of concentrated lightning strikes where detection aircraft flights are then concentrated.

WEATHER FORECASTING AND FIRE DANGER RATING SYSTEM



Remote Area Weather Station



Intensity Class for Boreal Spruce

A network of weather stations and a dependable forecasting service are essential for daily decision-making and long-range predictions. Weather information is the basis for a sophisticated computer generated fire danger rating system. The Division of Forestry utilizes the **Canadian Forest Fire Danger Rating System** to predict the potential fire danger based on the current and predicted weather. This scientifically developed and proven system provides a variety of data used to predict fire behavior, preposition resources, formulate fire strategy, and develop tactics to fight a fire. This tool has the potential to save the state millions of dollars by improving allocation of forces. This information is compiled and accessed through **the Internet** and can be accessed by the public on the Division of Forestry website at: <http://www.dnr.state.ak.us/forestry>

FEDERAL EXCESS PERSONAL PROPERTY

Forestry takes advantage of the Federal Excess Personal Property program to acquire fire fighting aircraft, vehicles and equipment. Use is restricted to 90% firefighting activities, no title is passed to the state, all expenses in maintaining equipment rests with the state, but the state avoids the cost of purchase for similar equipment. This program saves the state millions of dollars.



Forestry converted a Federal Excess Personal Property 4x4 pick-up truck to a brush engine.

FIRE SUPPRESSION OPERATIONS

A successful initial attack can save the state millions of dollars in suppression costs. A trained, experienced, and well-equipped workforce is essential to locate and initial attack wildland fires while they are small. The cost of **a successful initial attack averages \$4 thousand dollars per fire** compared to costly "project" fires that can cost from \$3 million to \$30 million dollars to suppress. One of **the Division of Forestry's top priorities is the aggressive and effective initial attack** of wildland fires in the full and critical protection areas of the state.

Suppression activities for wildland fires are governed by the implementation of the Fire Plan that in most cases has predetermined the level of response to a given fire. **Sound and proven fire management principles stressing safe, cost-effective, and efficient response** to all wildland fires are followed by the Division of Forestry.

Seasonal employees are the backbone of the fire suppression program. They are an experienced and qualified work force, many of who have worked for Forestry 10-15 years. Their expertise provides the basis for the Division of Forestry's ability to expand from a few

dozen employees to over a thousand within a day or two and be effectively fighting fires immediately.



Forestry personnel and engines.

The Division has 143 seasonal fire positions funded in its current budget. Depending on the position, funding would provide an average of 5.4 months. These employees fill a variety of fire protection positions, including:

Initial Attack Firefighters	Airbase Manager
Engine Foreman	Airplane Pilot
Crewman - Engine / Helicopter	Air Attack Supervisor
Helicopter Foreman	Mechanic / Maintenance
Dispatcher	Procurement Specialist
Support Foreman	Warehouse Worker
Logistics Coordinator	Payroll Clerk
Field Office Assistant	Prevention Specialist

In addition to its permanent seasonal workforce, **the Division relies heavily on Emergency Firefighters.** Emergency firefighters are hired on an as-needed, short-term basis, and are utilized to augment the Division's workforce in all areas of the firefighting job. Individual Emergency Firefighters are hired to function as initial attack firefighters, warehouse workers, aviation ramp workers, etc. **The 16 person village Emergency Firefighter crews are hired when large numbers of organized and trained firefighters are required.**

There are a total of 73, 16-person Type 2 Emergency Firefighter Crews in Alaska. Predominantly from rural villages, these largely Native crews are trained to national ICS standards, used for wildland firefighting in Alaska, and are available to be dispatched to the lower 48. **The Division of Forestry manages 29 of these crews,** providing Incident Command System and wildland fire training, fitness testing, and red card issuance. An average of \$5.6 million in wages is paid annually to Alaska's Emergency Firefighters, bolstering the rural economy. Their employment spreads the fire dollar into economies that often predominantly rely upon subsistence. **The performance of Alaskan Emergency Firefighting crews is respected and valued in Alaska and in other states where they have fought fire.** Encouraging, maintaining, and supporting the existing Emergency Firefighter crews is a priority for a solid fire program in Alaska.



Emergency Firefighters

The ability to rapidly **expand a small core organization** to fight fires is critical. Training of the core staff, combined with strong cooperative agreements, provides the phenomenal ability to expand rapidly with a safe, well functioning organization. Similarly, DOF also supplies personnel for federal fire emergencies. Without the ability to exchange resources, the Division of Forestry would be required to have a vastly larger and much more costly fire suppression organization.

AVIATION RESOURCES

The Division of Forestry provides fire protection services on 150 million acres of land, and much of it is remote and inaccessible, requiring the use of airplanes and helicopters. **The Division contracts the majority of its aircraft resources from the private sector**, and manages and operates a combination of air tankers, helicopters, and miscellaneous fixed wing aircraft to deliver firefighters, mobilize emergency firefighters, move equipment and supplies, and drop fire retardant on fires. Close coordination between the state and federal agencies maximizes the use of aviation resources. Cooperative state and federal aviation management saves money.



PC-7 Air Attack

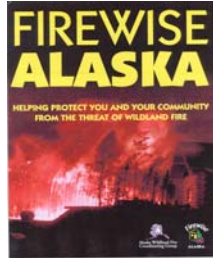


Forestry helitack crew

PREVENTION

Approximately **85% of all wildland fires in Alaska are started by human carelessness**, making prevention one of the most important aspects of the Division's program. Prevention activities are accomplished by Division personnel across the state through school visits by Smokey Bear and other public education programs. Enforcement of the Alaska Statutes is also very important, and the Division issues citations and collects fire damages based on the circumstances of the escaped, human-caused fire. **An aggressive wildland fire prevention program can reduce the numbers of unwanted human-caused fires.**

The Division of Forestry is actively **promoting the FireWise concept in Alaska**. FireWise (www.firewise.org) is an educational program aimed at homeowners, land developers, zoning officials, and other groups with the goal of developing homes, subdivisions, and communities with the threat of wildland fire taken into consideration. The goal is to have homes, subdivisions, and communities built that will survive wildland fires in the future.



SUPPORT SERVICES

Every fire requires not only having firefighters but a large inventory of equipment and supplies that are dispatched to fires all over the state, returned, repaired, refurbished, and restocked. This is accomplished through a **complex logistical support system** that includes procurement, property management, and fire warehousing. Adherence to national standards are required for interchangeable support with federal agencies. Fast, accurate response is provided by a dispatching system of highly qualified personnel, which must be in place and prepared.

The **state bills federal cooperators for fighting fires which start on their land**, and the federal government bills the state in a reciprocal manner. Historically, this has provided a net reimbursement to the State's general fund of over \$3 million annually. Recovering state costs depends entirely on accurate and complete management of contracts, payroll, procurement, bill paying, accounting, personnel regulations, statistics, property management, and audits by a **trained and experienced administrative staff**. The regular field employees must have a working knowledge fire business management principles and a staff of skilled experts must be in place to support billings of up to \$16 million per agency.

GOOD MANAGEMENT

Appropriate and effective management is critical to successful and cost effective results in wildland firefighting. Firefighters must get to a fire with the tools they need to fight it within a minimal period of time. **Food, tents, vehicles, equipment, and medical supplies will be needed** and must be mobilized to the fire, then demobilized and refurbished to be ready for the next fire call.

Alaska has 600-800 fires per year and the Division of Forestry manages the majority of that workload. **Humans cause 83% of the wildland fires** in the Division of Forestry's protection area, most of which occur in more populated areas. Because of immediate threat to life, these are the most critical fires to stop with aggressive and successful initial attack. As urban areas continue to expand into the wildland, this workload continues to increase.

Lightning is the major cause of wildland fires across the Interior, producing as many as 3500 strikes per day. It is not uncommon to have 50 to 80 lightning fires burning in different locations at the same time.

<u>Protection Area</u>	<u>2002 Fires</u>	<u>Human-caused Fires</u>
Division of Forestry	74 %	80%
USDI Alaska Fire Service	20 %	23%
USDA Forest Service	6%	97%

Personnel and resources' (airplanes, helicopters, retardant, equipment, etc.) workload are directly impacted by the number of fires burning at the same time. As shortages of resources occur, **priorities must be set to allocate personnel and equipment to fight the most critical fire first.** Coordination occurs statewide by moving forces to the most critical areas as needed. Managing the workforce rapidly and efficiently results in more effective initial attack and suppressing wildland fires faster saving the state money by preventing larger fires.



View of wildland fires from helicopter



DC-6 Retardant aircraft

Alaska Statute 41.15.010 gives the responsibility for wildland fire suppression on state, private, and municipal lands to the Department of Natural Resources, Division of Forestry. In some of the organized boroughs and municipalities, **landowners are taxed for fire services that are geared mainly for structure fire protection.** The wildland fire responsibility in the organized service areas is a shared responsibility between local government and the Division of Forestry. The Division provides critical wildland fire and Incident Command System training to the structure firefighters and in some instances, **loans fire equipment and Federal Excess Personal Property fire engines to the local government and volunteer fire departments.**

INTENSITY OF FIRES

Weather, fuel conditions such as moisture content in vegetation, depth of vegetative mat, and a myriad of other factors, affect the fire intensity. **Fire can spread as much as eight miles in a single hour.** During the wind driven Miller's Reach Fire in 1996, firebrands were transported up to a mile in advance of the main fire, causing new ignitions. Intensity of a fire can create severe fire conditions that require special management to effectively utilize technology, personnel, and resources.



Miller's Reach Fire 1996

COMPLEXITY OF FIRES

Situations that affect fire complexity are unusual fire behavior, type of resources threatened (i.e., urban areas or villages), the number of fires in a particular area requiring suppression, evacuation of people, multiple agencies responding, etc.

The Miller's Reach Fire is a good example of a complex fire. Fire suppression involved 37 separate fire departments, over 1800 state and federal fire fighters, 103 agencies and organizations, local and national media, local and national political visits, and evacuation of more than 1500 people requiring emergency services such as temporary housing, food, and medical services. The more complex a fire, the more important a pre-planned management response is to success.



Miller's Reach Fire 1996

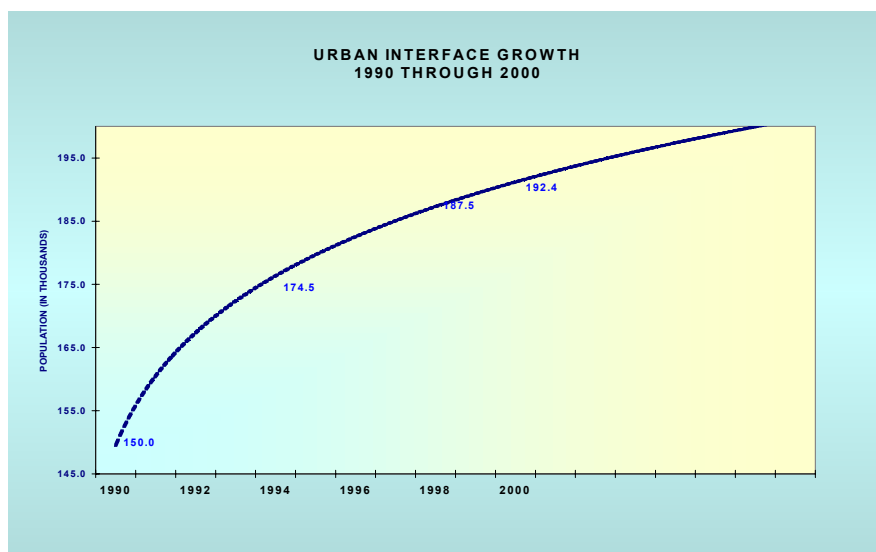
Highly trained and skilled Interagency Incident Management Teams are called in to handle the most complex wildland fires. These teams are made up of **state, federal, and local government experts trained and experienced in the Incident Command System.** These teams have specific positions like Incident Commander, Plans Chief, Operations Chief, Logistics Chief, Finance Chief, etc. This is a "de facto" expansion of the workforce without a corresponding investment, as the base salaries are paid by the separate agencies.

The Division of Forestry is organized so **positions may be shifted between fire and resource programs depending on priorities and workload.** During a difficult fire season, all staff are available to support fire suppression; similarly, during slow or rainy periods fire staff may be working in the woods on forest resources projects. **The flexibility in program management** and cross training of employees is essential to meet the unpredictable fluctuations of the fire program.

Total mobility of personnel and equipment provides the basis for responding to simultaneous fires in different areas of the state. Minimum staffing for initial attack is maintained while relying on personnel from other Areas or agencies in the event of large fires. This also provides for the **most efficient utilization of forces** as Areas with lower fire danger can provide personnel for fires elsewhere.

WHERE ARE WE GOING?

The State of Alaska continues to grow, and with that growth, more of the population is moving into the forested areas of the state where wildland fires occur. These areas are called the **wildland/urban interface** and as the numbers of homes increases in the interface, so does the risk of a wildland fire threatening human life and improved property. The **protection of life and property** in the wildland/urban interface is the most important job the Division of Forestry and its local government cooperators has. Because of the rise in both population and those participating in recreational activities, fire workloads are increasing while budgets have remained static, or in some cases, have declined.



The Miller's Reach Fire in 1996 and the Red Fox Fire near Tok in 2001 are reminders that **Alaska has a growing threat of wildland/urban interface fires.** The stakes are high, involving human life and major property values. The skills needed are different from strictly wildland fire needs, involving hazardous substances, structure protection, and evacuation needs. Forestry has a major role but clearly **the responsibility to fight these fires is shared with local government and volunteer fire departments.** Homeowners have a critical responsibility too. Homeowners need to take steps to make their properties FireWise (www.firewise.org) and to help the firefighters protect their homes. Planning, coordination, and training need to occur among all

parties for a swift, coordinated response when fires start. **There will be more wildland/urban interface fires as Alaskans continue to settle outward from urban to less developed areas.**

It is clear that **the Division of Forestry has been successful** in adapting new technology, cost saving partnerships, effective management, and effecting tough decisions to meet these challenges. The fire plan, the Incident Command System, organizational flexibility, cooperative agreements and fiscal constraints provide savings to the state.

For More Information, Contact

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Smokey the Bear, Forestry employees and school children.