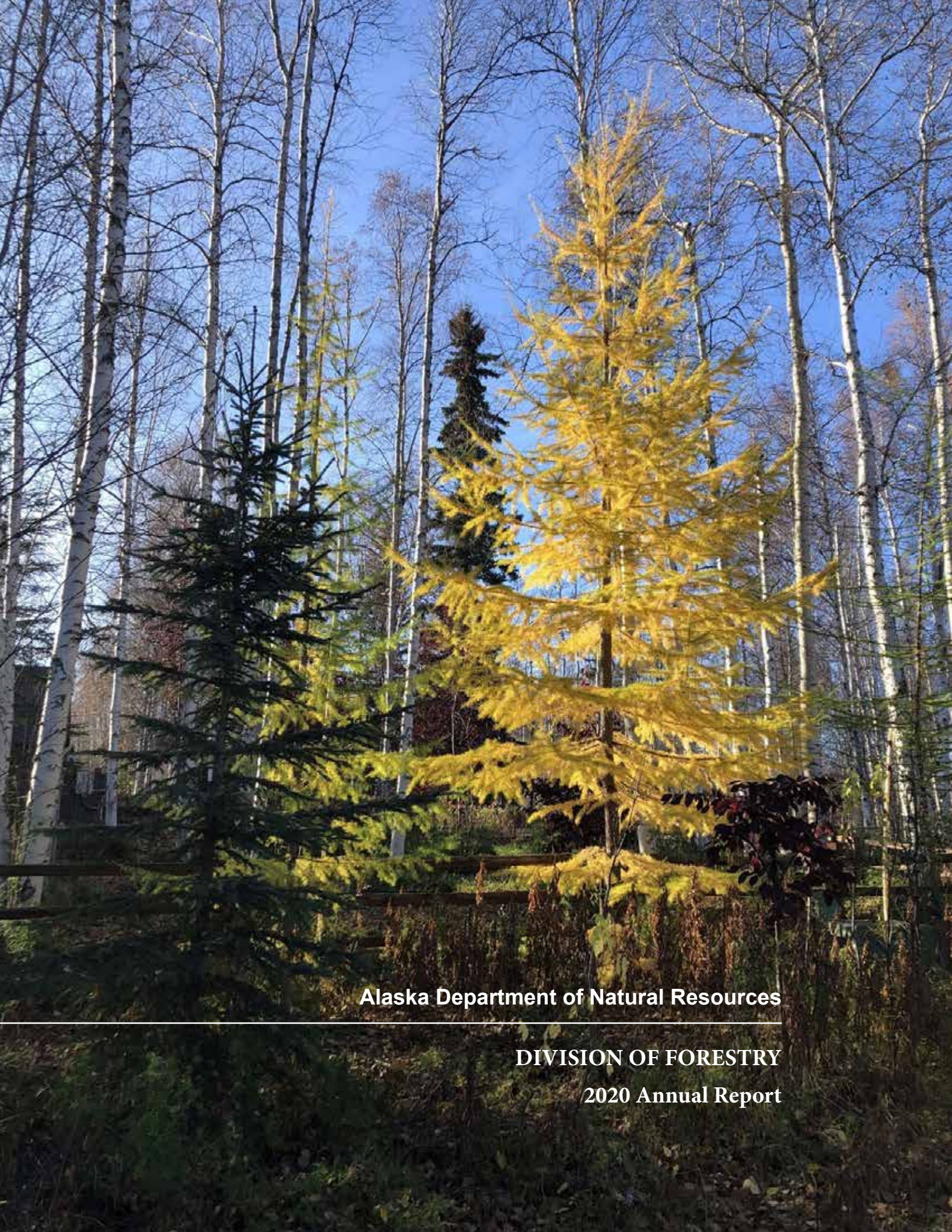

Alaska Department of Natural Resources

DIVISION OF FORESTRY

2020 Annual Report

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For online copy of annual report, go to http://forestry.alaska.gov/overview
Front cover photo by Jim Smith. Back cover by Kevin Meany.

The mission of the Division of Forestry is to proudly serve Alaskans through forest management and wildland fire protection.

Alaska Department of Natural Resources

Division of Forestry 2020 Annual Report

The Alaska Department of Natural Resources Division of Forestry

- Manages a wildland fire program on public, private, and municipal land;
- Encourages development of the timber industry and forest products markets;
- Conducts timber sales for commercial use, personal use, and fuel woods;
- Protects water quality, fish and wildlife habitat, and other forest values through appropriate forest practices and administration of Forest Resources and Practices Act;
- Manages the Southeast, Haines, and Tanana Valley state forests, which cover a total of 2.1 million acres;
- Administers the federally funded Community Forestry, Forest Health Protection, and Forest Stewardship programs; and
- Gives technical assistance to owners and managers of forested land.

The State Forester's Office is in Anchorage. The division has regional offices in Fairbanks and Palmer and other offices throughout the state. As of December 2020, the division had 58 full-time, 181 part-time/seasonal, and 25 non-permanent positions.

ALASKA STATE FORESTERS

Earl Plaurde	October 1959 - June 1968	Malcolm "Bob" Dick	January 1989 - November 1992
William Sacheck	July 1968 - June 1974	Dean Brown (acting)	December 1992 - February 1993
George Hollett	July 1974 - June 1976	Tomas Boutin	March 1993 - January 1997
Theodore Smith	July 1976 - April 1982	Dean Brown (acting)	January 1997 - July 1997
John Sturgeon	May 1982 - June 1986	Jeff Jahnke	July 1997 - July 2005
George Hollett (acting)	July 1986 - February 1987	Dean Brown (acting)	July 2005 - October 2005
John Galea	March 1987 - May 1988	John "Chris" Maisch	October 2005 - present
Tom Hawkins (acting)	June 1988 - December 1988		

STATE FORESTER'S COMMENTS

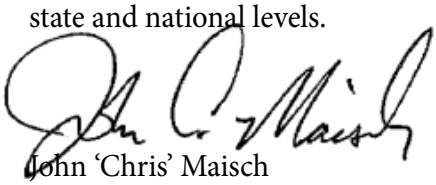
State Forester Chris Maisch is presented an Alaska state flag that flew over the capitol in Juneau by DNR Commissioner Corri Feige and Deputy Commissioner Brent Goodrum.

As I reflect on the past year of work and accomplishments by the division, I also note that this will be my final opportunity to author this forward to the annual report. I retire in early 2021 after 15 plus years as the State Forester and Director. Many things have changed over this period, but equally important many things have not. The dedication and professionalism of the division and our delivery of the core services has not wavered despite many challenges. "We proudly serve Alaskans through forest management and wildland fire protection" is a task that we take to heart and work to achieve every day. In an organization this large, these duties can take on many dimensions and through flexibility and adaptation to current needs and external events, the emphasis areas may change from year to year. This is expected and demonstrates a resourceful and resilient agency that can respond to the situation at hand and successfully meet the demands of the core mission(s).

This continued focus is due to two key attributes: individual initiative and dedicated employees. As the COVID-19 pandemic unfolded earlier this year the division took a proactive approach to provide information, guidance, and a forum to discuss the constantly changing information and best practices. A small incident management team was established within the division to be the interface with employees and the information coming from the administration, Health and Social Services, and the Center for Disease Control. We created a best practices handbook and regularly updated it (edition 15) with information on a range of topics with the central focus of keeping the workforce healthy and work environment safe. This was a special challenge in the fire suppression world and for field crews that flew frequently in small aircraft or helicopters, lived in remote camps, and worked in close proximity with fellow crew members and other personnel. I am pleased to report that no major issues arose due to COVID-19 and individual situations were promptly resolved. The business of the state continued, fires were suppressed, timber sale projects moved ahead, and services to individual citizens were maintained, albeit with some different delivery methods and techniques. The point is, the division adapted and so did Alaskans.

Going forward there will be ongoing and new challenges, but you have the resources and leadership to continue to accomplish meaningful work in support of the core mission(s). In fact, you can help chart a course for a more aggressive and proactive approach to dealing with forest health and resiliency. You can help to get in front of wildland fire, climate, and economic challenges our state faces. Each of you has something to contribute in your professional role and should seek out opportunities to engage with your peers and partner agencies or organizations.

As I close out this chapter of my career, I look back with pride on what the division has accomplished and look forward to working to advance the science of forest and fire management at the state and national levels.



John 'Chris' Maisch
Alaska State Forester

RESOURCE MANAGEMENT & DEVELOPMENT

FOREST PRACTICES IMPLEMENTATION ON PRIVATE, MUNICIPAL, AND TRUST LAND

Notifications and Inspections

In 2020, DOF received and reviewed 42 new harvest detailed plans of operation (DPOs), four new reforestation/timber stand improvement DPOs, three new road closure/maintenance DPOs, and 15 renewals for private, municipal, and state trust lands. New DPOs covered 10,214.5 acres and 70.47 miles of new forest road. The division conducted 18 inspections on private, municipal, and trust land and 35 inspections on state timber sales.

DPOs reviewed and acreage notified on non-state land operations increased from 2019 to 2020. Most of the FRPA activity on private land occurred in the Southeast Area on Sealaska operations, the second year of a new operation on Mental Health Trust (MHT) land at Naukati, and second-growth harvesting in Yakutat on village corporation, Yakutat Borough, and MHT land. Southeast inspections on state land during 2020 were slightly higher than 2019, with operations at North Hollis, Gravina, and Haines. Sales sold in late 2020 at Thorne Bay and on Tuxekan Island will be operational in 2021. Future sales are being planned at Sumez Island, Kosciusko, and Whale Pass. Significant new road construction activity on Gravina Island began in 2017 and contributed open access to the western northern and western portion of the island.

Multi-age forest management near Yakutat, on mixed ownerships. Current harvest is in foreground. (Joel Nudelman)

Notifications and acreage notified decreased in the Kodiak-Afognak area. Minimal FRPA activity occurred on non-state land in Regions II and III, with one DPO reviewed in each of the two regions. Inspections in Region III did not occur on private land in 2020 and increased on state land from 2019.

Variations and Enforcement

For the second time in as many years, there were no requests for variation for harvesting in riparian buffers in 2020. No violations were issued in 2020.

Effectiveness Monitoring

DOF works with agencies and affected interests to prioritize effectiveness monitoring of the Forest Resources and Practices Act, and related research needs. The interagency Effectiveness Monitoring Working Group, including representatives from DOF, USFS, ADFG, USFWS, and Sealaska Corporation, will meet in January 2021 to discuss projects and priorities. The group remains in contact about several high priority projects, many of which have good prospects for funding as well as opportunities for collaboration among agencies.

Compliance Monitoring

During 2020, DOF conducted compliance monitoring on all FRPA inspections. A rating of 5 means the best management practice (BMP) was consistently and effectively implement-

DNR Mental Health Trust land subdivision sale, Prince of Wales (Joel Nudelman)

NEW NOTIFICATIONS
DETAILED PLANS OF OPERATION

	2017	2018	2019	2020
SSE	19	14	24	33
NSE	1	10	13	5
Mat-Su/SW	0	1	0	0
Kenai-Kodiak	2	3	5	3
COASTAL	*22*	*28*	*42*	*41*
Fairbanks	2	1	1	1
Delta	0	0	0	0
Tok	0	0	0	0
Copper River	0	0	0	0
NORTHERN	*2*	*1*	*1*	*1*
TOTAL	**24**	**29**	**43**	**42**

HARVEST ACREAGE IN
NEW NOTIFICATIONS

	2017	2018	2019	2020
SSE	3,758	2,479	4,376	7,843
NSE	0	863	961	1,242
Mat-Su/SW	0	1,646	0	0
Kenai-Kodiak	691	1,460	841	1,085
COASTAL	4,449	6,448	6,178	10,170
Fairbanks	79	29	29	45
Delta	0	0	0	0
Tok	0	0	0	0
Copper River	0	0	0	0
NORTHERN	79	29	29	45
TOTAL	**4,528**	**6,477**	**6,207**	**10,215**

NOTE: Forest practices actions are reported on a calendar year basis

ed where applicable; a rating of 1 means the BMP was rarely implemented where applicable or was implemented ineffectively. The data shows solid implementation rates in all regions. Overall, Region I averaged 4.6 out of 5.0 on the ratings, and Region III scored 4.7. Region II was not evaluated, as only one inspection occurred. In Region I, 90% of all scores exceeded 4.0, as did 97% in Region III.

Region I compliance was high; 90% of all BMPs evaluated met or exceeded compliance standards, although individual BMPs required corrective action. Those BMPs were related to road drainage, adequate number of drainage structures, and bull rail and fabric installations on log bridges. Operators acted quickly to rectify deficiencies as they were discovered. Active road maintenance and BMPs related to timber harvest were excellent. Due to low harvest activity, only one inspection was conducted in Region II, so compliance results were not summarized. Region III had excellent compliance results in 2020 at 97%, which is an increase over last year.

Although 2020 was a wet year with challenging road conditions, nearly the entire Tanana Valley State Forest road system received routine maintenance and grading prior to freeze-up. Although this road system receives a significant amount of public use, the roads are currently in excellent shape. Multiple ice bridge crossings were successfully constructed, and compliance was exceptional on most harvest operations in Region III. One training session was held in Southeast for Alaska Fish & Game and Environmental Conservation staff.

ROAD MILES NOTIFIED

	2017	2018	2019	2020
SSE	20	22	36	41
NSE	1	36	14	15
Mat-Su/SW	0	9	0	0
Kenai-Kodiak	6	31	6	8
COASTAL	27	98	56	64
Fairbanks	2	3	3	7
Delta	0	0	0	0
Tok	0	0	0	0
Copper River	0	0	0	0
NORTHERN	2	3	3	7
TOTAL	29	100	59	71

Board of Forestry

Forestry roads and recreation partnerships

The Board of Forestry's initiative to partner working forests with recreation interests was successful in obtaining a Recreational Trails Program (RTP) grant through DNR's Division of Parks and Outdoor Recreation (DPOR) for the Rosie Creek forestry road system. While recreation and timber proponents are sometimes at odds, the access that forest management provides can offer many benefits to outdoor recreationists, including mountain bikers, skiers, runners, snowmachiners, dog mushers, ATV users, and more. The Rosie Creek forestry roads within the Tanana Valley State Forest will be the division's pilot project. The RTP grant will provide road maintenance, improved parking and trailhead access, a map and information kiosk, directional and land ownership signs along the narrow and scenic forestry roads, and a link to an online GPS map of the road system. DOF has partnered with the Interior Alaska Trails and Parks Foundation to accomplish the work.

With the encouragement of the board, DOF applied for another RTP grant to provide similar maintenance and road signs for recreational users in the Haines State Forest but awaits a decision on this proposal by the Federal Highway Administration, which funds the grant through the DPOR.

The Board of Forestry further strengthened its commitment to maximizing the sustainable public value of Alaska's State Forests and state lands classified for forestry by writing a letter of support for the Alaska Trails Initiative. (For details see: https://www.alaska-trails.org/alaska-trails-initiative.) The board supports the goals of expanding recreational uses that strengthen the state's economic and community health. The primary use of State Forest lands is forest management, which includes logging, thinning, and reforestation. At the same time, and matching the legislation that established State Forests, the board encourages smart multiple use management of State Forest lands that add value for all users, especially in providing improved motorized and non-motorized recreational access to public lands.

Hazardous Fuels Mitigation

After the unusually active 2019 fire season, the Board of Forestry in 2020 produced an Update on Wildland Fire for distribution to decision-makers statewide, http://forestry.alaska.gov/alaskaboardforestry/.

ALASKA BOARD OF FORESTRY

Chris Maisch
Chair, State Forester, Fairbanks

Bill Morris
Non-Governmental Fish/Wildlife Biology, Fairbanks

Denise Herzog
Mining Organization, Fairbanks

Chris Beck
Recreation, Anchorage

Will Putman
Non-Governmental Forester, Fairbanks

Eric Nichols
Forest Industry Trade Association, Ketchikan

Mark Vinsel
Commercial Fishery, Juneau

Nathan Lojewski
Native Corporation, Anchorage

Chris Stark
Environmental Organization, Fairbanks

A Fairbanks landowner shows the results of his hazardous fuel reduction project, funded by a wildland/urban interface grant through the Forest Stewardship Program. (Jim smith)

The document urged Alaskans to protect their homes and communities by:

1. Being Firewise (creating defensible space around communities, homes, and property),
2. Learning Before You Burn (following proper burning practices),
3. Building fuel breaks (supporting hazard fuel reduction around communities), and
4. Supporting fire crews (ensuring adequate wildfire crews to fight fires).

Compensatory Mitigation

The Board of Forestry set up a working group to address compensatory mitigation for stream crossings on forestry roads. Some project managers look outside their project area for opportunities to offset activities that affect fish passage. The BOF group aims to use GIS to locate culverts on forestry roads that do not adequately allow fish to pass and determine how much fish habitat would be gained by bringing the stream crossing up to fish passage standards.

Using this information, fish passage projects can be compared and prioritized. By partially preparing these potential projects and getting them approved by the Alaska Department of Fish and Game and Corps of Engineers, the board hopes that project proponents will choose forestry road culverts for compensatory mitigation.

FOREST MANAGEMENT

COVID Response

The Division of Forestry formed a COVID-19 Response Team in March, led by Deputy Director Tim Dabney and former Chief of Fire Tom Kurth, to provide for the safety of its employees, wildland firefighters, and the public. The team created COVID-19 directives and health and safety recommendations for the DOF based on scientific information from the U.S. Center for Disease Control. Implementation of guidelines continued as wildland fire activity increased in late-May through mid-June and as regular forest resources fieldwork began. Constant communication between the COVID team and employees in the early months of the COVID outbreak led to effective policies.

During August, as Alaska's fire season ended, the Response Team focused on supporting crews and staff on assignments in the Lower 48 (L48) as the fire season there escalated. The Response Team provided detailed information on mitigating risks when choosing assignments and traveling to the L48, following state mandates when returning to Alaska, and traveling safely and responsibly between L48 states. As DOF experienced some COVID-19 exposures, the Response Team developed protocols to keep employees safe while serving the public.

The DOF staff assisted the Department of Natural Resources (DNR) with its DNR-wide COVID-19 mitigation plan. Final products included return-to-work and step-by-step procedures to guide DNR leaders if an employee tested positive or had a confirmed exposure to COVID-19. The final transparent and scientifically based plan helps to keep the workforce safe and informed during the pandemic.

COVID-19 sign posted outside the Mat-Su Area office. (Tom Greiling)

The DOF continues to implement these plans to help ensure staff safety at the office, in the field for resources work, and on wildland fires. Tools, mitigations, and protocols developed are still being used; however, with the ever-changing landscape that the COVID-19 pandemic brings, the DOF is modifying and making improvements as needed, such as:

- Maintaining the DOF COVID-19 web page (http://forestry.alaska.gov/covid) with COVID-related information, updated travel guidelines, safety protocols, and technology assistance for all DOF employees.
- Maintaining a Continuity of Operations Plan for each area and facility in case an office must be shut down due to COVID-19 contamination.
- Continually updating and adding new information about mandates to the DOF COVID-19 Handbook and providing it via email and online. On December 10, the DOF made the 14th version of the handbook available to DOF staff and the public. It contains:
    - Updated travel and social distancing guidelines for interstate and intrastate travel, based on the Governor's November 16 Health Orders No. 6 and 8.
    - Instructions for facilities and offices, including social distancing, face coverings, and decontamination.
    - Testing requirements and instructions for incoming Lower-48 firefighting resources.
    - Testing and social distancing instructions for DOF staff and Emergency Firefighters returning from assignments in the Lower 48.
    - COVID-19 evaluations such as screening and testing.
    - Instructions for quarantine after confirmed exposure and for isolation if an employee tests positive.
    - Administrative instructions.
    - Teleworking and technology tips, and links to other online resources.
- Developing and making available COVID-19 educational and safety messaging.
- Adapting COVID mitigations for continuing fieldwork for forest inventory and resources-related work.

The division will continue to maintain open communications with staff, partner agencies, the Alaska Department of Health & Social Services, and the Governor's Office. It will use new communications technology to share information and maintain connections between staff members. And the DOF will keep up to date with new mandates and the latest scientific information and guidelines.

Forest Inventory

Forest Inventory and Analysis

The Forest Inventory and Analysis (FIA) program of the U.S. Forest Service provides information to assess America's forests. In interior Alaska, the Division of Forestry has partnered with the USFS to install and measure plots through a joint venture agreement. As the nation's continuous forest census, the program monitors the status and trends of all public and private

Mechanical harvesting equipment near Yakutat. (Joel Nudelman)

forestlands in the US. This is especially important in Alaska where significant changes in temperature, permafrost, and plants are occurring and expected to increase.

A suite of items is sampled at each plot including trees, soils, understory plants, and woody debris. State field crews have successfully conducted the Interior Alaska FIA program for five years and have met all USFS quality control metrics. For purposes of planning, data analysis, and logistics, interior Alaska has been divided into five inventory units.

In 2020, mitigation plans were implemented for COVID-19, including testing before each shift and minimum interactions with people outside of the crew. Despite the challenges and delay caused by the virus, the field data collection met the minimum goal for the year. The field crew completed the Susitna-Copper Unit, the second of the five units, and began work in the Southwest Unit. Most plots required a helicopter to access. For the remaining three units, the crew will operate from a field hub off the road system, which requires more complex logistics and planning.

In 2020, staffing included two permanent coordinators, one non-permanent quality assurance forester, six non-permanent crew leads, and 11 non-permanent crew members.

Southeast Inventories

Forest inventories have been completed for the Haines Southern Southeast state forests. In Haines this included revision of the timber type and ownership geographic information system (GIS) layers, acreage determination and volume projections for the young growth timber stratum. This information is summarized in a report titled "Timber Inventory of State Forest Lands in the Haines Area 2020." In addition, a web mapping site was developed that displays forest information interactively, tying inventory database records directly to the map application GIS interface. The inventory report and web mapping site are on the DOF website: https://forestrymaps-soa-dnr.hub.arcgis.com/

Work in Southern Southeast included revision of the timber type and ownership GIS layers, acreage determination, and volume projections for the young growth timber stratum. In addition, the operable timber base was refined by examining areas believed to contain non-merchantable or non-operable timber stands such as timber in isolated areas, poorly drained sites, or difficult terrain. These areas were identified and removed from the operable timber base. This information was summarized in a report titled "Southern Southeast Area Operational Forest Inventory and Annual Allowable Cut Analysis for State Forest and General Use

Lands." A web mapping site similar to the Haines site has also been produced: https://forestry-maps-soa-dnr.hub.arcgis.com/app/0875f90c069a4ad6a6f2fa9eefd85a02

The inventory was funded from a Challenge Cost Share Agreement between USFS State & Private Forestry and DOF. Funding also allowed DOF to inventory 30,000 acres of Tongass National Forest young growth timber from 2016-2018. Tongass inventory data was recently summarized by forestry consultant Terra Verde Inc. These two projects completed across ownerships provide a wealth of information for forest planning in southern southeast.

Doug Hanson Retires

Doug Hanson retired after 13 years working as Statewide Inventory Forester. Doug began his career with the division as a resource forester in 2005. The division appreciates his dedication and commitment to forest resource management for Alaska.

Forest Planning

The Division of Forestry reviews and comments on a wide range of state and federal agency land-use plans to help ensure the division and the public have continued access to forest resources on state lands. In addition, DOF works to encourage the salvage of timber when forested land is cleared for rights-of-way or other purposes and provides stipulations for protecting forest health.

Statewide Inventory Forester Doug Hanson, left, is presented a retirement plaque by Division Director Chris Maisch on April 30. (Tina Donahue)

DOF completed a new Alaska Forest Action Plan in 2020. The first Forest Action Plan was completed in 2010 and revised in 2016. A full revision every 10 years is required by the Cooperative Forestry Assistance Act, as amended by the 2008 Farm Bill, for continued federal funding of cooperative forestry and cooperative fire programs.

The 2020 Alaska Forest Action Plan provides a statewide, all lands assessment of forest conditions and trends, identifies threats to forest resources, sets forward a strategy to address those threats, and delineates the priority landscape on which to focus that strategy. This effort pulled together DOF staff and other key stakeholders to develop an Alaska-focused strategy to meet the national state and private forestry priorities to conserve working forest landscapes, protect forests from harm, and enhance public benefits from trees and forests. The 2020 Forest Action Plan is a way for DOF, in cooperation with stakeholders, to prioritize where and how to apply strategies that will make the most of the funding available to address forest issues. The 2020 strategies were developed with cross-program and cross-boundary efforts in mind.

The Good Neighbor Authority

The Division of Forestry undertook the Good Neighbor Authority (GNA) federal grant projects in the Tongass National Forest in 2016 in cooperation with the USFS Region 10. The GNA stems from the 2014 federal Farm Bill that allows the USFS to enter into agreements with state forestry agencies to accomplish critical management to keep forests healthy and productive across land ownerships.

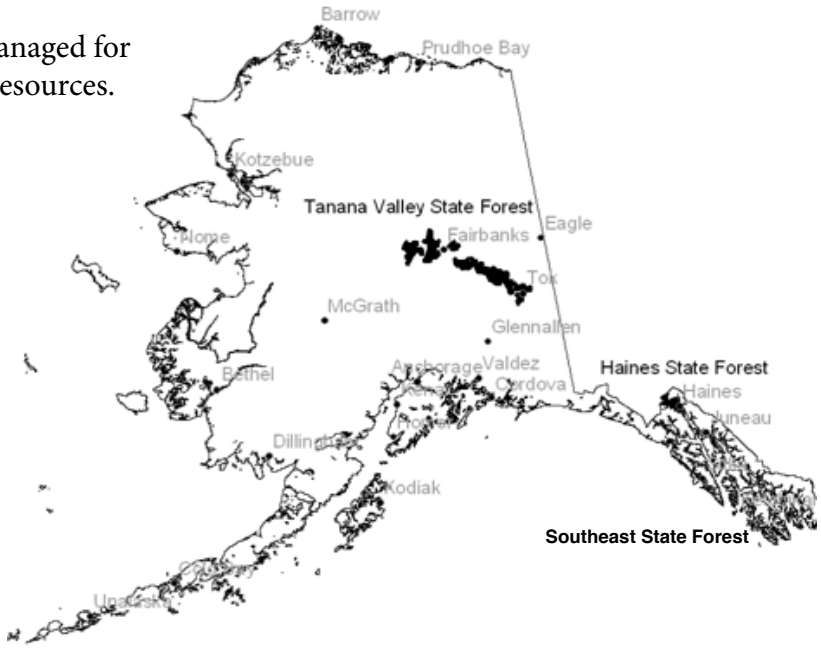
ALASKA'S STATE FORESTS

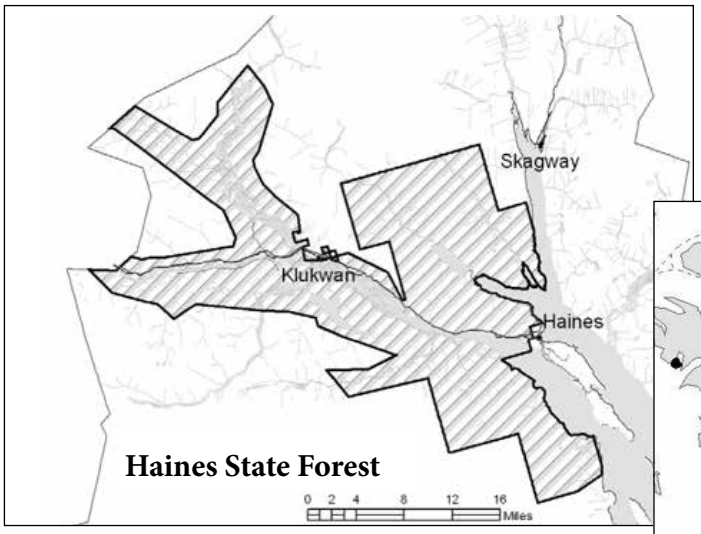
Alaska's three state forests are managed for a sustained yield of a variety of resources.

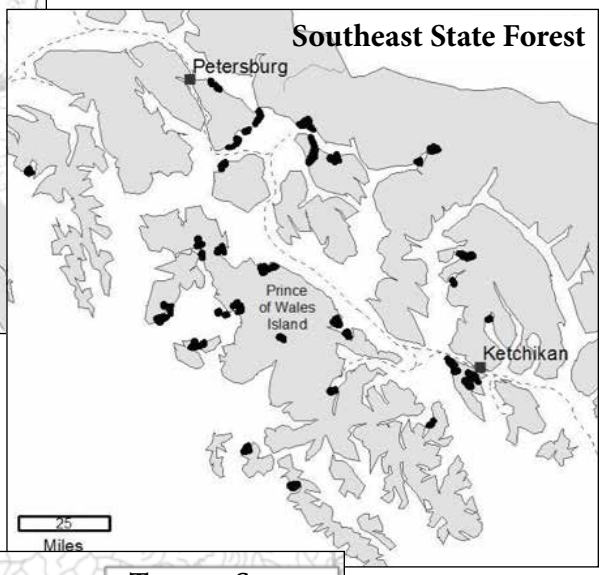
Haines State Forest
Established in 1982
286,208 acres

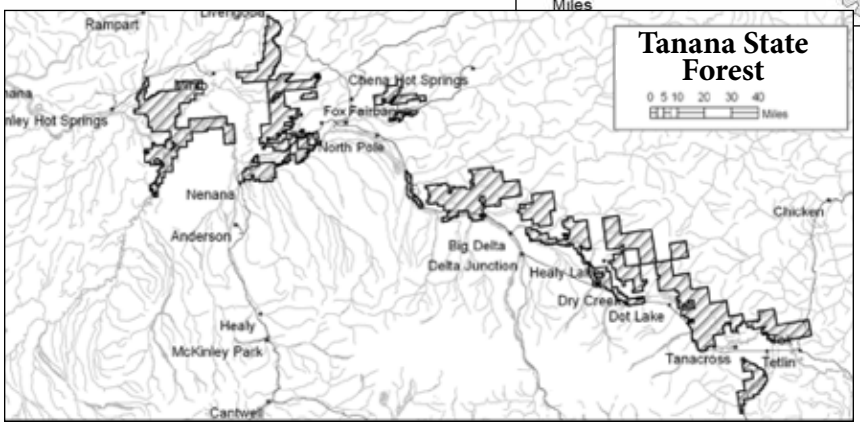
Tanana Valley State Forest
Established in 1983
1.78 million acres

Southeast State Forest
Established in 2010
48,472 acres









TEN-YEAR RECORD OF TIMBER VOLUME SOLD (MBF)

	Coastal: Southeast	Coastal: Southcentral	Northern Region	State Total	# Sales Sold Statewide
FY 11	12,865	3,913	7,281	24,053	71
FY 12	8,556	1,260	7,739	17,555	50
FY 13	4,976	1,918	2,662	9,556	50
FY 14	8,512	379	19,621	28,512	58
FY 15	6,171	438	14,305	20,914	39
FY 16	401	50	7,864	8,315	34
FY 17	8,196	378	2,749	11,323	38
FY 18	5,269	206	2,477	7,952	22
FY 19	13,673	152	2,165	15,990	31
FY20	262	250	1,809	2,321	31

FIREWOOD PERMITS ISSUED & CORDS SOLD

	PERMITS	CORDS
FY 16	904	3938
FY 17	780	3336
FY 18	740	3093
FY 19	619	2296
FY20	574	2279

STATE LAND COMMERICAL TIMBER SALES (MBF = 1,000 BOARD FEET, FISCAL YEAR 2020)

	Sales	Acres	Vol (MBF)	Sale Value
SSE	3	9.00	156.05	8,710.00
NSE	2	20.00	106.35	6,930.00
Kenai-Kodiak	3	40.00	250.0	8,625.00
Mat-Su	0	0.00	0.00	0.00
COASTAL	*8*	*69.00*	*512.40*	*24,265.00*
Fairbanks	6	38.10	224.70	13,557.77
Delta	8	318.45	1,076.46	70,521.63
Tok	9	147.60	508.00	21,991.00
Copper River	0	0.00	0.00	0.00
NORTHERN	*23*	*504.15*	*1,809.16*	*106,070.40*
TOTAL	**31**	**573.15**	**2,321.56**	**130,335.40**

TIMBER SALE REVENUE (IN THOUSAND DOLLARS)

FY 11	461.6
FY 12	555.3
FY 13	682.3
FY 14	354.0
FY 15	1,917.0
FY 16	212.8
FY 17	688.5
FY 18	477.4
FY 19	464.3
FY 20	91.7

HARVEST ACTIVITY ON STATE LAND (FISCAL YEAR 2020)

	Sales	Acres	Vol (MBF)	Stumpage Receipts
SSE	4	1.00	220.50	29,021.00
NSE	4	58.00	400.26	21,907.45
Kenai-Kodiak	3	40.00	250.00	8,625.00
Mat-Su	0	0.00	0.00	0.00
COASTAL	*11*	*99.00*	*870.31*	*59,553.45*
Fairbanks	2	13.80	80.64	3,242.07
Delta	0	0.00	0.00	0.00
Tok	10	237.60	3,373.28	28,854.68
Copper River	0	0.00	0.00	0.00
NORTHERN	*12*	*251.40*	*3,453.92*	*32,096.75*
TOTAL	**23**	**874.00**	**4,324.23**	**91,650.20**

Note: Some sales are offered in cords, cubic feet (CCF), or tons rather than board feet. For comparison in these charts, all volumes have been converted to board feet using 1 cord = .9 CCF and 1.0 CCF = .42 MBF. Therefore, the total volume figures are approximate.

Units of measurement:
One board foot = the volume of a board 12 inches by 12 inches by one inch.
MBF = thousand board feet
MMBF = million board feet

Log rafting, Prince of Wales Island. (Joel Nudelman)

Kosciusko Island Timber Sale

This GNA forest restoration project is located within the Tongass National Forest on Kosciusko Island near Edna Bay. The sale includes about 1,500 acres of various harvest prescriptions containing about 25 MMBF of young growth spruce and five MMBF of young growth hemlock for a total of 30 MMBF. There is no old growth in this sale. The timber sale contract was signed in September 2017 and is set to end on December 31, 2023.

There is no road access to Kosciusko Island. Although located entirely within Tongass National Forest, hauling to the sale must cross two other landowners' roads and it will use a State of Alaska log transfer facility. Use of the road and sort yard are allowed under a road and facility use agreement. The purchaser is responsible to pay costs outlined in the road and facility use agreement and adhere to all terms of the agreement. The contractor is responsible for any permits, surveys, and cleanup associated with the timber sale.

Harvest, hauling, scaling, and road work continued in 2020 and approximately 8,030 MMBF of young growth timber has been harvested. Several price reductions were negotiated due to market tariffs, oversupply of beetle-killed wood in Europe, and COVID-19. Alcan Timber requested a second reduction of the contractual stumpage rate to base rates of $10/MBF. Currently a waiver from previously imposed tariffs is in place for export timber markets.

Cooperators made extensive changes to harvest units to make the paper plan fit on-the-ground conditions. The purchaser laid out the sale, which resulted in many interactions between state and federal administrators, the purchaser, and the inter-disciplinary team. In September, after a long collaborative effort between all parties, the final layout appears complete, incorporating all three silvicultural prescriptions (even-age, two-age, and uneven-age), and is therefore NEPA compliant. Field trips to the sale area helped assess and mitigate various challenges to designing an economic sale that includes varying timber types, buffer areas, and access issues. The sale aims to be the first positive value young growth timber sale in the Tongass National Forest.

Vallenar Bay Timber Sale

This was the first true GNA project in Alaska in that it includes a joint management effort on both national and state forest lands. The timber sale includes about 481 acres within the Southeast State Forest and Tongass National Forest on the northwest end of Gravina Island. The Vallenar Bay sale involves about 16 MMBF of timber from a mix of old- and young-growth Sitka spruce, western hemlock, red alder, western red cedar, and Alaska yellow cedar. The project will require about three miles of road construction on state and federal land. The timber will be harvested through a combination of ground-based and cable logging systems.

The combined sale was appraised and offered for competitive sale with a bid closing date of September 24, 2018, but there were no bids. The DOF theorizes that its appraisal of the timber sale did not correctly reflect all risks associated with the young growth timber (for example, potential tariffs) and may have also applied too high of a value on the old growth timber on state land that is bundled with the USFS wood. The tariff implemented by China just after the bid date was not included in the appraisal. The tariff was not a verifiable cost at the time of initial offer and the primary market for the young growth timber is projected to be China.

The USFS and the state discussed the risk and the appropriate party and method to handle the cost. Observations by DOF and industry led to a review of the cruise data for the state land old growth; the higher sort amounts listed were not typical. The data were edited to yield a more representative distribution of sorts and grades for the area. Most of the change in the appraisal value occurred in the old growth timber on state land. No change was made to the sort distribution for the young growth. There was a change in value in the young growth on USFS and state land as the result of market risk.

The young growth timber market demand and confidence was significantly affected by the tariff levied by China in the last quarter of 2018. The state's response was to increase the profit and risk percentage in the wood destined for China to account for the uncertainty of the market and tariff condition. The value at the time of the reappraisal placed the USFS wood at approximately equal to the projected costs; consequently, the state marketed it with the state timber at the USFS minimum stumpage rates.

The reoffer sale package was compiled and publicly noticed the first week of January 2019. The state received one bid at the end of January and the sale was awarded to Alcan Timber Inc. on February 6, 2019. The purchaser and the state signed the contract the following week. No activity has occurred on the timber sale since the contract was signed.

The DOF Ketchikan office issued a contract for public works construction improvements to the alignment of the Vallenar Road mainline in August 2020. The contractor began work in October and completed approximately 80% of the project by late November. The work on the State Forest road focuses on adjusting the vertical alignment to improve sight distance. The work uses residual funds from the state capital fund that originally financed the road.

Agreements with Corps of Engineers and BLM

The DOF entered a Sikes Act agreement with the US Army Corps of Engineers on Fort Wainwright to provide forestry support on military training lands. The act agreement allows the DOF to help conserve and rehabilitate natural resources on military bases. Under the agreement, the DOF began a forest inventory on the base in 2020.

The DOF entered two GNA agreements with the Bureau of Land Management, one to help develop a fuel break near Delta Junction, and the other to develop Community Wildfire Protection Plans for 10 communities in the Copper River Valley.

The Alaska Roadless Rule: The Division of Forestry undertook the Alaska Roadless Rulemaking project in the Tongass National Forest in 2018, in cooperation with the State & Private Forestry branch of the U.S. Forest Service. It is funded by a federal Consolidated Payment Grant.

In October 2020, The U.S. Department of Agriculture (USDA) announced a final Alaska Roadless Rule that exempts the Tongass National Forest from the 2001 provision that prohibited road construction and timber harvests. The Record of Decision identifies the selected alternative, Alternative 6, which is a full exemption from the Roadless Rule; provides the rationale for the decision; and explains that the exemption does not authorize any specific projects in Alaska. Proposed projects must continue to comply with the 2016 Tongass Land Management Plan and be analyzed under the National Environmental Policy Act.

In 2019, DOF signed a cooperative agreement with the Alaska Forest Association, which subcontracted with Terra Verde, Inc., to complete a GIS-based analysis of the six alternatives in the USFS Environmental Impact Statement for the Roadless Rule Rulemaking Process. The analysis determined that, regardless of alternative chosen, the 2016 Tongass National Forest Plan will defer 80% of the suitable old growth forest land base from timber harvest over the next 20 years because of factors like non-development land use designations, retention buffers on streams and karst, and topography.

Terra Verde also found that an additional seven percent of the suitable land base will be deferred due to selective harvesting prescriptions in the plan. Additional reductions are likely on a project-by-project basis. The initial 80% deferred by the 2016 Forest Plan plus the seven percent identified in the analysis means that at least 87 out of every 100 acres of suitable old growth forest will be unavailable to maintain the existing timber industry during its transition to young growth.

Tongass Young Growth Conversion: The DOF began the Young Growth Conversion project in 2015 using a Challenge Cost Share Grant in cooperation with the USFS Tongass National Forest and State & Private Forestry. Numerous federal and state employees, many non-profit organizations, and one for-profit forestry consulting firm have contributed to this six-year project.

A final report of current young-growth forest inventory data and stand mapping, completed in 2020, provides a detailed analysis of young growth over the entire Tongass National Forest. The report states:

- The combined gross acreage of all Tongass young-growth timber stands totals approximately 452,600 acres. The current field inventory focused on identifying, sampling, and classifying young-growth timber stands that originated from historic timber harvests.
- A GIS-based analysis of potential fall-down acreage estimates approximately 190,700 acres or 42 percent of the total Tongass young-growth stand acres will not be managed for timber production and harvest due to legislative, administrative, and harvest operability constraints. Actual fall-down acreage can only be fully determined by site-specific field review of each planned young-growth timber harvest unit.
- The estimated combined net acreage of all Tongass young-growth timber stands that can be managed for timber production and harvest totals approximately 261,900 acres.

The report does not attempt to make a robust comparison between methods used for this analysis and the separate methods used by the USFS to define "suitable" young-growth acreage in the 2016 Tongass National Forest Plan. However, net young-growth acres presented here (261,917 acres) are substantially fewer than acres defined as suitable (338,973 acres) in the Tongass Forest Plan.

The Tongass Forest Plan considered all acres in certain retention and partial retention zones as suitable, since thinning across the entire stand would be permissible if site-specific standards and guidelines were followed. By using the best forest-wide information available and explicitly removing acres mapped in retention and partial retention zones, net young-growth stand acreage listed in the report more closely approximates the acres that will be managed for timber production and harvest in the future.

Economic Young-Growth Timber Volume Flow

A separate growth and yield analysis of all timber stands in the net young-growth timber base in the Tongass National Forest estimated the total volume of young-growth timber that could be economically harvested annually. The timber volume threshold used to denote an economic harvest opportunity is close to the 2-Log Rule found in the current (2016) Tongass Forest Plan: the rule used in this analysis assumes that for a young-growth timber stand to support economic timber harvest it must contain a minimum volume of 20.5 MBF per acre, and the average height of trees in the stand must be at least 90 feet.

Annual projected demand is 41 MMBF/year according to the Forest Plan. Results of this analysis show that enough stands will achieve the 2-Log Rule to meet and exceed that demand by 2026, but the stands are geographically scattered, making potential sales economically infeasible until the year 2030. Widespread availability of stands reaching the 2-Log Rule will begin occurring in denser geographic concentrations starting in 2030. Putting together large young-growth timber sales (20 to 30 MMBF) in the next six to 10 years will be challenging. For purposes of the graph in Figure 1, "GIS acres" means gross young-growth acres for each year depicted.

The analysis detailed in the report is not a sustained yield analysis, which is the process of determining the rate of harvest over time that is in balance with, and does not exceed, the growth rate of the forest. This timber volume flow report simply lists at what point each young-growth stand included in the net young-growth timber base will achieve the economic timber volume threshold approximating the 2-Log Rule.

It is critical to note that the summary in Figure 1 does not take into account operational considerations or factors such as proximity of stands to one another, area-specific logging and road building costs, or a small amount of timber volume in a remote location, all of which influence the economic viability of any timber sale offering.

A time-lapse analysis of the Thorne Bay area suggests that it will be 2029 before 30 MMBF, contained in about 15 separate young-

Projected Young Growth Demand

Projected young-growth demand is taken directly from the 2016 Amendment to the 2008 Tongass Land and Resource Management Plan. The report does not seek to confirm, validate, or refute this demand analysis and is presented here as a point of reference.

Falldown

Falldown, or net-down, is the difference between what was estimated to be harvested and what can be harvested. It describes the acreage of young-growth forest that is not planned to be managed for timber production and harvest. Falldown results from both legislative and administrative no-harvest constraints. Acres described as "falldown" may also be in areas where road construction and/or timber harvest is not feasible.

2-Log Rule

The 2-Log Rule is used to determine when a stand is economic, and it is in the current Tongass National Forest Plan. The rule states that a young-growth timber stand is potentially economic to harvest when the average timber volume is at least 20.5 MBF per acre and the average height of trees in the stand is at least 90 feet. A 90-foot tree is expected to produce at least two 34-foot-long logs and a tree that can produce two 34-foot-long logs of commercial quality is considered economic.

growth timber stands, is available in the same operational area. A timber sale of about 30 MMBF is simply a benchmark that represents sufficient volume to support a reasonably sized one-year harvest operation or a modest two-year harvest program. Operations of this size have a better chance of covering costs and are more likely to attract competitive bidding. This innovative time-lapse planning tool will be especially useful in planning future young-growth timber sales in areas where more than one harvest entry is planned. Stands will need to be placed into separate sale offerings and in combinations that maximize the economic viability of all sale offerings planned for that area.

Products Delivered:

- Analysis showing the extent of the net young-growth timber base. The report demonstrates near-term flow of economic young-growth timber volume and details the methods used in the analysis.
- Fully populated timber inventory database of young growth stands with revised timber typing including fall-down acreage estimates for each stand. The database uses a Forest Projection and Planning System in MS Access format.
- Geographic Information System database of newly mapped young-growth timber types.
- GIS database with results from preliminary fall-down acreage estimates.
- GIS database listing the year each stand is projected to reach the 2-Log Rule.
- Time-lapse young-growth timber type map and instructions for conducting basin-specific analyses to help plan future young-growth timber sales.

Core Recommendations:

- Continue refining acreage fall-downs to reflect required protection of other forest resources and factors influencing timber harvest operability. Accurate stream protection zone mapping is paramount among these factors.
- Reinforce the existing sample dataset by collecting field data from additional forest inventory plots to fill in data gaps on portions of the northern and central Tongass, and in the younger age class stands.
- Future young-growth inventory and mapping efforts should include methodology designed to identify and classify natural origin young-growth stands more comprehensively.
- Use the time-lapse tool to help identify and prioritize planning areas with the most feasible near-term, economic young-growth timber harvest opportunities, and begin timber sale planning activities for those areas.
- Conduct a sustained-yield analysis for the entire net young growth timber base to determine when harvest equals growth. This would be different from the sustained yield analysis in the Tongass Forest Plan as it would focus on just the acres that are predicted to be harvestable. This analysis would change given changes in land base or standards and guides.

Coastal Region

Southeast Area

The Southeast Area covers the Alaska panhandle from Haines to Ketchikan. The public and private land in this Area provides most of the timber volume and revenue harvested from forested land in Alaska. The SE Area manages the Southeast and Haines state forests and administers the Alaska Forest Practices Act on extensive private holdings within its jurisdiction.

Figure 1: 2-Log Rule near-term volume flow and stand acres contributing over time

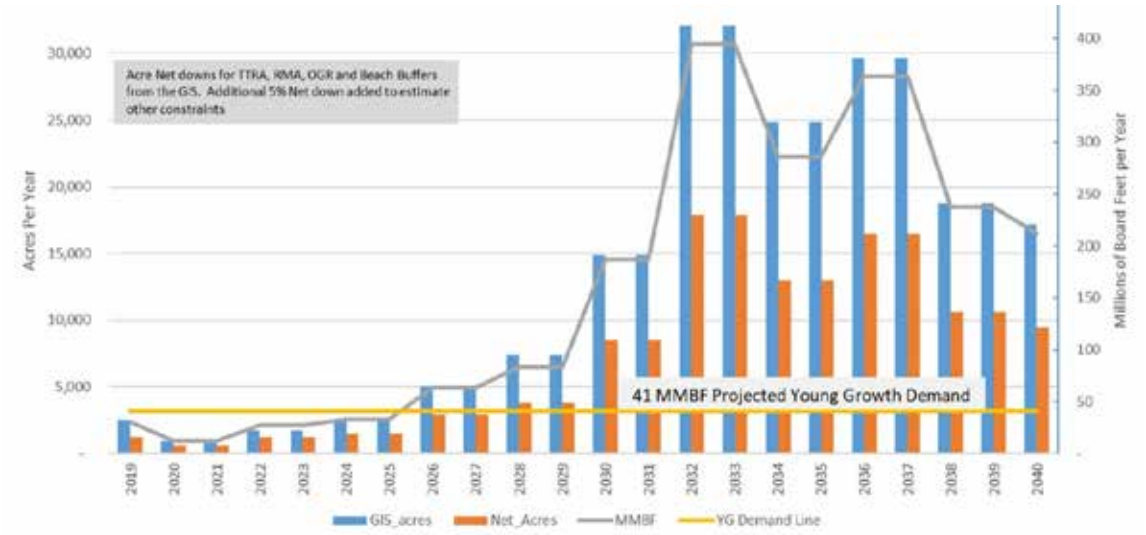
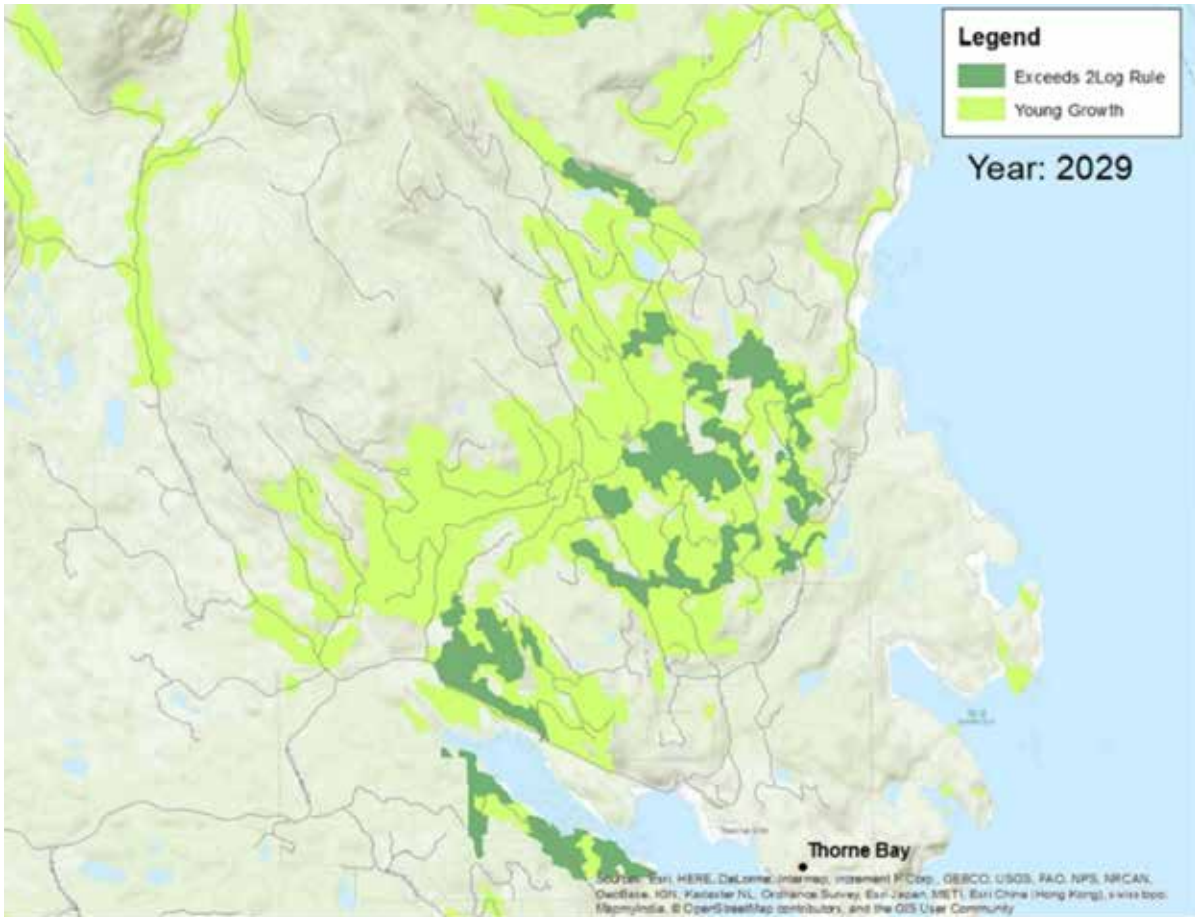


Figure 2. Example of basin/area level analysis for timber harvest planning



Icy Bay sort yard. There are no logs in the yard; the last log shipment went out in June on a Mental Health Trust land sale. (Joel Nudelman)

The DOF used field data collected in 2019 to update the inventory of forested state land in 2020. A U.S. Forest Service State & Private Forestry grant and a Challenge Cost Share Agreement funded this work. The result is baseline information that will be used to plan sustainable forest management activity on land classified as state forest and general use. The Area revised the annual allowable cut based on the inventory to 9,147 MBF per year. Most timber harvest activity on state land in the southern panhandle was on small sales early in the year. There were no operations on the Vallenar GNA sale on Gravina Island. The Best Interest Finding and Forest Land Use Plan were completed on the 4,500 MBF Parlay Timber Sale on Kosciusko Island.

Proposals were solicited for the 15,000 MBF Bay View sale in Thorne Bay on State Forest and Settlement Classified land. Large and small purchasers showed significant interest in the sale due to the decreasing availability of timber from other sources. Local use of Haines State Forest timber by small mills remained strong. The division performed several deferred maintenance projects on the Sunshine and Kelsall forest road systems to maintain basic access to the forest for commercial operators and the public.

Forest Practices notifications declined in the first half of the fiscal year but rose in the second half. Uncertainty related to tariffs by China and the market response depressed the market, but agreements to restrain tariffs and shifting supply chains brought some relief late in the year. COVID-19 also brought logistical and staffing hurdles for timber sale purchasers and agencies. White wood slowly recovered to allow purchasers to operate in old and young growth timber. Sales with red cedar remain in relatively high demand.

Kenai-Kodiak Area

This Area includes the Kenai Peninsula and Kodiak Archipelago, totaling approximately 10 million acres. The Area supports initial attack wildland fire response and administers state timber sales and the Forest PracticesAct in Regions 1 and 2.

The Kenai-Kodiak Area sold three timber sales in 2020. Timber is marketed as firewood, round logs for dimensional milling, and house logs. Multiple small mill operators on the Kenai Peninsula rely on timber harvest on state lands as a material source, producing dimensional lumber, cabin kits, and dunnage (typically 4x4x48 inches or 6x6x48 inches, used in oilfield construction and shipyards). Firewood demand from the public remains high and land management agencies coordinate to provide public access for gathering firewood. The state maintains eight miles of forest roads on the Kenai Peninsula, providing access for the public, future commercial timber sales, and personal use firewood gathering.

Timber operators in Region 1 on Afognak Island harvested approximately 27 million board feet in 2020 and harvesting operations are ongoing. The Area processed two detailed plans of operation (DPO) totaling 601 acres of proposed harvest on Afognak Island. Several contractors are continuing to harvest timber on DPOs submitted in previous years in both regions. The Area Office makes field inspections on Kodiak and Afognak islands ensuring reforestation and ongoing operations meet Forest Practices Act requirements. In 2020, inspections were hampered by COVID-19 concerns in local communities on Afognak Island and by partner agencies' COVID-19 standard operating procedures.

Seasonal staff completed fuels mitigation work on 25 acres at the Funny River State Recreation Area during the fall. Staff hand felled and thinned dense stands of black spruce forest to approximately 12 feet between tree crowns, removed lower limbs, and removed all dead standing beetle-killed trees within the project area.

DOF seasonal staff also completed approximately five acres of fuels mitigation work at the Morgan's Landing State Recreation Site. Staff hand felled and thinned dense stands of black spruce forest to approximately 12 feet between tree crowns and removed lower limbs. Mature dead white spruce have been heavily impacted by spruce bark beetle and immediate measures are being taken to safely remove dead trees in areas with high human foot traffic to increase safety for the public and reduce the risk and intensity of wildfire in the area.

Matanuska-Susitna & Southwest Area

This Area includes the Mat-Su, Anchorage, and western Prince William Sound (14.6 million acres), and Southwest Alaska (85.4 million acres) for a total of 100 million acres, making it the largest administrative district managed by DOF. The Area is managed from the Palmer office and a seasonal office in McGrath. The Anchorage Bowl, including Joint Base Elmendorf-Richardson and Eagle River, encompasses the largest wildland-urban interface in the state. Lands in Southwest Alaska are among the least populated and most remote.

There are two active state commercial timber sales and operators on a total of 105 acres in the Mat-Su. The Area Office sold 540 cords of personal-use firewood through online permits, eight negotiated personal use contracts for 75 cords of firewood, and 5,000 board feet of house logs for remote landowners.

Kenai Peninsula stewardship forester John Winters looks at a shaded fuel break, part of community-scale fuel reduction on public and private land in Cooper Landing. (Trevor DoBell-Carlsson)

The Mat-Su Area stored bus 142 after the Division of Mining, Land, and Water removed it from the Stampede Trail near Healy. The Museum of the North at UAF will conserve and display the bus. The bus was made famous by John Krakauer's book, "Into the Wild," and attracted visitors from around the world, with perilous results at times. (Stephen Nickel)

An ongoing spruce beetle epidemic has killed significant numbers of mature white spruce throughout the Area, from Anchorage to north of Denali State Park. Two popular state park campgrounds, Byers Lake and South Rolly, closed in 2019 due to hazardous dead spruce, reopened after Mat-Su Area Wildland Fire and Resource Technicians, the Gannett Glacier Fire Crew, Pioneer Peak Interagency Hotshot Crew (IHC), and contractors coordinated to reduce fuels and mitigate hazards. The work was funded by the U.S. Forest Service.

The Area contracted for additional fuels reduction and hazard mitigation work in Sheep Creek, Caswell Creek, and Susitna Landing campgrounds in the fall. Contractors removed 808 dead spruce, increased user safety, and reduced the risk of an escaped fire. In the spring, the Gannett Glacier crew, with support from the Alaska Department of Fish and Game, worked in remote, boat accessible only campsites at Susitna Landing, removing approximately 700 beetle-killed spruce and other hazardous fuels from seven sites located along the Susitna River. The crew cut and stacked usable logs for firewood and created 318 piles of slash that Mat-Su Area techs burned in the fall.

Mat-Su Area Techs and members of the Gannett Glacier and Pioneer Peak IHC crews worked 48 days along Nancy Lake Parkway adding to a fuel break begun along the road in 2019. This year 138,474 cubic feet of hazardous fuels were removed, completing three miles of fuels reduction work. In 2020, state fire technicians logged 1,444 work hours, and Pioneer Peak and Gannett Glacier crews logged a combined 6,821 hours of fuels reduction work in the Mat-Su.

Northern Region

The Division of Forestry supports and creates new opportunities and maintains the flow of timber to the industry in interior Alaska. The Northern Region continues to support local value-added wood processors and jobs in its timber sale program. DOF identifies and offers timber for salvage that was damaged by insects, floods, fires, and windstorms. Making sales available for purchase in the Fairbanks, Delta, Tok, and Copper River areas, for all-season and winter access and harvesting is a priority.

The saw log demand remains stable while the firewood and biomass industry in Interior Alaska has declined slightly due to lower oil prices. The biomass mills in North Pole and Tok, however, continue to produce wood pellets and pellet logs and distribute their products statewide. The Fairbanks-Delta office produces DOF's highest revenue and volume outside of Southern

Southeast Alaska. It historically provides 70% or more of timber in the Interior. Volume offered in previous fiscal years but not sold remains for sale over the counter at each area office.

Saw log spruce goes primarily to three mills operating in the Interior: Northland Wood Products in Fairbanks, Logging and Milling Associates in Dry Creek, and Young's Timber Inc. in Tok. While pole and pulp timber go to Aurora Energy Solutions, the largest purchaser in the Interior is Tok Biofuels, which produces compressed fire logs.

Untreated forest on left and forest treated to remove fuels on the right.

The division cooperates with other agencies to provide information on the benefits of burning dry, well-seasoned wood. The U.S. Environmental Protection Agency has warned Fairbanks and North Pole of the ongoing danger to human health caused by high levels of particulate matter caused by burning wood.

Fairbanks-Delta Area

Commercial timber continues to be sustainably harvested throughout the Fairbanks and Delta areas. There are over 89 active timber contracts with 25+ operators on state land. The demand for saw logs remains stable. Northland Wood Products, located in Fairbanks, remains the primary purchaser; it procures and processes approximately three million board feet annually.

Aurora Energy Solutions LLC formed early in 2020 and acquired Superior Pellet Fuels, which had purchased the most lower quality pole timber and fuelwood in recent years. Aurora Energy Solutions is producing pellets, compressed logs, and kiln dried firewood for Interior Alaska. Much of the raw material this company uses comes from the Tanana Valley State Forest. Operators of the firewood kiln estimate they will need 5,000 to 6,000 cords per year to meet demand.

Personal use firewood sales have increased since 2019. Through the end of November, Fairbanks Area sold 381 permits for a total of 1,102 cords and Delta Area sold 41 permits for a total of 169 cords.

Regeneration surveys continue every spring in the Fairbanks-Delta Area. Following the every-other-year planting cycle management option, no seedlings were planted in 2020. The Area's resource foresters are preparing to acquire and plant 40,000 seedlings in 2021. Scarification continues to be a common post-harvest treatment for promotion of natural regeneration.

Road work and maintenance are an ongoing need in the Fairbanks-Delta Area. Contractors and Forestry staff work on road projects annually to ensure multi-use access to the Tanana Valley

DOF left wood after a closed-out timber sale along Standard Creek Road in the Interior for the public to gather for firewood. (Kevin Meany)

Birch harvest on one of several timber sales purchased by Aurora Energy Solutions, LLC in Interior. (Kevin Meany)

State Forest. The 2020 road work season was plagued with frequent and heavy precipitation that slowed but did not stop road work from progressing. DOF reestablished proper road surface profiles on most roads. Brush was removed from the edges of Cache Creek Road to allow more sunlight and air flow onto the road surface. Major work was completed on a troublesome section of Standard Creek Road including brushing, ditching, filling, and grading.

Fairbanks Area plans to repair Fortune Creek Bridge and upgrade sections of Standard Creek Road through an agreement with ADF&G in 2021. The Delta Area roads were deemed to be in good shape when they were assessed during breakup so little work was done. Some winter work will be done on the Delta River West roads to provide turn around and pull off spots.

Tok-Copper River Area

The Tok-Copper River Area encompasses approximately 30 million acres in the eastern Tanana River Valley and the Copper River Basin. Ownership is comprised of private, state, federal, and Native corporation lands. Offices in Tok and Glennallen support initial attack wildland fire response for the region and manage state timber sales.

The highest demand for raw materials from state lands continues to be firewood followed by logs and biomass in the Tok area. There have been sporadic requests for house logs and saw timber in the Copper River Area, but firewood is the top required resource. Seasonal access and broken ownership patterns are the limiting factor for personal use firewood in the Copper River Basin. The Tok Area has enjoyed an abundant supply of fire killed spruce since the 1990s. However, this supply has dwindled greatly or succumbed to rot over the years. The Area will explore other options and locations to provide accessible firewood in the future.

Four commercial firewood operators were active this year, harvesting approximately 675 cords of fire-killed spruce for firewood with some value-added products included in the Tok Area. The value-added products were used to produce cabin kits.

The Alaska Gateway School District harvested approximately 20 acres of its timber sale. There are potential plans to develop biomass heating at the Northway school. Should this happen, the school district could purchase more hazardous fuels in future sales to meet its increased needs.

Two large, negotiated sales active last year produced a combined 1,068 tons of sawlogs and 286 tons of utility wood. The units within these sales consist of dense mature white spruce stands. The goal is to create openings and promote moose browse during early successional seral stages of stand development. The Area and the Department of Fish and Game have discussed prescribed fire and other post-harvest treatments to promote browse species.

Small sawmill operation in McCarthy, where DOF has laid out and cruised timber for future sales. (Kevin Meany)

A negotiated timber sale was sold to a small operator in McCarthy this year. The operator has a niche market in the area for interior tongue and groove paneling, dimensional lumber, and firewood. Field work was completed during the summer to identify four potential sale areas. These locations should supply the individual with raw material for the next three to four years.

After the active fire season of 2019, there is interest in the Copper River Basin to reduce hazardous fuel loading and explore potential biomass markets. Various groups have discussed using the biproducts of fuel break construction to fuel biomass heating facilities. The Tok-Copper River Area is working closely with these groups to provide information and support as discussion progresses.

COOPERATIVE FORESTRY

The Community Forestry, Forest Health, and Forest Stewardship programs provide technical and financial assistance to diverse landowners and managers through cost-effective, non-regulatory partnerships. The programs are funded 100% by federal grants from the U.S. Forest Service State & Private Forestry.

Over one million dollars in federal funds are infused annually into the state economy through these programs. In addition, local governments, agencies, and nonprofits contribute matching funds. The economic impact of the technical and financial assistance to Alaska Native corporations, other private forest landowners, businesses, and local governments is substantial.

In November all Cooperative Forestry Programs completed a U.S. Forest Service program review. Programs are reviewed every five years to determine whether they are achieving desired outcomes, meeting objectives established by legislation, and following regulations.

Forest Health Program

The division's Forest Health Program provides a wide range of assistance to forest landowners, resource managers, and others, and is a primary source of forest health expertise in the state. The program focuses on monitoring native and invasive forest pests, pest management, tech-

nology development, and technical assistance. In a typical year the main way Alaska's forests are monitored is through cooperative DOF and U.S.D.A. Forest Service Forest Health Protection (FHP) aerial pest detection surveys. These surveys were cancelled in 2020, however, largely due to the COVID-19 pandemic.

In 2020, DOF and FHP survey specialists developed an alternative strategy to survey the state's forests, which combined road-based ground surveys, manual interpretation of high-resolution imagery, and remote sensing. As a result, the data collected in 2020 cannot be directly compared to that of previous years.

A summary of the 2020 preliminary survey results is included within Surveys Overview, below. Some of the information on surveys and monitoring of forest insects, tree diseases, invasive plants, and abiotic disorders is included in the annual Forest Health Conditions in Alaska report published by FHP in collaboration with DOF and other key cooperators.

Western Bark Beetle Initiative

In 2020, DOF initiated a Western Bark Beetle Initiative cost-share program to assist non-federal landowners with bark beetle prevention, suppression, and restoration. Interest in the program has been high within the spruce beetle outbreak area, with more than 100 applications received. Thus far, 27 properties have been assessed, totaling roughly 1,100 acres. Staff will continue delivering this program in 2021.

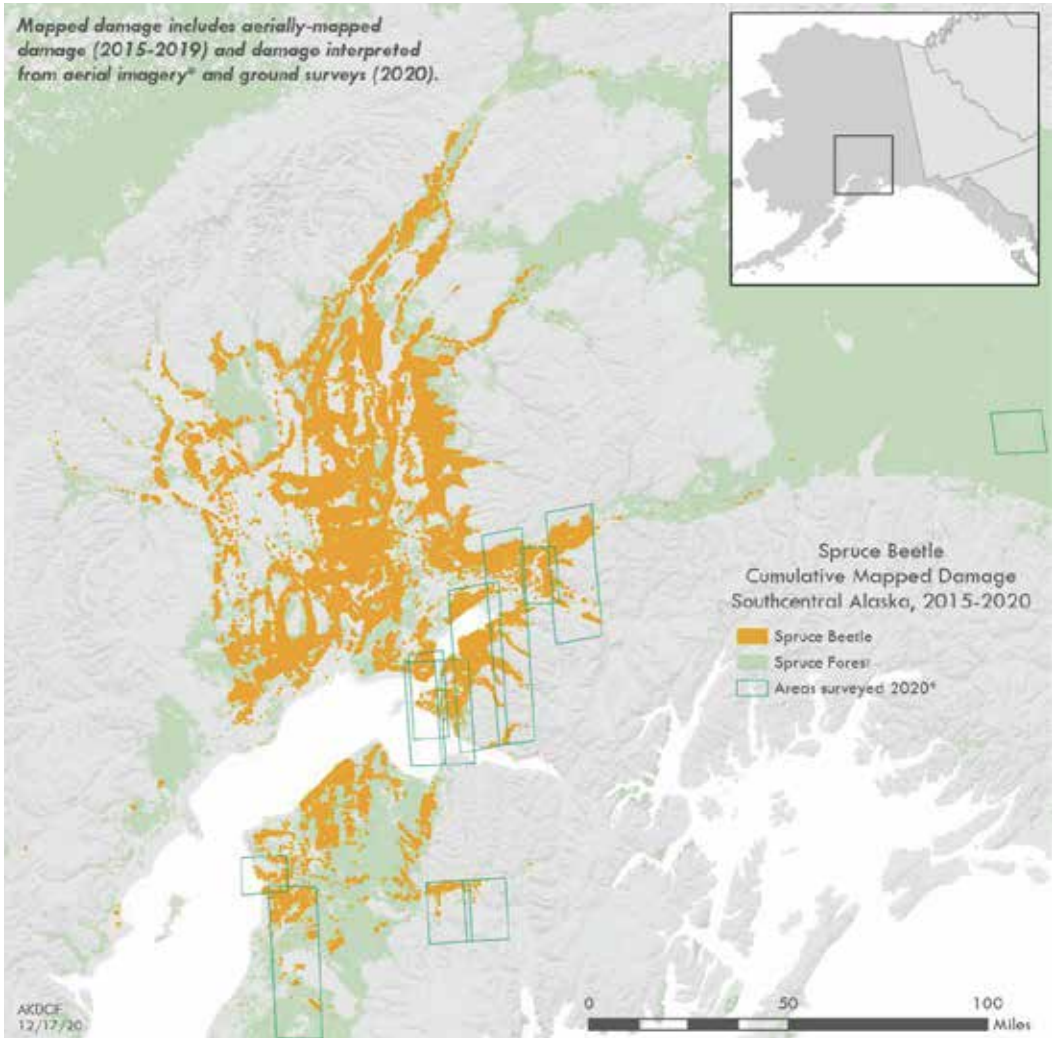
Outreach

In 2020, DOF Forest Health staff connected with an estimated 720 individuals to provide forest health assistance or information, slightly fewer than in 2019. Outreach efforts were somewhat curtailed in 2020, due to COVID-19 and decreasing spruce beetle activity in some areas. The way in which the interactions occurred was vastly different in 2020 than 2019. In 2020, about 36% of contacts occurred through outreach events, which after February were all conducted virtually, and 64% through email, phone, or social media. In contrast, in 2019, 80% of contacts were through outreach events and only 20% via email, phone, or social media. Forest Health staff also participated in five news media interviews spanning several media formats; all interviews were related to spruce beetles.

Two events in 2020 prompted numerous inquiries via social media, email, and phone; first, was the availability of Western Bark Beetle Initiative cost-share funding and, second, a request from Forest Health staff for assistance from the public in locating areas impacted by a rusty tussock moth outbreak in Southcentral. The moth was most dramatically active in high elevation and remote locations that Forest Health staff were unable to access.

Research

Forest Health staff have been heavily involved over the last several years in evaluating potential new tools to help residents protect their trees from spruce beetle-caused mortality. Two such research efforts occurred in 2020: a systemic pesticide trial and an anti-aggregation pheromone (MCH) trial evaluating SPLAT-MCH (ISCA Technologies, Inc), a biodegradable paste impregnated with spruce beetle anti-aggregation pheromones. Both projects are being conducted in partnership with the USDA Forest Service Pacific Southwest Research Station and FHP.



The systemic insecticide trial is a three-year project that began in 2018 with the study trees first challenged by beetles in 2019. An assessment to evaluate the efficacy of the treatments occurred after the spruce beetle flight period in 2020. The surviving trees will be re-assessed after the 2021 spruce beetle flight period.

The SPLAT-MCH trial is a one-year project that was initiated in 2019. It is part of a larger effort to test this product in combination with other semiochemicals against spruce beetle in both white spruce and Engelmann spruce forest systems in the United States. Treatments in Alaska were applied in early May 2019 and the final assessment occurred during the fall of 2020. The treatments evaluated were not successful in protecting the study trees from spruce beetle attack in Alaska.

Surveys Overview

In 2020, DOF and FHP staff collectively mapped about 380,000 acres of forest damage on the six million acres surveyed, using both ground surveys and manual interpretation of high-resolution imagery. The top three damage agents documented, in terms of acres of damage, were spruce beetle, hemlock sawfly, and aspen leafminer.

Spruce Beetle: It is estimated that Southcentral Alaska is in the fifth year of a spruce beetle

Spruce killed by beetles removed after hazardous fuels mitigation work at South Rolly Campground in the Mat-Su. The campground was reopened this summer after being closed in 2019 to complete this work. (Stephen Nickel)

outbreak that has affected at least 1.2 million cumulative acres of mixed spruce and birch forests. See map, Spruce Beetle Cumulative Mapped Damage Southcentral Alaska, 2015-2020. Ground-based observations across the region in 2020 confirmed that the spruce beetle outbreak has declined or is now concentrated in the less favorable black spruce in many areas with the most severe impacts. The ground-based observations and additional surveys, however, also documented continued or expanding outbreak activity within the periphery of areas previously impacted.

Notable areas of ongoing spruce beetle outbreak activity were documented in the Cooper Landing area within the Chugach National Forest, the Anchorage Municipality, and along the Parks Highway around miles 180-190, roughly near the East Chulitna Wayside. Additional scattered spruce beetle activity was documented extending north into the Denali Borough, including the Cantwell area and the western portion of the Denali Highway. The northern front of the outbreak is nearing the transition within the Alaska Range between Southcentral Alaska and Interior Alaska. With these two regions having different typical weather conditions, the northernmost reaches of the outbreak will be closely monitored in 2021.

Ground surveyors documented close to 6,000 acres with ongoing spruce beetle-caused mortality, the majority in the Matanuska-Susitna Borough (4,120 acres), followed by the Denali Borough (1,200 acres), the Kenai Peninsula Borough (450 acres), and the Municipality of Anchorage (275 acres).

High-resolution imagery could not be acquired for the entire area of the outbreak, so areas thought to be within the leading edges of the spruce beetle outbreak were prioritized. This survey methodology allowed for complete coverage of the area covered by the image and allowed for more complete coverage of areas not typically well-covered during the aerial surveys, specifically the Anchorage Municipality. One downside to this methodology was variability in image quality and colors, which often made it difficult to accurately separate current year spruce beetle-killed trees from those killed in 2019 or potentially 2018. As such, spruce beetle activity mapped in 2020 was categorized as either recent mortality (that which looked current) or previously undocumented mortality.

High-resolution imagery was interpreted to document roughly 115,200 acres of spruce beetle activity in 2020, of which 108,200 acres were recent mortality. This is separate from the acreage documented in the ground surveys described above. Of the recent damage mapped, 96%

is within the outbreak area. Within the Mat-Su Borough, 60,130 acres of spruce beetle damage were mapped. The spruce beetle outbreak appears to have expanded considerably in the Matanuska and Knik River valleys. Within the Municipality of Anchorage, 25,760 acres of damage were mapped, with the most severe damage occurring from Joint Base Elmendorf-Richardson north to the Knik River, including all the major valleys in the Chugach Mountains south to the Ship Creek valley. Within the Kenai Peninsula Borough, 18,330 acres of damage were mapped. Spruce beetle activity increased substantially in the Cooper Landing area and continued to expand in the Kenai and Soldotna areas. In Southeast Alaska, 121 acres of spruce beetle damage were mapped in small, scattered pockets around Excursion Inlet and along the Excursion River.

Defoliating Insects: Interpretation of the high-resolution imagery showed damage caused by defoliating insects on about 160,700 acres. Most of those acres (141,800 acres) can be attributed to the hemlock sawfly and aspen leafminer.

The hemlock sawfly outbreak occurring in Southeast appears to be subsiding. Hemlock sawfly damage was mapped on roughly 185,900 acres in 2020, of which 80,000 acres was tree mortality associated with the outbreak.

Aspen leafminer damage was mapped on 35,900 acres, almost exclusively in the Interior. The 35,900 acres of damage reported, however, should not be considered a decline in the overall aspen leafminer activity as only a very small portion of the area where the damage from this insect is typically most notable was surveyed in 2020.

Rusty tussock moth was reported at numerous locations across the state in 2020, with notably high populations in Southcentral Alaska. These generalist caterpillars were prevalent almost anywhere along the road system within the Matanuska-Susitna Borough, though defoliation was generally minimal. However, concerned residents reported substantial defoliation in some areas at or above tree line in this region. With the cancellation of the aerial surveys in 2020, survey staff opted to supplement the survey for this pest with a request through social media for reports of defoliation by this insect. The post proved popular, with nearly 200 reports received.

Western tent caterpillar was confirmed in Ketchikan and Hyder in 2020. Western tent caterpillar is not known to occur in Alaska but has occasionally been introduced into Southcentral in the past and quickly eradicated. This insect is native to the Pacific Northwest and it is not known if its presence in Southeast Alaska resulted from a natural range expansion or a recent introduction. Additional investigation is planned.

Forest Stewardship Program

The Forest Stewardship Program provides landowners with professional technical forestry assistance to help guide their decisions about how to manage their forest land. Landowners have a variety of goals for their land, including wildlife habitat improvement, privacy, scenery, firewood production, and leaving a legacy for future generations.

Funded entirely by the U.S. Forest Service State & Private Forestry, the program responds to the requests of landowners to prepare Forest Stewardship Plans that include field visits and contain the latest technical forestry advice. Forest Stewardship Plans often address forest health issues, reforestation, timber stand improvement, and defensible space from wildfire.

2020 FOREST STEWARDSHIP COMMITTEE

Clare Doig
Consulting Forester
Forest & Land Management, Inc.
Anchorage

Priscilla Morris
Wood Biomass and Forest Stewardship Coordinator
USDA Forest Service State & Private Forestry, Anchorage

Will Putman
Tanana Chiefs Conference Forestry Director, Fairbanks

Julia Nave
Conservation Forester
The Nature Conservancy, Juneau

Sue Rodman
Alaska Department of Fish and Game, Anchorage

Samia Savell
Natural Resources Conservation Service, Juneau

Chris Tcimpidis
Natural Resources Conservation Service Alaska Forester, Juneau

Clay Hoyt
Staff Forester
Chugachmiut Inc. Extension Service, Palmer

Alaska Native Corporations are the largest private landowners in Alaska and are provided sub-grants to allow them to hire private consulting foresters who prepare Forest Stewardship Plans. Individual private landowners receive plans written primarily by Division of Forestry Stewardship foresters.

By the numbers:
- Nationally, 25 million acres are managed under a current Forest Stewardship Plan.
- Alaska contributes 14 percent of those acres.
- 1,090 Alaskan landowners and thousands of Alaska Native Corporation shareholders have benefitted from Forest Stewardship Plans in Alaska.

The Forest Stewardship Program receives guidance from the Forest Stewardship Committee, which is comprised of representatives from a broad range of Alaska private landowner and land management interests. Areas of discussion include grant and cost-share rates, eligibility criteria, outreach methods, and forest stewardship plan requirements. The committee was convened via WebEx once in 2020.

2020 provided a set of challenges unique in the program's history as all three staff members transitioned to working remotely, socially distanced property visits, and occasionally writing Forest Stewardship Plans using aerial images and limited interaction with the landowners to mitigate COVID-19 risks.

2020 Highlights
- One Alaska Native Corporation was awarded a sub-grant to begin development of a Forest Stewardship Plan that covered more than 23,000 acres. An additional corporation was approved for funding to prepare a stewardship plan for 299,000 acres, but COVID-19 travel restrictions delayed work on this project until 2021.
- Three Alaska Native Corporations completed Forest Stewardship Plans covering more than 108,000 acres.
- 29 Forest Stewardship Plans, covering more than 2,014 acres, were prepared for individual forest landowners. Despite COVID-19, this was the largest number of acres on which plans were completed by individuals since 2004.
- More than 112 homeowners completed wildfire fuel reduction projects using federally funded cost-share grants.
- More than 100 additional homeowners received Firewise education and outreach from Forest Stewardship personnel.
- Staff held virtual presentations for Haines and Skagway to talk about Forest Stewardship, Firewise, and the newly updated state burn permit regulations.

Planning by Alaska Native Corporations

Alaska Native Corporations are the largest private landowners in Alaska and providing sub-grants that allow these corporations to develop Forest Stewardship Plans is an important part of the Alaska Forest Stewardship Program.

Biomass energy development, commercial timber production, enhanced forest health, forest resilience, wildlife habitat, and reforestation were all important goals of Alaska Native Corporations in 2020. Since the inception of the Stewardship Program in 1992, 68 Forest Stewardship Plans covering more than 7.3 million acres have been written for Alaska Native Corporations. Plans expire after 10 years, meaning that 3.2 million forested acres are currently being sustainably managed with guidance from a professionally written forest management plan. These Stewardship Plans help guide sustainable timber development and commercial operations, bringing economic benefits to rural villages in addition to helping restore previously logged areas for traditional land values. Other benefits include the potential to sell carbon credits on the California carbon credit market, which several Alaska Native Corporations have successfully done after receiving Forest Stewardship Plans.

Planning by Individual Landowners

Stewardship Plans covering more than 2,014 acres were prepared for 29 private landowners in 2020. Wildfire defensible space, spruce beetle mitigation, and reforestation were primary goals for individual landowners. Since 1992, 1,090 individual landowners have adopted Forest Stewardship Plans covering a total of more than 52,000 acres. Most Stewardship Plans are for landowners in the Matanuska-Susitna, Fairbanks North Star, and Kenai Peninsula boroughs.

Cost-Share Assistance

Forest Stewardship Program personnel assisted private forest landowners by providing advice on ways to mitigate the risk of wildfires. Cost-share funding for hazardous fuel reduction practices has come from wildland urban interface (WUI) fuels reduction grants from the Council of Western State Foresters. In 2020, final inspections were made for more than 112 homeowners with incentive sub-grant payments to reduce hazardous fuels through the strategic removal and pruning of spruce trees near structures. More than 100 additional homeowners received education and literature about the importance of defensible space.

Photo from a drone, operated by stewardship forester John Winters. Aerial images give landowners information to use in writing stewardship plans. (John Winters)

Wildland urban interface grants are an important outreach method for increasing participation in the Forest Stewardship Program and are used to increase the conservation education delivered by the Division of Forestry.

Competitive Grant Projects

The Forest Stewardship Program continued to implement Wildland Urban Interface grants aimed at the Matanuska-Susitna, Fairbanks North Star, Kenai Peninsula boroughs, and Delta Junction, focusing on pass-through grants to homeowners to incentivize hazardous fuel reduction to protect communities from wildfire. This improves the ability of Forest Stewardship Program personnel to contact private forest landowners and deliver educational programs and outreach areas with high risk of wildfire. The grants allow DOF to pass small sub-grants to homeowners in targeted areas to incentivize the reduction of hazardous fuels and to provide Forest Stewardship Plans and wildfire prevention information. These grants were funded by the U.S. Forest Service.

John Winters, Stewardship Forester for the Kenai Peninsula, Kodiak Island, and surrounding remote communities, administers these grants in Cooper Landing as well as other federally funded WUI grants for the broader Kenai Peninsula. John has done extensive work under these grants to help homeowners understand the importance of hazardous fuel reduction and spruce beetle mitigation. The spruce beetle outbreak that is plaguing the Matanuska-Susitna Borough and Municipality of Anchorage is also affecting the Kenai Peninsula, and some of John's funding is aimed at improving the health of the residual forest on private properties following the spruce mortality caused by the insect.

Fairbanks-based Stewardship Forester Jim Smith, who is the sole Stewardship Forester for all privately owned forests north of the Alaska Range, helped 61 homeowners complete work on hazardous fuel reduction projects in 2020 as part of his WUI grant.

DOF Wildland Forestry Technician Gabe Pease-Madore continues to implement a similar grant in Delta Junction, expanding the Stewardship Program's reach to this community. Landowners in primarily overstocked black spruce receive fuels reduction recommendations and sub-grants to cost share the effort.

Forest Stewardship Staff

The Forest Stewardship Program manager statewide is Trevor DoBell-Carlsson. Trevor assists Native corporations statewide with their forest stewardship goals, and, as time allows, assists individual landowners in the Matanuska-Susitna Borough and the Municipality of Anchorage. Jim Smith is the Stewardship Forester for Fairbanks, and John Winters is the Stewardship Forester for the Kenai Peninsula, Kodiak Island, and remote villages in the vicinity. Stewardship Foresters also participated in various wildfire assignments in 2019, for a total of more than 50 days of staff time.

Additional Accomplishments

Project Learning Tree: Project Learning Tree (PLT), overseen by the Sustainable Forestry Initiative (SFI), is a nationwide program providing K-12 outdoor education curricula and training to help educators bring the natural world, including forestry, into the classroom—or bring the classroom to the outdoors. The Forest Stewardship Program has funded PLT in Alaska at a low level for many years, but thanks to one-time funding from the U.S. Forest Service State

& Private Forestry, a fulltime PLT coordinator position was funded for two years. The Stewardship Program is funding a sub-grant to the Alaska Association of Conservation Districts, which houses the position. The long-term goal is for this position to become self-funded through competitive grants. https://www.plt.org/

In 2020, each class at Talkeetna Elementary (a recipient of DOF's National Association of State Foresters Community Tree Grant) participated in outdoor learning experiences with PLT activities, using their nature trail and classroom in the woods. Older students studied trees they "adopted" in a birch stand in their schoolyard, learning to take measurements such as diameter.

A Talkeetna Elementary School student completes a Project Learning Tree activity in the woods. (Molly Gillespie, with permission of school principal)

Molly Gillespie, the Alaska PLT Coordinator, hosted a "Meet a Forester" event with the Girl Scouts of Alaska, with girls who were working toward their STEM careers patch. Girls were introduced to careers in forestry and conservation, learned what STEM skills are helpful or necessary for those careers, and got to hear from a woman in forestry who uses prescribed burns to enhance wildlife habitat.

Upper Susitna Wildfire Restoration Project: Another noteworthy community-level program in 2020 was the reforestation program aimed at homeowners affected by the 2019 McKinley Fire near Willow. The Forest Stewardship Program provided grant funds to the Upper Susitna Soil and Water Conservation District that allowed them to divide 2,000 tree seedlings among affected homeowners. The Conservation District plans to provide more seedlings in 2021.

Caring for Alaska's Future Forests: The Forest Stewardship Program partners with the Division of Agriculture's Plant Materials Center in Palmer to provide cold storage for tree seeds that have been collected throughout the state; the collection has seed lots dating back to the 1990s. Seed viability is tested periodically and the first year of a four-year project to run germination testing on all seed lots was completed in 2020 to ensure that stored seed is still viable for future planting projects.

Alaska Community Forestry Program

City trees and greenspaces confer many health, social, economic, and environmental benefits. The Division of Forestry Community Forestry Program (CFP) helps communities maximize and enhance these benefits through effective management. Two program staff, funded by the U.S. Forest Service, offer technical and educational assistance to local governments, state and federal agencies, tree care professionals, and nonprofit organizations.

The Alaska Community Forest Council (ACFC) helps set priorities for the program and provides expertise and advice to the division. The 15-member council represents the diversity and broad spectrum of interests and experiences in the state, and the members are valuable partners in local community forestry efforts.

Supporting community forestry is an important role for state government because:

- Community forests provide essential services and benefits that we cannot live without;
- A healthy community forest is the result of proper planning, management, and community investment;
- Healthy community forests can help solve community problems;
- Community forests and rural forests are connected and good management of one helps the other.

Adapting and Adjusting

COVID-19 required staff to adjust to teleworking, cancel most Arbor Day events, hold meetings remotely, and limit field work and in-person training and education activities. Even with these challenges, Community Assistance Forester Josh Hightower, in his first year with the program, earned his arborist certification from the International Society of Arboriculture. This professional credential is crucial to his role in providing technical assistance and training throughout the state.

Cooperative Program Review

The five-year review by the USFS provided an opportunity to look at communities' management of forest resources. The CFP will use the information to develop programs that meet local needs and interests.

Each community is defined as having a "managing" or "developing" community forestry program. To qualify as a managing program, a community must meet four criteria; a developing program must meet at least one:

1. Employ or retain professional forestry staff (e.g., arborist, forester, or horticulturist);
2. A tree ordinance or adopted policies that focus on planting, protecting, and maintaining community trees;
3. A local tree advocacy/advisory organization, and;
4. An active management plan developed from a professionally based resource assessment or inventory.

Anchorage Assistance

Community Tree Forum: Even though February 21 was a snowy Friday night with poor driving conditions, 80 enthusiastic people attended the Anchorage Community Tree Forum. The driving forces behind the tree forum were well know Anchorage garden columnist Jeff Lowenfels and Alaska Community Forest Council member and Alaska Botanical Garden (ABG) employee Pat Ryan. Spurred by the high numbers of beetle-killed spruce and the threat of invasive tree species, Mr. Lowenfels wrote an Anchorage Daily News column in 2019 calling for a citywide discussion on the future of Anchorage trees. Mr. Ryan enlisted the support of the ACFC, ABG, and CFP staff.

A panel, moderated by Mr. Lowenfels, included representatives from the ACFC, UAF Cooperative Extension Service, Division of Agriculture, CFP, Municipality of Anchorage, local media, and two tree care companies. The CFP hopes to build on the deep interest in Anchorage's trees and forests expressed by attendees to form an Anchorage Tree Board to promote the preservation, care, and planting of trees. Three weeks after the forum COVID-19 tabled the effort, but CFP staff hope to bring together the 20 forum participants who indicated interest in serving on such a board in 2021.

Government Hills Commons: The Government Hill Commons orchard, which received Community Orchard & Food Forest grants in 2016, 2017 and 2018 was covered in an Anchorage Daily News story in September. Read the story at https://www.adn.com/Government Hill Commons.

Community Recovery Grant: The Alaska CFP program partnered with the Arbor Day Foundation (ADF) to assist the Municipality of Anchorage in replacing beetle-killed spruce. The ADF obtained a corporate donor for a tree planting event (rescheduled to 2021) and another to fund the Alaska Virtual Run for Women tree giveaway.

100 trees donated by International Paper were distributed at the Alaska Run for Women. (Jim Renkert)

Alaska Virtual Run for Women: Although COVID-19 forced Alaska Run for Women participants to run and walk in a virtual event, over 3,000 people from all 50 states took part. The CFP partnered with the National Association of State Foresters, which celebrated its 100th Anniversary with 100-themed forestry activities, to give away 100 trees at the run. The Arbor Day Foundation arranged for a gift from International Paper to pay for the trees.

Fish Need A Forest: Restoring Campbell Creek Using Green Infrastructure: This U.S. Forest Service Landscape Scale Restoration grant project engaged the Anchorage Park Foundation and Municipality of Anchorage's Youth Employment in Parks in restoring a streambank and planting trees and shrubs where a portion of the paved trail was moved away from the streambank. A MOA contractor also installed root wads along another section of creek to stop bank erosion.

Invasive Species

In 2019 the USFS gave the CFP a substantial grant to address the invasive tree species *Prunus padus* and *Prunus virginiana*. The CFP issued the first round of sub-grants in the fall. The Homer Soil and Water Conservation District used its grant for survey and control work on the Kenai Peninsula. The Southeast Alaska Watershed Coalition and the Talkeetna Community Council also received grants. A second round of grant applications will be announced in 2021. Groups in Palmer, Wasilla, Fairbanks, and Anchorage have expressed interested.

In 2020 the Anchorage Cooperative Weed Management Area changed its name to the Anchorage Cooperative Invasive Species Management Area. Members are working to develop an overall herbicide use plan for Anchorage.

Education

Because in-person training was not possible in 2020, the CFP offered to pay registration fees for volunteers and partner agency staff to attend virtual conferences and earn continuing education credits. Several members of the ACFC and a Homer Soil and Water Conservation District employee benefitted from this offer by attending the Pacific Northwest Chapter of the International Society of Arboriculture (ISA) conference, the Arbor Day Foundation Partners Conference, and the ISA Virtual Conference.

Members of the Fairbanks Arbor Day Committee planted a larch, grown by Jim Smith, at Tanana Lake in May.

Community Forestry Organizations

In 2020, volunteers donated over 855 hours to community forestry projects in Alaska. Groups included the Alaska Community Forest Council, Fairbanks Arbor Day Committee, and Juneau Urban Forestry Partnership. In addition to these and organizations mentioned above, CFP staff engaged with the following organizations:

- Alaska Pioneer Fruit Growers Association
- Fairbanks Area Surface Transportation FAST Planning
- The Fairbanks and Homer Soil and Water Conservation Districts
- Alaska Native Tribal Health Consortium
- Georgetown Tribal Council
- MOA Watershed & Natural Resources Advisory Commission
- Clark Middle School

National Association of State Foresters

The National Association of State Foresters celebrated its 100th Anniversary in 2020 by issuing a Centennial Challenge to sponsor events with a "100" theme. In addition to the Alaska Virtual Run for Women, described above, CFP offered public school grants for educational tree planting events, and to purchase native trees, seedlings, or orchard trees. COVID-19 stalled plans to plant the trees on Alaska's Arbor Day in May. However, NASF extended the Centennial Challenge and schools can apply until all the grant funds are expended.

Arbor Day May 18

Four communities held Arbor Day events, following COVID-19 protocols: Fairbanks, Joint Base Elmendorf Richardson (JBER), Juneau, and Fort Greely. The Fairbanks Arbor Day Committee placed a plaque with a tree dedicated to health care workers on the front lines of the COVID-19 crisis. JBER planted trees on both the Elmendorf and Fort Richardson sides of the base in September. Base commanders, Boy Scouts, and Girl Scouts attended.

Arbor Day Foundation

The Arbor Day Foundation recognized six Alaska communities, three military bases, three utilities and one university for their efforts to protect and enhance community forests.

Tree Cities USA: The City of Wasilla, Ketchikan Gateway Borough, Joint Base Elmendorf-Richardson, Eielson Air Force Base, Fort Wainwright, and the Municipality of Anchorage all retained Tree City USA status. Fort Greely has met the standards and submitted the required information to become Alaska's newest Tree City USA.

Joint Base Elmendorf Richardson celebrated Arbor Day in September by planting trees on both the Elmendorf and Fort Richardson sides of the base. Shown here are the base commanders and Girl Scouts. (Jim Renkert)

Tree Lines USA: Chugach Electric Association, Golden Valley Electric Association, and Matanuska Electric Association.

Tree Campus Higher Education: University of Alaska Anchorage, which created a virtual campus tree tour: 2020 Tree Campus Tour - YouTube

Tree Campus Health Care: In 2019 the Arbor Day Foundation implemented "Tree Campus Healthcare" to recognize health institutions that align their mission of community wellness with tree education, investment, and community engagement. COVID-19 caused Providence Hospital to delay its work toward this designation but, hopefully, it and other institutions will continue this effort soon.

Tree Campus K-12: ADF also rolled out a program for K-12 students in 2019, which DOF hopes to get underway in 2021.

Alaska Community Forest Council

The council met in person in March. Later meetings were held via tele-conference or Zoom. Chugach Electric Association, Paul's Tree Service and the SAF – Cook Inlet Chapter each donated $1,000 to the Council to support its mission.

CFP is sad to report that in January ACFC member Steve O'Sullivan unexpectedly passed away. Steve was a longtime and enthusiastic member of the council and a great friend of trees. He worked for the Municipality of Anchorage Parks and Recreation Department prior to becoming the arborist for the City of Wasilla. Steve took great pride in the trees and parks in Wasilla that were under his care. Steve was a certified arborist, vocal supporter of community trees, a lifelong learner, and car enthusiast. Steve had served on the Alaska Community Forest Council since 2015.

Former Wasilla Parks arborist and member of the Alaska Community Forest Council Steve O'Sullivan died unexpectedly in 2020.

In September, staff attended the planting of a memorial crabapple for Steve in Wasilla's Iditapark. Steve's children, City of Wasilla officials, the ACFC Chair, and former DOF Deputy Director Dean Brown attended.

Photo taken on June 1 of the 54,099-acre Ingakslugwat Hills Fire, which began on May 30. This was the largest wildfire in Alaska in 2020. (Matt Snyder)

FIRE & AVIATION

2020 WILDLAND FIRE SEASON

Slowest Fire Season in More than a Decade

After one of Alaska's busiest wildland fire seasons in 2019, the 2020 fire season was one of the slowest. A total of 347 fires burned an estimated 181,253 acres, the lowest burned acreage total since 2008. The slow season was due in large part to abundant March snowfall, cool April temperatures, and heavy rain in June, July, and August. Due to the late spring and heavy June rain, conditions never dried out enough for wildfires to get established.

For the season, 191 fires burned 135,926 acres in Division of Forestry protection areas; 140 fires in Alaska Fire Service protection areas burned 45,300 acres, and 16 fires in U.S. Forest Service jurisdiction burned 27 acres.

Most of the acreage burned was in the DOF's Southwest (McGrath) Area, with 29 fires burning an estimated 135,589 acres. The Upper Yukon Zone had the most acreage burned in Alaska Fire Service zones; 32 fires burned 22,506 acres.

There were 179 human-caused fires and 168 lightning-caused fires. As is normally the case, lightning-caused fires accounted for the vast number – 180,945 acres – of the acres burned. Human-caused fires burned only 308 acres. No structures were destroyed by wildfires in 2020 and wildfire activity caused no serious injuries to firefighting personnel or the public.

In contrast to 2019, when 17 project/team fires burned in Alaska, some burning for weeks or even months, only one project/team fire burned in 2020, the 12,139-acre Isom Creek Fire along the Dalton Highway north of Fairbanks. The Type 2 Alaska Black Incident Management Team was mobilized to manage that fire, which was in the BLM Alaska Fire Service's Upper Yukon Zone.

The first wildfire response in Alaska in 2020 was on April 9 on the East Hill Fire near Homer on the Kenai Peninsula. Firefighters from the Homer Volunteer Fire Department and Kenai/Kodiak Area Forestry office were called to extinguish a small, 30-foot-by-30-foot grass fire on East Hill Road that was started by a discarded cigarette butt.

The final wildfire response was on October 13 on the Pioneer Peak Fire in the Mat-Su Area near Palmer. Two wildland fire and resource technicians from the Mat-Su Area responded to a small, human-caused fire at approximately the 1,000-foot level of Pioneer Peak. Technicians dug a handline across the top of the fire to keep it from spreading and used runoff to get water on the fire. Due to the steep, rugged terrain, safety concerns with accessing the fire, and anticipated winter weather moving in, the fire was put in monitor status on October 15.

A bald eagle sparked a small 20x30-foot grass fire near Kenai on June 8 when it flew into a powerline along Kalifornsky Beach Road. (Darren Finley)

There were 19 staffed fires in 2020, with fires staffed continuously from May 31 to July 16, a period of 47 consecutive days. The highest number of fires staffed on one day was eight from June 14-16. A staffed fire is one on which firefighters spent the night, signifying extended attack versus initial attack.

There were 56 large fires (fires of 100 acres or more) that burned a total of 179,256 acres. The largest fire of the season was the lightning-caused 54,099-acre Ingakslugwat Hills Fire in the Southwest (McGrath) Area, which accounted for more than one-quarter of the total acreage burned statewide in 2020. The fire was discovered on May 30 in a Limited Management Option area and no initial suppression action was taken because no values were threatened. Six smokejumpers were mobilized on June 10 to provide point protection on identified national wildlife refuge values. They built a line around the values and a change in wind direction pushed the fire away from those values.

The Bald Eagle Fire may have had the most unusual cause in 2020. A bald eagle hit a powerline and caused a spark that ignited a small grass fire near Kenai on June 8. The fire was burning in a ditch near Mile 6.5 of Kalifornsky Beach Road. When Kenai/Kodiak Area forestry personnel responded, they found a 20-foot-by-30-foot burned patch of grass with a dead bald eagle lying nearby. The fire was already out when forestry personnel arrived. Alaska Fish and Wildlife Troopers took possession of the dead eagle.

Statewide Burn Suspension

Due to COVID-19 concerns (see article below), the Division of Forestry issued a nearly statewide burn suspension effective May 1 to reduce the number of human-caused wildfires that would require a response from firefighters. The suspension was designed to reduce the chance of firefighters contracting COVID-19 from the public, and because DOF anticipated a lack of firefighting resources available from the Lower 48 due to COVID-19 travel restrictions and quarantine requirements.

The burn suspension was put in place for the entire state except for Southeast Alaska (areas south of Cordova), and prohibited all debris burning, use of burn barrels, and lawn burning

Kenai/Kodiak Area Forestry technicians extinguish a small brush fire caused by an escaped debris burn on Grewingk Street in Homer on April 30. When firefighters arrived, the homeowner was trying to put out the fire with a plastic rake. (Howie Kent)

on state, municipal, and private lands. Despite the widespread burn suspension, both the Mat-Su and Kenai/Kodiak Area offices experienced a high volume of human-caused fires, which taxed the prevention staffs in both Areas early in the season.

DOF Fire & Aviation Chief Norm McDonald and the Alaska Department of Health and Social Services developed a plan for how to safely transport firefighting personnel from the Lower 48 should the need arise. That plan, combined with widespread rain over Memorial Day weekend, prompted DOF to rescind the burn suspension in all areas of the state except the Kenai Peninsula on May 26. The burn suspension remained in effect on the Kenai Peninsula through July 7 due to high fire danger in that area and concerns about human-caused fires due to recreational traffic during salmon fishing season.

Human-caused Fires

Despite the burn suspension that went into effect on May 1, human-caused fires still dominated the fire season in April and May. While the beginning of the season was delayed due to heavy spring snowfall and colder-than-normal temperatures, conditions dried out quickly once the snow melted, particularly in the southcentral portion of the state.

The first fire with a significant DOF response was the Trumpeter Fire near Point McKenzie in the Mat-Su Area on April 29. The fire was reported by a local pilot just before 4 p.m. The temperature was 69 degrees and the relative humidity was 18 percent when firefighters arrived on the scene.

The fire was originally sized up as two acres but grew rapidly in dry grass, aided by a light breeze out of the west. Three engines and a helitack load from the Mat-Su Area Forestry office were the first to respond, and a helicopter dropped water on the fire during initial attack. Two Palmer-based crews, the Pioneer Peak Interagency Hotshot Crew and the Gannett Glacier Type 2 Initial Attack Crew were also called in. The fire had grown to an estimated 50 acres by the end of shift with 25% containment. Better mapping the following day put the fire at an estimated 130 acres as firefighters worked to increase containment. The fire was brought to 75% containment by the end of shift on day two and was 100% contained by the end of shift on day 3. The fire provided a good, early-season opportunity for DOF firefighting personnel to assess COVID-19 mitigations and to pass along what they learned to other area offices.

Just over two weeks later, on May 16, Mat-Su Area firefighters responded to another human-caused blaze north of Wasilla. The Moose Meadows Fire was reported at 2:23 p.m. near Moose Meadows Road about six miles north of Wasilla. It was originally estimated at 2.5 acres and grew to five acres by the time resources arrived on scene.

The Mat-Su Area Forestry station mounted an aggressive initial attack. A helicopter was called in and immediately called for an air attack plane and a retardant tanker based in Palmer to assist with aerial suppression while firefighters mobilized a ground attack. Some firefighters hiked into the fire and others used four-wheelers and UTVs for access. Another air tanker based in Fairbanks was called to assist.

Two air tankers made a total of 11 retardant drops to box in the fire and a burnout operation created a buffer between the fire and the retardant lines. By the end of shift, there were approximately 60 personnel working to contain the fire, which was estimated at 42 acres with 40% containment. The fire was declared 100% contained at the end of shift the next day and the estimated size was increased to 56 acres due to better mapping. Crews spent the next few days mopping up the fire.

Lightning Fires

Like clockwork, lightning entered Alaska's wildfire equation on May 30 with the first lightning-caused fires. Approximately 1,900 lightning strikes were recorded in Alaska on May 30 and another 3,000 strikes were recorded on May 31, resulting in dozens of new fires starts across western, southwestern, and interior Alaska.

By June 4, 57 lightning-caused fires were reported in Alaska. Most of those fires were in remote areas in western Alaska and did not generate a response because they were in Limited Management Option areas and did not pose a threat. However, one lightning-caused fire that drew a major response was the Isom Creek Fire (#187), which was ignited on June 5 north of Fairbanks along the Dalton Highway near the Yukon River crossing.

The fire was reported by BLM AFS firefighters during a detection flight following multiple lightning events the previous week. By the time it was reported, the fire was estimated at 80 acres and burning in black spruce and a mixture of hardwood trees. Multiple resources provided an aggressive initial attack, including 16 BLM AFS smokejumpers and multiple suppression aircraft. Initial efforts focused on keeping the fire from encroaching on Native allotments and structures along the Yukon River to the northwest and northeast. Smoke from the fire was visible from the Dalton Highway starting around milepost 46.

Despite two days of aggressive air attack by water-scoopers, air retardant tankers, and helicopters with water buckets, the fire grew from 80 to 1,000 acres on June 6 and crossed the Dalton Highway between mileposts 47-52, south of the Yukon River. The fire did reach the trans-Alaska pipeline but did not do any damage and the Dalton Highway remained open with intermittent delays. The fire grew to more than 1,500 acres by June 7 and the number of personnel assigned increased to more than 100.

A Type 3 incident management organization was ordered on June 8 and more resources, including several crews, were ordered to supplement the 44 personnel working on the fire. Crews built indirect fire lines and conducted burnout operations to remove burnable vegetation ahead of the fire to keep it from moving west toward Native allotments, the Yukon River crossing, and Alyeska Pump Station #6. A structure protection group used boats to assess allotments along the river and possible protection measures to implement ahead of the fire.

The initial stages of the 44-acre Any Creek Fire about 10 miles north of Fairbanks on June 13. (Thomas Krock)

By the time the Type 2 Alaska Incident Management Black Team took command of the fire on June 10, the fire had grown to more than 10,600 acres with 300 personnel assigned. The fire was 10% contained. Over the next two weeks, crews worked to control the western and southern portions of the fire but were unable to secure the eastern edge due to extremely steep terrain. The northern edge of the fire was contained by the Yukon River.

The fire grew by only about 1,500 acres during the Alaska IMT's tenure and crews spent most of their time reinforcing and widening fire lines on the western perimeter along the Dalton Highway and on the southern perimeter. The fire transitioned from the Type 2 Alaska Black IMT to a Type 3 organization on June 22, at which point it was estimated at 12,180 acres and 69% containment. (See more information under, DOF Key to Alaska Incident Management Team Success, below.)

Another lightning-caused fire that drew a significant response was the 44-acre Any Creek Fire about 10 miles north of Fairbanks, which was ignited by lightning on June 13. The fire was located north of Old Murphy Dome Road and about seven miles west of the Elliott Highway. It was located approximately seven miles east of where the Shovel Creek Fire burned in 2019, another lightning-caused fire in the Chatanika River drainage that started June 21, 2019 near Murphy Dome. The Shovel Creek Fire escaped initial attack and eventually became an extremely complex Type 1 incident that burned over 20,000 acres over the course of six weeks and resulted in multiple evacuations.

The Any Creek Fire was only about one mile north of the O'Connor Creek Subdivision and the Fairbanks North Star Borough issued a "Level 2: Set" evacuation order for 15-20 homes in the subdivision. An aggressive initial aerial and ground assault helped corral the fire and keep it from threatening the subdivision. Two air retardant tankers, eight water scoopers, and two helicopters attacked the fire from the air while firefighters on the ground used engines and heavy equipment to build containment lines and keep the fire from spreading.

By Saturday evening, approximately 100 personnel were working to contain the fire, which had grown to an estimated 50 acres. However, early Saturday evening rain, higher relative humidity, and cooler temperatures moved into the area to help moderate fire behavior. More rain and cooler weather the following day allowed firefighters to continue line construction and to lay hose around the entire fire. By the end of shift on Sunday, there were 130 personnel assigned to the fire, which was 10% contained. Crews continued containment for the next eight days to prevent the fire from spreading and benefitted from heavy rain on June 18-20. The fire was declared 100% contained on June 21, though mop-up operations continued for several more days.

Incident Commander Thomas Krock with Fairbanks Area Forestry noted that without the hard work of firefighters and the favorable weather, the Any Creek Fire could have easily become another Shovel Creek Fire.

For the season, there were approximately 87,600 lightning strikes recorded across Alaska, with the highest daily count being 6,600 strikes on June 13. There were almost 20 consecutive days with more than 1,000 lightning strikes recorded during the month of June. The Southern Tanana Zone had the densest concentration of lightning in the state.

Wet, Cool Summer

The slow fire season was due in large part to heavy rainfall that began in mid-June and the lack of any extended heat waves. Fairbanks experienced its wettest 12-month period from August 2019 through July 2020 dating back to 1925. During that period, Fairbanks received 26.20 inches of precipitation (Average annual precipitation, according to U.S. Climate Data is 10.81 inches). Most of the precipitation came in the form of snow in March and April, which contributed to a late start to the fire season, but summer rainfall was also a major player. Rainfall from August 2019 through July 2020 was 162% of the 1981-2010 average. The rain saturated the deeper fuel layers and the duff layer that normally supports fire spread in dry years. Duff is the partially decomposed organic material found beneath the surface that can increase fire intensity when conditions are dry enough.

The central and eastern Interior received the most rainfall, with just over three inches of rain at Fairbanks International Airport in June, another 2.31 inches in July, and 2.12 inches in August. McGrath also received well-above-normal rainfall, with 3.04 inches in June, 1.87 inches in July, and 2.18 inches in August. While Southcentral did not receive nearly as much rain as the Interior, it was enough to temper fire activity. More than three inches of rain fell in August.

In addition to ample rainfall, lack of hot weather also contributed to minimal fire activity and prevented deeper fuels from drying out. During the four-month period of May through August, there were only three days in Fairbanks where the temperatures reached 80 degrees or higher and two of those were in May. The high temperatures in Fairbanks for the summer was 82 degrees on May 10 and 80 degrees on May 11. The only other 80-degree day in Fairbanks was 80 degrees on June 13. There were no 80-degree days recorded in Anchorage or McGrath during that four-month stretch.

Few Holdover Fires

Despite the strong potential for holdover fires based on the duration and depth that fires burned in 2019, there were only four holdovers reported in 2020. Holdover fires, or "zombie fires" to use a phrase coined in 2020, are fires that burned the previous season and smoldered through the winter under the insulating snowpack. Once the snow melts and conditions dry out, these fires re-emerge. Holdover fires are not uncommon in Alaska, given the amount of peat in the soil that is extremely difficult to extinguish. While holdover fires don't typically pose a threat because they are in previously burned areas, they do attract attention from and cause concern for the public.

Smoke from a holdover fire rises from the burn scar of the 2019 Swan Lake Fire on June 25. It was the second holdover from the Swan Lake Fire and one of four detected by the DOF in 2020. A heavy spring snowpack and abundance of rain limited the number of holdovers expected by fire managers. (Chris Anderson)

10 LARGEST FIRE SEASONS ON RECORD

Year	Fires	Acres
2004	701	6,590,140
2015	768	5,111,452
1957	391	5,049,661
1939	200	5,000,000
2005	624	4,649,597
1940	130	4,500,000
1969	685	4,231,820
1941	138	3,654,774
1990	750	3,189,079
2009	516	2,934,608

FIRE ACTIVITY BY PROTECTING AGENCY

Agency	Fires	Acres
AFS	140	45,299.9
STATE	191	135,926.6
USFS	16	26.8
TOTAL	**347**	**181,253.3**

The first holdover of 2020 was from the Deshka Landing Fire near Willow. This fire was first reported in January by snowmachiners who spotted smoke in the Willow Swamp area. DOF received several other reports throughout February and March.

Two Mat-Su Area Forestry firefighters went to the area on snowmachines on March 27 and found more than a dozen hot spots strung together and smoldering well within the interior of the fire perimeter near Rolly Creek in the area known as Willow Swamp. All the hot spots were smoldering in peat and slash and surrounded by three feet of snow.

Wildland fire technicians checked the hot spots again on April 17 and found 11 small hot spots still smoldering and putting up smoke. Due to snow melt, the hot spots had not grown much since they were checked four weeks earlier. A handheld thermal camera measured heat signatures of 123 to 198 degrees. Given deteriorating snow conditions that limited access to the area, the hot spots were monitored by air over the next two weeks. A reconnaissance flight on May 1 found no visible smoke so the fire was put in monitor status.

Two holdover fires from the 167,614-acre Swan Lake Fire were discovered on June 15 and June 25. The first was reported by motorists on the Sterling Highway who spotted smoke and flames on the north side of the road near milepost 66.5. That fire was a 10-foot-by-10-foot hot spot smoldering in the duff. Firefighters extinguished that hot spot in 10 minutes.

Ten days later, motorists reported a second Swan Lake Fire holdover near milepost 68. Four firefighters in a helicopter initially estimated it at two acres and burning in black spruce in the burn scar of the fire in a Full Suppression Protection area. The moderate fire activity with occasional flareups in dead, jack-strawed trees that burned during the Swan Lake Fire and had been blown over. Some of the jack-strawed areas were waist to chest deep, making access extremely difficult.

The helicopter made water drops and a second helicopter with a five-person helitack load arrived from Palmer to assist with water drops and suppression. An eight-person squad from the Yukon Type 2 Initial Attack Crew based in Soldotna was also called to assist and the rest of the 22-person crew was called in the next day. A masticator from the Kenai National Wildlife Refuge was used to cut a path to the fire and remove hazardous trees, providing better and safer access for firefighters, who laid

WILDFIRES BY CAUSE

Cause	ALL Fires	ALL Acres	STATE Fires	STATE Acres	AFS Fires	AFS Acres	USFS Fires	USFS Acres
Campfire	24	7.2	20	3.6	3	3.5	1	0.1
Children	1	0.5	1	0.5	--	--	--	--
Debris Burning	45	87.3	43	86.9	1	0.3	1	0.1
Equipment	25	44	25	4.4	--	--	--	--
Incendiary	2	0.2	2	0.2	--	--	--	--
Lightning	168	180,945.4	37	135,658.4	131	45,287.0	--	--
Miscellaneous	44	162.4	37	153.0	5	9.1	2	0.3
Smoking	7	0.8	7	0.8	--	--	--	--
Undetermined	31	44.8	19	18.5	--	--	12	26.3

ACRES BURNED BY LANDOWNERSHIP

Landowner	Fires	Acres
Alaska Native Claims Act Lands	36	6,741
Borough	6	0.6
Buerau of Indian Affairs	4	116.6
Bureau of Land Management	32	4,871.3
City	6	13.6
Department of Defense	6	1,288.5
National Park Service	11	5,587.5
Other Federal Lands	0	0
Private	98	128.8
State	80	32,211.1
U.S. Fish & Wildlife Service	63	130,279.3
U.S. Forest Service	5	15

**Number of fires reflects land ownership at origin. These are acre totals burned by landowner. Data compiled from fire perimeters.*

Alaska State Fire Crews: Right, top to bottom: Gannett Glacier, Tanana Chiefs Conference, University of Alaska Fairbanks Nanooks, White Mountain.
Left, top to bottom: Yukon, Pioneer Peak

hose around the fire to extinguish hot spots. The crew spent the next two days mopping up the 7.2-acre fire, which was declared controlled at the end of shift on June 27.

The fourth holdover fire was also discovered on June 25 in the 2019 Shovel Creek Fire burn scar northwest of Fairbanks. Mushroom pickers reported the hot spot, about one-quarter of a mile off a side road of Old Murphy Dome Road that leads to a communication tower. Two prevention officers found a 2-foot-by-2-foot hot spot smoldering in the duff and some burned out roots. No flames were present, and the technicians extinguished the hot spot within minutes. The Shovel Creek Fire burned 22,487 acres north of Murphy Dome, about 25 miles northwest of Fairbanks. It prompted evacuation notices for more than 900 homes and burned for six weeks.

Alaska IMT Incident Commander Norm McDonald and former Colorado governor John Hickenlooper, who was elected to U.S. Senate in November, at the Grizzly Creek Fire Incident Command Post in Eagle, Colorado on September 3. (Sunshine Meitzner, Alaska IMT)

DOF Key to Alaska Incident Management Team Success

It was another busy and successful year for Alaska Incident Management Teams (IMT), both in terms of performance and successional planning. Alaska IMTs mobilized four times during the 2020 fire season, once in Alaska and three times on Lower 48 incidents.

More than 400 people signed up to participate on Alaska IMTs in 2020, a record number that included approximately 140 DOF or DOF-sponsored personnel. The DOF continues to have a strong presence and plays a critical role in supporting the state's IMT effort. Both qualified incident commanders, Norm McDonald (T1 and T2) and Ed Sanford (T2), are DOF employees, as are several other members of the command and general staffs. Many other DOF and state emergency firefighters populate the IMT roster in various roles. EFF play an integral role in suppression, overhead, and administration roles.

In addition to mitigating the usual risks, the Alaska IMT had to navigate the COVID-19 pandemic. On two of its three Lower 48 assignments, the IMT flew on a chartered jet from the National Interagency Coordination Center (NICC) to reduce the risk of contracting COVID-19 on commercial travel. On all four assignments, a coordinator oversaw COVID-19 mitigations and worked with agency administrators to ensure protocols were followed. On the Lower 48 incidents, the Alaska IMT required daily temperature checks for team members and anyone entering the incident command post (ICP). Color-coded bracelets were issued to ensure that any symptomatic personnel could be identified and quarantined if necessary. All personnel adhered to CDC recommendations which were emphasized in daily briefings and on signs posted around the ICP. Meetings and briefings were kept as small as possible. Firefighters remained in spike camps, only coming into the ICP to demobilize to prevent large gatherings in one place. Several people worked virtually or at off-campus sites to keep the number of people at ICP to a minimum. Other measures such as touchless food distribution lessened the risk of transmission. There were no positive cases of COVID-19 on any of the Alaska IMTs' four incidents.

This was also the first year for personnel and cooperators to work virtually and communicate among multiple locations via Microsoft Teams calls, Go-To Meeting, and Zoom and to use the new virtual check-in process.

Alaska IMT 2020 Assignments
Isom Creek Fire, Alaska, June 11-22
Team: Alaska Black Type 2 IMT
Incident Commander: Ed Sanford
Jurisdictional Agency: Alaska Fire Service, Upper Yukon Zone

Background: The Isom Creek Fire was detected on June 5 by a recon flight returning from Fort Yukon. Initial attack included three loads of Alaska smokejumpers. The fire grew rapidly June 5-7, eventually crossing the Dalton Highway, which prompted the order of the Alaska Black Type 2 Incident Management Team and other single resource personnel. At that time, the fire had grown to over 10,600 acres, had 300 personnel assigned and was 10% contained. Over the next two weeks, crews worked to control the western and southern portions of the fire but were unable to secure the eastern edge due to extremely steep terrain. The northern edge was contained by the Yukon River.

Values at risk: Dalton Highway, trans-Alaska pipeline, Native allotments, private structures along Yukon River.

Transition: The fire transitioned from the Type 2 Alaska Black IMT to a Type 3 organization on June 22, at which point it was estimated at 12,180 acres and 69% contained.

Notable: The first team fire using the Interagency Resource Ordering Capability (IROC).

Significant challenges:
- Mixed messages regarding COVID-19 testing and isolation requirements for out-of-state resources led to delayed arrivals at work locations.
- Learning curve for using MS Teams illustrated the importance of training prior to mobilization.
- Multiple communication methods caused disconnects at times between personnel at the incident command post in Fairbanks, the forward operating base near the incident, and virtual workers.

Evaluation: The team was sensitive to social concerns and addressed political issues as they arose. The team worked well with cooperators such as Alyeska Pipeline and AKDOT. This fire was located between the Dalton Highway, a primary corridor for many economic interests, and the Yukon Flats National Wildlife Refuge, where land is managed for conservation purposes. The team successfully adjusted to the different styles of firefighting required on these different jurisdictional and adjacent lands. The team addressed BIA's concerns for protecting Native allotments and worked collaboratively with Tanana Chief Conference.

Grizzly Creek Fire, Colorado, August 25-September 9
Team: Alaska Type 1 IMT
Incident Commander: Norm McDonald
Jurisdictional Agency: White River National Forest

Background: The fire, most of which was burning in the White River National Forest, stood at an estimated 32,302 acres and 61% containment, and had 806 personnel assigned when the Alaska IMT assumed command. Fire threats to Interstate 70, which had been shut down

for two weeks, and to adjacent roadways and bridges, railroads, gas and major power infrastructure were less of a concern when the Alaska Team assumed command of the fire. Concerns had shifted to the potential for flooding and debris flows in burned areas in the event of heavy rainfall. The two watersheds that supply the primary water source for the community of Glenwood Springs were threatened by potential debris flow and flooding. Closure orders also remained in effect on both U.S. Forest Service and Bureau of Land Management Lands.

Values at risk: Interstate 70, communities of Glenwood Springs and No Name, power infrastructure

Transition: The fire transitioned from the Type 1 Alaska IMT to a Type 3 organization on September 9, at which point it was estimated at 32,466 acres and 91% contained.

Significant challenges:
- Competition for resources at Planning Level 5 nationally.
- Adjusting to the use of new technologies such as Microsoft Teams and Firenet.
- Finance worked at an off-site location, requiring much longer drives for some personnel.

Evaluation: Complex issues and high values were at risk in a small area and the team did a great job of maintaining focus on priority objectives. There was good communication about safety, risk management, and COVID protocols, and good relationships with partners and stakeholders. As fire containment progressed, the team adjusted priorities and tactics. maintaining a keen focus on political and social concerns. They were proactive in coordinating with California DOT and both sheriffs' departments during the closure of l-70, evacuations, smoke, and the need for information. The public information and community liaison staff adapted to changing conditions and kept the public well informed about what the team was trying to accomplish and why. The media, public, local elected officials, and community leaders expressed appreciation for their efforts.

August Complex, California, September 18 – October 7
Team: Alaska Type 1 IMT
Incident Commander: Norm McDonald
Jurisdictional Agency: Mendocino, Shasta-Trinity, and Six Rivers national forests

Background: A lightning storm August 16-17 ignited several hundred fires in northern California, including those that burned together to form the August Complex. Conditions were ripe for large-fire growth; fuels were dry and little to no rain had fallen in the area since May. Strong winds September 7-8 caused the 50,000-acre Elkhorn Fire to merge into the complex. The fire grew by 275,000 acres on September 8-10 thanks to historic offshore winds. An area command team was assigned to the complex on September 9 and the Alaska IMT assumed management of the north zone of the complex on September 18. The incident was spread across three federal land jurisdictions including the Mendocino, Shasta-Trinity, and Six Rivers national forests. State jurisdictions were protected by Cal Fire. Interagency relations were outstanding and good communication with all parties resulted in resource sharing and support. At more than a million acres, this was the largest wildfire in California history. Size, duration, and historical significance of the incident generated intense interest at the regional and national agency levels. Media interest was relatively light, however, due to the many other large fires burning in California's more populated and higher visibility areas. On October 4, the north zone was split into northwest and northeast zones.

The Alaska Type 1 Incident Management Team at the August Complex Fire in California on October 7. (Sam Harrel, Alaska IMT)

Significant Events: Winds on September 26-27 caused extreme fire behavior and growth that destroyed roughly 100 structures and initiated evacuations of hundreds of residents. The wind event also threatened two of the team's spike camps, forcing personnel to shelter in place at one camp and evacuate from the other.

Transition: The Alaska IMT transitioned to the PNW 2 (Allen) of the northwest zone on October 4, and on October 7 the Alaska IMT transitioned with Great Basin Team 2 (DeMasters) for management of the northeast zone.

Notable: The Alaska IMT overcame a shortage of appropriate resources, historically dry fuels, extreme weather, and an inability to use air support due to poor visibility. The team limited structure losses by placing resources where they were most effective, while providing for the safety of firefighters and the public. The Alaska IMT's decision to extend its tenure contributed to meeting state objectives.

Significant challenges:

- A Critical Incident Stress Management Team was provided to all personnel after the extreme fire behavior on September 27 and 28 when spike camps had to evacuate or shelter in place.
- Although virtual resources were generally an asset, managing them was time consuming.
- Due to insufficient resources, there were many trainees in multiple functional units. While this enabled trainees to gain valuable experience on a complex fire, training added to the workload and the training experience was at times diminished due to lack of time.
- Distance between the incident command post and spike camps reduced face-to-face communications and resulted in significant time on the road, contributing to fatigue. Units used different tactics to reduce driving time. Splitting the fire into two zones with another IMT enabled them to share resources and ease the burden of managing the fire.
- Following COVID-19 precautions required constant vigilance.

Evaluation: It was a tough, complex, monster of an assignment and although the team never really had the resources it needed, it worked with what it had and kept focused on safety for firefighters and the public. Despite the constraints, they maintained a positive attitude and performed at a very high level, serving the needs of the host agencies, stakeholders, and the

Alaska Type 2 Black IMT Incident Commander Ed Sanford during a briefing on the Creek Fire in California on November 11. (Tim Mowry, Alaska IMT)

public. They were innovative and continued to promote practices and techniques that make them and the entire wildland fire community more effective and efficient.

Creek Fire, California, October 31 – November 13
Team: Alaska Black Type 2 IMT
Incident Commander: Ed Sanford
Jurisdictional Agency: Sierra National Forest

Background: The Creek Fire started on September 4 and over two months grew to be the largest single incident (not a complex fire) in California history and the largest recorded fire on the Sierra National Forest. The fire destroyed more than 500 residences and drew national media. The Alaska Black Incident Management Team was the seventh IMT to manage the fire and it was estimated at 380,002 acres with 70% containment and 986 personnel when the Alaska Team took command on October 31. The uncontained portion of the fire was in wilderness areas and mostly confined by natural barriers.

Significant Events: On November 6 to 8, heavy rain moved through the area with snow at higher elevations. The moisture and cold weather significantly slowed fire spread and slowed or stopped repair operations in some areas. The snow created dangerous driving conditions at higher elevations and were a major safety concern.

Transition: The Alaska IMT transferred command of the fire to California Interagency Incident Management Team 10 on November 13. At that time, the fire was estimated at 379,802 acres with 455 personnel assigned and containment at 70%.

Notable successes:

- Given the size of the fire and limited fire activity, the Alaska IMT focused on suppression repair. The team constructed approximately 600 miles of fire line and repaired over 450 miles of the 500 miles of fire line that needed repair.
- Rostering a long team in a short time late in the season required coordination with the Alaska Wildland Coordinating Group, Alaska Operations Committee, National Multiagency Coordinating Group, and USFS Sierra National Forest to determine scope of mission. Coordination with the outgoing California Team 1 and early access to the transition plan improved operations.
- Deciding to monitor the fire with plans to act if it threatened the community of Mammoth Lakes was justified due to the time of year, availability of resources, and high probability of success using natural barriers.
- Assigning an agency representative, COVID-19 advisor, and agency advocate was critical to team success. USFS secured isolation quarters, facilitated testing payments, and followed with a post isolation program.
- The Alaska IMT organized resources and staff appropriate for the time of year and conditions. It lowered daily costs from $1.2 million to a target of $800,000 reduced personnel from 1000+ to 300, and demolbilized aircraft, heavy equipment, and crews.

Significant challenges:

- The incident meteorologist's forecast of rain and snow for November 6-8 allowed the IMT to prepare and turn the focus from suppression to repair. The Sierra National Forest and the Alaska IMT coordinated to clarify guidelines for repair with emphasis on minimum impact suppression tactics in the John Muir and Ansel Adams wilderness areas; avoidance of cultural and resource values; and minimizing camps, helispots, and visual impacts. A Burned Area Response Team will continue to mitigate post-fire damages and/or threats.
- Driving was a major concern, especially with heavy equipment, and conditions had to be evaluated daily. This was a large fire with three camps, four large divisions, and four groups spread over the fire area and drive times ranged from 45 minutes to two hours. Power and electric companies, and contractors doing post-fire clean-up and road repair were also operating in the area, which created high traffic flow on narrow, winding, mountainous roads.
- There was lack of compliance with COVID-19 requirements in most spike and remote camps at the beginning of the tour. However, COVID-19 monitors and the Human Resource Specialist were able to obtain up to 100% compliance during briefings and meetings.

Evaluation: The Alaska Type 2 Black Team exceeded expectations and came to the incident with clear focus, set to meet any objectives given to them, provide sound and rational strategies and clearly ensured that any IMT organization following them was set up for success and seamless transition. They focused on firefighter and public safety and COVID-19 protocols were clearly identified and reinforced. The team did an outstanding job, were professional and courteous, and demonstrated a depth of expertise not common with Type 2 teams.

Siberian Wildfire Smoke Invades Alaska

Smoke from Alaska wildfires did not impact communities in 2020 but smoke from Siberian wildfires did. An unprecedented summer heat wave in eastern Siberia that saw the temperature climb above 100 degrees resulted in hundreds of wildfires that burned approximately 49 million acres, including 27 million acres of forest.

Due to westerly winds, smoke from those fires infiltrated Alaska twice in July. On July 2, the Division of Forestry information office fielded several calls from residents in Southcentral Alaska reporting a significant smoke haze in the region. People also reported smelling smoke. Because there were no active fires burning in Alaska at the time, the National Weather Service confirmed it was smoke from fires burning in eastern Siberia being pushed into Alaska and Canada. It was pronounced enough to draw the attention of many Alaskans, as well as state, national, and international media outlets.

On July 30, the situation repeated but was even more pronounced. Smoke was noticeable in the northern reaches of the state as well as Southcentral, creating a smoky haze in the Tanana Valley as far east as Tok.

Social media posts on the DOF Facebook page for both Siberian smoke events attracted considerable public attention and generated multiple calls to the Alaska Interagency Wildland Fire Information Office on Fort Wainwright in Fairbanks.

Firefighters Help Prepare Nenana for Flooding

While heavy rain in mid-June put a major damper on the 2020 wildfire season throughout much of the Interior, it also caused rivers to rise dramatically and prompted flood warnings in many areas. In Nenana, located on the banks of the Tanana River, 55 miles south of Fairbanks, the river was predicted to reach flood stage.

When Nenana Volunteer Fire Department/EMS Fire Chief Joe Forness called for help filling sandbags to prepare the small town for potential flooding, wildland firefighters at the DOF Fairbanks station rose to the occasion. Forness said the National Weather Service predicted a flood like the 2008 flood in which sandbags were paramount in reducing damage.

Approximately 40 DOF firefighters spent five hours on June 25 filling hundreds of sandbags. The entire 22-person White Mountain fire crew and two dozen wildland fire technicians filled, tied, and hauled sandbags that could be used to protect low-lying homes and businesses if there was a flood.

Firefighters, who used the work as a substitute for their daily physical training, filled around 2,000 sandbags with four truckloads of sand that the City of Nenana had dredged from the Tanana River. Forness said that the city would have been able to fill only a fraction of the bags on its own. The sandbags were hauled to a nearby warehouse and stored in the event they were needed for this or a future flood.

Fire Program Adapts to COVID-19 Challenges

The COVID-19 pandemic hit in mid-March, just a few weeks prior to the start of Alaska's fire season. COVID-19 had an immediate and major impact on the DOF and other wildland fire management agencies in Alaska, forcing changes to preparedness and suppression tactics. Many training and fire line refresher classes were canceled or switched to a virtual format. The National Wildfire Coordinating Group extended 2019 Red Card qualifications through 2020

Members of the White Mountain Fire Crew fill sandbags in Nenana on June 25 to help the town 55 miles south of Fairbanks prepare for possible flooding. (Tim Mowry)

and no pack tests were required to maintain Red Cards. Some DOF Areas, however, did hold in-person Red Card classes following U.S. Centers for Disease Control (CDC) guidelines.

DOF stood up a COVID-19 Response Team to ensure good communication regarding mitigation and best practices. Interagency task groups developed section-specific best practices for the operations, logistics, information and other sections. State and federal fire managers worked with a national area command team to develop a Wildfire Response Plan for the Alaska Geographic Coordination Center. Because Alaska has one of the earliest fire seasons in the country, fire managers had to react quickly to develop a strategy to mitigate COVID-19 risks. Of primary concern for Alaska was the availability of Lower 48 resources, which the DOF relies heavily on during busy fire seasons. In 2019, for example, Alaska imported more than 5,000 firefighting personnel from the Lower 48, including more than 100 crews. Due to the uncertainty about bringing Lower 48 resources to Alaska, the division implemented a burn permit suspension on May 1 to reduce human-caused wildfires. That suspension remained in place until a plan was worked out to bring resources up from the Lower 48.

Fire & Aviation Chief Norm McDonald worked closely with the Alaska Department of Health and Social Services in April and May to develop a plan to safely transport firefighting personnel from the Lower 48 should the need arise. DOF contracted with vendors to test incoming personnel at the Anchorage and Fairbanks airports. They were then quarantined until their results were available. Once negative test results were returned, personnel were able to go into the field. For the season, DOF contractors conducted nearly 600 COVID-19 tests with only two positive test results, neither of which were related to a fire.

DOF's area offices also developed protocols to prevent the spread of COVID. These included adhering to guidelines from the CDC for social distancing, washing hands and wearing masks; setting up teleworking agreements for personnel who could work from home; daily screening and temperature checks for employees upon their arrival at their station; closing area offices to the public; and regular sanitizing of surfaces, including offices, engines, and helicopters. Signs were posted to reinforce the guidelines. In addition, each Area established a Continuity of Operations Plan that laid out how Areas would continue to operate if the office and dispatch center had to be shut down.

State fire warehouses in Fairbanks and Palmer had to scramble and improvise to procure sufficient personal protective equipment, such as face masks, hand sanitizer, and nitrile gloves, for firefighters and support personnel. All firefighting personnel that traveled to the Lower 48 were given a three-day PPE kit when they left the state.

All firefighting personnel returning to Alaska from Lower 48 assignments were required to have a negative COVID test before returning to Alaska or be tested upon their arrival. Firefighters adhered to state mandates, which required a second negative test 7-10 days after arriving in Alaska or a quarantine period of 14 days.

The state was fortunate that the fire season was slow and there was no need for large numbers of resources from the Lower 48. Alaska imported only about 350 personnel, all of whom were tested for COVID upon their arrival and no one tested positive. Likewise, thanks to timely safety information and vigilance, the division avoided any outbreaks at area offices, in fire camps, among crews, or in warehouses.

Saw boss Tom Enzi of the Pioneer Peak Hotshot Crew cuts down a fire-weakened, hazard tree on the Trumpeter Fire on May 1. (Pioneer Peak Hotshot Crew)

It is likely that DOF will have to continue to deal with COVID-19 during the 2021 fire season, but the division is preparing and will be ready to accomplish its mission of protecting the lives and property of Alaskans, the state's natural resources and its infrastructure.

2020 Wildland Fire Season Summary

- A total of 347 fires burned an estimated 181,253 acres statewide -- the fewest acres burned since 2008 and the lowest number of fires recorded since 2006.
- There were 179 human-caused fires compared to 168 lightning-caused fires. Lightning-caused fires burned 181,145 acres, while human-caused fires burned only 308 acres.
- Most of the acreage burned in Alaska was in the DOF's Southwest (McGrath) Area, with 29 fires burning 135,589 acres. In Alaska Fire Service zones, the Upper Yukon Zone had the most acreage burned with 32 fires burning 22,506 acres.
- Of the 21 crew orders, 69% were filled with Alaska crews.
- Alaska wildland fire management agencies imported nine crews and approximately 350 total personnel from the Lower 48 to assist on fires in 2020. By comparison, 5,000 firefighting personnel were brought from the Lower 48 in 2019.
- Fifty-six large fires, defined as fires of 100 acres or more, burned 179,256 acres.
- The largest fire was the lightning-caused 54,099-acre Ingakslugwat Hills Fire in the Southwest (McGrath) Area, which accounted for more than one-quarter of the total acreage burned statewide. The fire was in a Limited Management Option area and no suppression action was taken because no values were threatened.
- There was only one project fire in Alaska in 2020, the 12,139-acre Isom Creek Fire located about 100 miles north of Fairbanks along the Dalton Highway. The Alaska Type 2 Black Incident Management Team was mobilized to the fire on June 11.
- Besides the Southwest Area, the Mat-Su Area Forestry office was the only Area to break the 100-acre mark in acres burning 2020 with 218 acres, followed by Fairbanks with 54 acres, Delta with 41 acres, Kenai/Kodiak with 22 acres, and Tok and Copper River with one acre each.
- The Mat-Su Area had the most fires among DOF Area offices with 59, followed by Kenai/Kodiak with 48, Southwest with 28, Fairbanks with 23, Tok with 12, Delta with 10, and Copper River with four.
- The first wildfire response in 2020 was on April 9 on the East Hill Fire near Homer on the Kenai Peninsula. Firefighters from the Homer Volunteer Fire Department and Kenai/Kodiak Area Forestry Office were called to extinguish a small grass fire on East Hill Road that was started by a discarded cigarette butt.
- The final wildfire response was on October 13 on the Pioneer Peak Fire in the Mat-Su Area. Two Mat-Su Area wildland fire and resource technicians responded to a small, human-caused fire at the 1,000-foot level of Pioneer Peak. Due to safety concerns with accessing the fire in steep, rugged terrain and anticipated winter weather moving in, the fire was put in monitor status on October 15.

- DOF prevention staff issued over 15,000 small-scale burn permits and 158 large-scale permits. Prevention staff also undertook over 250 prevention/compliance actions and issued 18 written warnings. No civil or criminal offense citations were issued.
- Forty-five loads of smokejumpers were ordered for fires in Alaska to provide initial attack on 41 incidents.
- The first retardant of the season was used on May 10 on the Murray Fire, a small wildfire that threatened cabins in the Caribou Hills near Ninilchik on the Kenai Peninsula.
- Approximately 87,600 lightning strikes were recorded across Alaska. The highest daily count was 6,600 on June 13. There were almost 20 consecutive days in June with more than 1,000 lightning strikes recorded. The Southern Tanana Zone had the densest concentration of lightning in the state.
- The National Weather Service issued Red Flag Warnings in Alaska on 16 days, mostly on hot, dry, windy days in May and June. There were two Red Flag Warnings for lightning, one in Southwest Alaska and one in the Copper River area.
- DOF's six contract helicopters flew a total of 183.2 hours during the season, nearly 70% of which (124.1 hours) was on initial attack. The Southwest Area helicopter had the most total flight hours with 47.8 hours, followed by Mat-Su (32.3), Fairbanks (30.8) and Kenai (30.4)
- Aircraft used on a call-when-needed basis hired by DOF flew a total of 54.7 hours at a total cost of $166,974.
- There were 19 staffed fires, with fires staffed for 47 consecutive days from May 31 to July 16. The highest number of fires staffed on one day was eight on June 14-16.
- DOF contract and call-when-needed helicopters dropped 199,800 gallons of water on 17 different fires. The Kenai/Kodiak Area used the most water drops with 45,900 gallons on four fires, followed by the Mat-Su Area with 42,600 gallons on seven fires and Fairbanks Area with 33,000 gallons on one fire.
- DOF's two contract air tankers worked 88 flight hours and dropped a total of 104,168 gallons of retardant on seven fires. These air tankers flew 267 hours in the Lower 48 and dropped 482,460 acres on 26 different fires.
- Contractors for the DOF conducted a total of 549 COVID-19 tests on Alaska and Lower 48 firefighting personnel. There were only two positive tests, and neither was fire related.

AVIATION PROGRAM

The 2020 fire season and flight activity were quite slow. There was minimal initial attack flight activity and no real extended attack fires, which was beneficial in a year challenged by COVID-19. Aviation Program Manager Steve Elwell thanked staff members for their excellent work and professionalism throughout this fire season.

The two turbine Commanders contributed over 200 hours of flight time in Alaska and an additional 200 hours of flight time helping Interagency partners in the Lower 48. The USFS Federal Excess Property Program DHC-2 Beaver flew approximately 100 hours in support of fire missions.

This fire season was the third year of a five-year contract for two of the Convair 580, type 2 airtankers supplied by Conair of Abbotsford, BC. One was based in Palmer and the other at the Ladd Army Air Base in Fairbanks.

Tanker 42 drops fire retardant on one edge of the Murray Fire near Ninilchik on May 10. It was the first retardant drop of the season in Alaska. (Chris Scudder)

In support of retardant airtanker operations, a logistical move was made to bring the airtanker base from Delta Junction to a new leased property at Fairbanks International Airport. Being set up and operational this summer was a huge step forward in airtanker base operations. Soloy Helicopters provided three long-term contracted type 2 helicopters, located in Palmer, Fairbanks and Soldotna. Temsco Helicopters provided one type 2 helicopter for Delta Junction, which was a new contract. Pathfinder Helicopters provided two type 2 helicopters for McGrath and Tok. These rotorcrafts provided platforms for both initial attack Helitack and logistical support.

The aviation program saw one change in pilot and administrative staff when Mark Jordan joined the division as logistics pilot.

On November 1, Doug Burts, DOF's Chief Pilot, accepted a 120-day assignment in New South Wales, Australia as a contract Bird Dog pilot while on seasonal leave from DOF. Australia has similar Bird Dog planes to the state's aircraft and are also contracting with three tankers from the lower 48. The knowledge and experience he gains will add significantly to the division's program.

DOF Plane Crash in Aniak

Four Division of Forestry employees were seriously injured in a plane crash near the western Alaska village of Aniak on May 28, in one of the scariest moments in agency history. The Aero Commander 500 Shrike, owned by DOF, crashed into a gravel pit pond near the Aniak airport shortly after takeoff. The four people on board, including the pilot, all suffered serious but non-life-threatening injuries.

The employees were pilot Mark Jordan of Eagle River, and emergency firefighters Albert Simon of Hooper Bay, Craig Friday of Hooper Bay, and Kelly Kehlenbach of Aniak. The plane was en route to McGrath where the firefighters were to be outfitted to support initial attack responses at the Kenai/Kodiak Area forestry office in Soldotna.

Jordan, Simon, and Kehlenbach were hospitalized with serious injuries while Friday was treated and released the day after the crash. The injuries to Jordan and Simon required multiple surgeries, but all four were expected to recover.

Division of Forestry Director Chris Maisch said the outcome could have been much worse. He praised Jordan for his ability to bring the plane down in the gravel pit pond to lessen the crash impact. Had the plane landed on the ground or in the deeper, swifter Kuskokwim River, the crash could have been fatal.

Five young Aniak residents played an integral role in the rescue prior to the arrival of Alaska State Troopers and local emergency responders. Several residents went into the water to help retrieve the injured individuals from the plane after it crashed.

Thirteen-year-old Dylan Nicholson and four of his friends, Trevor Morgan, 17; Mason Dallmann, 17; A.J. Simeon, 19; and Skye Morgan, 18, were the first ones on scene at the crash. They had driven by the gravel pit earlier and were on their way back to town when they looked back and noticed the plane in the water. They were confused, Nicholson said, because the plane had not been there when they initially passed by the pond. They had not seen or heard the crash and didn't know what happened. When they saw two guys come out of the plane, Nicholson called his aunt, Lenora Nicholson, who works as a dispatcher for Alaska State Troopers in Aniak, to report the crash and told her to bring medic trucks.

The people who climbed out of the plane were Friday and Kehlenbach. The teens helped them out of the water, which was 4 to 5 feet deep, and into Morgan's truck to transport them to the clinic. Dallmann, meanwhile, waded out to the plane and remained with Jordan and Simon until more help arrived. He was in the frigid water for 30 minutes.

Ricky Ciletti, who works for the Department of Transportation in Aniak, arrived on scene after Friday and Kehlenbach had been loaded into the truck and were being transported to the clinic. By that time, workers from the Yukon Kuskokwim Health Corporation's Aniak clinic had arrived and were working to extract Simon and Jordan from the plane. When they called for backboards, Ciletti borrowed a four-wheeler and went to pick up two. Troopers had arrived on scene at that point and used a boat to transport Jordan and Simon to shore. Jordan was loaded into an ambulance while Ciletti transported Simon to the clinic in the back of his DOT truck.

Ciletti praised the response of the teens who transported Friday and Kellenbach to the clinic and those who remained with the other two injured forestry employees until help arrived. The situation could have been

Top: The Aero Commander 500 Shrike that crashed in a gravel pit pond in Aniak on May 28, injuring four DOF employees.
Bottom: A recovery team retrieves the DOF plane that crashed in Aniak.

much worse, he said, as the water dropped off quite a bit by the tail of the plane.

Nicholson's mother, Mary Turner, was also proud of the way her son and his friends responded to what was a frightening situation. As a teenager herself, Turner was a member of the Aniak Volunteer Fire Department's Dragon Slayers, a group of teenagers who assisted the fire department on EMS and fire calls.

Aniak City Councilman David Mattson, who arrived at the crash scene when the rescue was in progress, also called the teens and others who assisted in the rescue heroes. The city honored the young rescuers in an official ceremony later in the summer.

State Forestry Director Maisch praised the efforts and courage of those involved in the rescue effort. "The Division of Forestry would like to express our deepest gratitude to all the first responders, good Samaritan civilians, and state workers who responded to this incident," Maisch said. "I want to especially thank the young men and woman who played a key role in quickly requesting additional assistance and their personal efforts to help our employees injured in the incident. I'm certain their actions were key to the outcome and I can only imagine that their presence in the water and on shore brought great comfort to Mark and Albert as they were waiting for additional help."

The Division of Forestry sent a recovery team that included divers to Aniak to retrieve the plane from the water and move it to the Aniak airport where it was sold to a Palmer-based aircraft salvage company in October. State Forestry is working to acquire a replacement aircraft, but that likely won't happen by the time fire season starts in 2021.

Safety Program

The safety of firefighters and the public is the number one priority for the Fire & Aviation Program. The mission is to mitigate the risks related to, responding to, and suppressing wildland fires while minimizing the damage to homes, property, infrastructure, and natural resources. COVID-19 added to this challenge in 2020 and the DOF Safety Office worked closely with the Alaska Fire Medic Program to address COVID-19 issues throughout the season.

Despite the slow fire season, some serious safety issues surfaced and the DOF Safety Office is working to address the following issues:

Aviation Accidents/Mishaps

The crash of the DOF Aero Commander on May 28 near Aniak was the most serious of three fuel-related incidents in recent years and all three involved aircraft being fueled with jet fuel instead of Avgas. To prevent future fuel-related problems, the DOF Safety Office and Aviation staff will conduct a comprehensive review of the current aviation fueling program, covering all DOF facilities with fixed fueling tanks and vendor delivered fuel services. Classes on fueling will be held for all personnel in aviation-related positions, especially those involved with fueling operations.

On the federal side, there were two Alaskan accidents and one incident involving AT-802A Air Tractor Fire Boss aircraft contracted by the BLM Alaska Fire Service from Dauntless Air Inc. The first accident occurred on May 31 when the aircraft struck terrain as it exited a water

scoop but was able to land safely at the Unalakleet airport. It was categorized as an accident due to repair expenses. The second Fire Boss accident was on the Birch Creek Fire on July 14 when the aircraft ran up on the bank during a water scoop. The pilot was not injured, and the plane had minor damage to a wing that hit a tree.

The one incident occurred on the Isom Creek Fire on June 7. The aircraft experienced an uncommanded right turn during a water scoop, prompting the pilot to cut power and jettison the load of water. The plane drifted onto a floating vegetative mat and was not damaged.
The Birch Creek Fire accident triggered a standdown of AFS's four Fire Boss aircraft. However, it was lifted after investigators determined that the events were caused by an individual aircraft's behavior and was not a concern with the rest of the Fire Boss fleet.

Helispot Burn-over
The DOF Safety Office is also concerned about the declining experience levels on Area helitack crews. A fire has burned over gear at DOF helicopter landing zones twice in the past four years, including one on the Shaw Creek Fire in the Delta Area in 2020. Fortunately, the crew made it to a safety zone and only their gear was lost.

In both incidents, helicopter landing zones were located in areas with significant vegetative fuel between the fire and the landing zone and passing thunder cells contributed to the rapid spread of fire toward the crews, the landing zones, and gear. These instances illustrate a need for helicopter managers to consult incident commanders, who are responsible for the safety of firefighters, when determining a safe landing zone.

DOF has been challenged in recruiting and retaining employees for the past several years. This challenge and the two helispot incidents raise concerns that DOF Safety Office Tom Greiling, Rotor Wing Aviation Manager Greg Scully, and Area Offices will address prior to the 2021 fire season.

Usual Injuries
The 2020 season had its normal assortment of injuries due to the rigors of wildland firefighting and the training required to accomplish the mission. Safety data for the 2016 through 2020 fire seasons shows that the most common injuries are exertion, sprains, strains, and hyper-extension associated with physical training. There were 53 Workers' Comp claims in 2020, resulting in 166 lost workdays.

The competitive nature of wildland firefighters may serve them well on the fire line but can result in unnecessary injuries during physical training and lost work time. The Safety Office will develop presentations on preventing training injuries and the need for firefighters who take a break from training during the off season to ease back into the strenuous fire season program to avoid injuries.

Safetyhub Training Platform
The Safety Office used Safetyhub, a virtual safety-training platform for DOF employees, for the second season in 2020. Although it was implemented in 2019, this was the first year in which nearly 100% of DOFs employees, more than 300, were entered into the platform. Safetyhub enables the Safety Office to reach staff statewide with a consistent curriculum and

allows employees to work on their own schedules. The Safety Office can track employees' progress and send reminders when training assignments are due.

Safetyhub proved invaluable in allowing training to continue statewide during the COVID-19 pandemic. It also greatly reduced the time, travel, and risk for the DOF Safety Officer to drive hundreds of miles to hold trainings in Area Offices. Former Assistant Training Officer Carrie Hale assisted the Safety Office in improving training modules that will improve performance and participation in Safetyhub in 2021.

DOF Safety Working Group
The Safety Office will create a safety working group to begin work in the 2021 fire season. The group will include representatives from key sections statewide such as Aviation, Fire Operations, Logistics and Transportation, Dispatch, Prevention, and others who want to weigh in on safety issues.

Safety Officer Tom Greiling will lead the group in regularly scheduled meetings and draft standard operating procedures. The group will identify other groups or committees to interact with such as the Equipment and Operations committees.

The Safety Group will promote consistency in safe workplace practices, encourage safety-related input, and discuss programs, equipment purchasing, and new policies and procedures. It will seek participation from all DOF employees to meet Occupational Safety and Health Administration safety compliance requirements and maintain optimum safety for employees.

Alaska Fire Medic Program
Despite the slow fire season and the challenge of COVID-19, the Alaska Fire Medic Program enjoyed another successful season, with 40 medics enrolled in the program – 26 in Fairbanks and 14 in Palmer. Five fires in Alaska ordered a total of 12 fire medics and a few were also deployed to fires in the Lower 48.

Due to COVID-19 and the need for social distancing, there were very few patient contacts and the program used a Medic Assist Call Center to take questions related to medical issues, including COVID symptoms, from firefighters in the field.

Alaska Fire Medics trained all sponsored crews in infection control measures for COVID-19 and protocols for safe medical treatments. Medics Connie Steckel and Evan Sterling produced a video explaining the coronavirus, proper hand washing, and the use of personal protective equipment. The video, which was circulated to DOF staff and placed on the DOF YouTube channel for the public, received national recognition.

Palmer EFF Medic Coordinator Lezelda Fiebig, who served as the coordinator for medics south of the Alaska Range, accepted a new job with the Copper River Native Association. Lezelda handled this job extremely well for the past six years and will be missed. DOF will hire a long-term non-perm fire medic coordinator to replace Fiebig for the 2021 fire season.

STATE FIRE SUPPORT

State Fire Warehouse

The warehouse supplied the cache van for the Isom Fire, the only team fire this season. It also supported DOF Area caches, extended attack fires, and some Type 3 incidents. The Palmer Warehouse was instrumental in the mobilization of the Incident Management Team and crews to Lower 48 fires.

Staff spent March, April, and May locating sufficient supplies to protect employees from COVID-19 and to support anticipated fires. Only GSA allowed bulk ordering, and it could not deliver until June. The warehouse ordered $170,000 worth of supplies from 52 different vendors. Because AFS was slow to get sufficient COVID-19 supplies, DOF anticipated the need to support of all staffed fires through May. It also brought in 50 more pallets of MRE's to ensure the division could function through transportation and border shutdowns.

Twelve warehouse and transportation employees accepted multiple Lower 48 assignments totaling 51 weeks. An additional 21 weeks of work time was lost to travel quarantines. The State Fire Warehouse compound in Fairbanks finished its security measures when security gate and fencing installation was completed in August.

Firefighter Property Program

The Firefighter Property Program (FFP) is a Department of Defense program that offers excess property to fire suppression, fire prevention, and related emergency service agencies. The program is managed by the U.S. Forest Service in cooperation of state forestry agencies. Prior to March, two local fire departments obtained equipment and supplies. Butte Fire and Rescue received a Type 6 engine and other supplies such as toolboxes. Houston Fire Department received a Polaris Ranger ATV and an UTV trailer. Since March, due to COVID 19, neither the division nor fire departments have acquired FPP equipment or supplies.

Communications

The Division of Forestry's communications staff kept up with all the normal tasks and equipment updates despite the COVID-19 challenges. DOF owns over 1,000 handheld, vehicle-mounted, and aircraft-mounted radios that are used on the statewide Alaska Land Mobile Radio (ALMR) system, DOF specific repeaters, and on all incidents in Alaska and in the Lower 48 where DOF firefighters are assigned. Communications Technician Timmy Soliday has done an excellent job meeting radio programming and repair needs.

The division and partners at the Department of Military and Veterans Affairs Public Safety Communications System (State Radio Shop) and the BLM Alaska Fire Service Radio Shop upgraded 12 of the 19 repeaters and associated control points in 2020. The northernmost repeater is 600 miles from the farthest south repeater with the same distance between the farthest east and west repeaters, a huge coverage area. DOF continues the process to convert all repeaters to digital for better coverage, and all but seven were converted to digital in 2020. Each project can take multiple weeks, so it is a time-consuming task. DOF also maintains 15 radio

DOF secured this Type 6 engine and other supplies for Butte Fire and Rescue through the federal Firefighter Property Program, which provides excess property to emergency services agencies.

consoles in dispatch offices from Fairbanks to Soldotna to Tok to McGrath. This year, equipment at the Valdez-Copper River Area office was updated.

As it does every year, the DOF communications shop coordinated radio programing with federal agencies and fire departments in boroughs and unincorporated areas, for the yearly re-program. This tedious task is essential to simplify communications for firefighters and other incident personnel. The work went smoothly in 2020.

DOF also participated in the ALMR User Committee rewrite of the statewide common channel plan, for all radios on ALMR and currently in statewide emergency response plans. This project has taken several years but could simplify communications on emerging incidents.

Switching DOF cellular phones and data to FirstNet in 2020 was a great success and proved very useful for the division. A Cellular-on Light Truck (self-contained total communications system) was deployed to the Isom Creek Fire north of Fairbanks to improve cellular connectivity. Many phones and other devices were also deployed on Lower 48 incidents. Switching all DOF's AT&T devices to FirstNet resulted in a significant cost savings to the state.

Interagency Resource Ordering Capability

The new Interagency Resource Ordering Capability (IROC) is a dynamic, flexible, and scalable application that aligns with interagency business needs for resource ordering for all hazard incidents. IROC is web-based and supports both PCs and mobile devices. The Resource Ordering Status System (ROSS) was turned off on March 5 and the transition from one complex software system to another began. IROC provides the dispatch community with a fast and stable system that works well even during peak activity. It also supports a simple reporting user interface. Staff are working to establish full capability.

UAA Mobilization Center

Despite COVID-19 concerns, the DOF was able to use the University of Alaska Anchorage campus to mobilize and demobilize three emergency firefighting crews that were ordered for Lower 48 assignments in August. A jet from the National Interagency Coordination Center picked up the Chevak, Hooper Bay, and Upper Tanana 2 crews at the Ted Stevens International Airport in Anchorage on August 28. The crews were housed and fed at the UAA mobilization center prior to their departure and on their return to Alaska on September 12.

DOF appreciated the assistance of UAA's Tina Veldcamp and Cindy Marshall in opening the UAA center. The university was very accommodating, despite the pandemic and school being in session. Matt Little Dog oversaw the sack lunches and hot meals that were provided.
At the request of the villages in which crew members lived, crews were required to take a COVID-19 test upon their arrival in Alaska before returning to their home villages, in addition to a test they took prior to flying back to Alaska. DOF worked with UAA to test the three crews at the UAA mobilization center.

Fire Support Staff

Wildland Fire Dispatcher Liz Wallace Wins National Award

Wildland Fire Dispatcher Liz Wallace was awarded the 2019 National Excellence in Dispatching Award by the National Interagency Coordination Center (NICC) in Boise, Idaho. Wallace, a dispatcher for the Fairbanks Area station, had been named Alaska Dispatcher of the Year, which qualified her as one of 10 dispatchers from geographic area coordination centers around the country to be eligible for the national award.

Liz Wallace stands with DOF State Director Chris Maisch, left, and Alaska Interagency Coordination Center Manager Ray Crowe, right, on June 11. Liz holds the golden teletype trophy and flame-shaped glass sculpture she was awarded for being named the 2019 National Dispatcher of the Year by the National Interagency Coordination Center (Tim Mowry)

Wallace is the first DOF dispatcher to win the national award and only the third Alaska wildland fire dispatcher to win since the program began in 1988. The others, Dave Kirk in 1989 and Dave Hendren in 2001, both worked for the Alaska Interagency Coordination Center (AICC).

Wallace began working as a dispatcher for DOF in 2015, and has since taken on increasing responsibility, climbing the dispatch ladder to become an initial attack (IA) dispatcher in 2017. "As an IA dispatcher, (Wallace's) ability to remain calm in high-stress situations through fluctuating activity levels is one of her biggest attributes," her nomination said. "Her ability to do so with a smile on her face while maintaining a positive attitude and sense of humor at all times makes her a perfect fit for the stressful and demanding job that is an initial attack dispatcher."

Wallace received a "Golden Teletype" trophy for the state award. For the national award, she received a flame-shaped glass sculpture emblazoned with the words, "In recognition of superior performance and contributions to the dispatch community." Her name was also engraved on a plaque hung at the NICC Dispatch Center in Boise.

AICC Manager Ray Crowe presented the national award to Wallace during a small ceremony held outside at the Fairbanks Area Dispatch Center. They were joined online through Zoom by NICC Dispatch Center Manager Jarrod Simontacchi, NICC Deputy Dispatch Center Manager Sean Peterson, and Alaska Division of Forestry Fire and Aviation Program Manager Norm McDonald. A small group of Fairbanks station staff also attended in person, all wearing face masks to comply with COVID-19 protocols.

Crowe, who presented the state award to Wallace, lured her to the award presentation by telling her Simontacchi and Peterson were simply "Zooming-in" to congratulate her on her state award. She was flabbergasted to learn she had won the national award, as well. "I'm almost embarrassed," Wallace said. "It's crazy because there are so many awesome dispatchers in Alaska and nationally, and we all work together. It's really humbling."

McDonald said the quality of Wallace's work was highlighted during the Shovel Creek Fire that burned 22,487 acres just outside of Fairbanks in 2019. "We witnessed all the hard work that Liz and all of Fairbanks dispatch did last year from the ground level," McDonald said.

Division of Forestry Director Chris Maisch, who also attended the ceremony, said "We have a division full of talented people who do great work. It's always nice to see those people recognized." Maisch acknowledged the impact COVID-19 had on the ceremony – everyone wearing face masks and no hand shaking or hugging. "I wish we could celebrate a little more than we can now," he said.

Jack Hoch

Jack Hoch– 25 Years of Service

Jack has worked for Forestry in Fairbanks for 37 seasons. He started as an emergency firefighter at the Northern Region Warehouse in 1984 and worked in all aspects of fire support for seven seasons. In 1991 he was hired as a non-perm programmer/analyst for the Tok River fire FEMA audit. Jack worked two years for the warehouse to develop the initial inventory tracking program to make it easier to audit future project fires. In 1993 Jack was hired as a Local 71, non-perm, stocks and parts at the Fairbanks Warehouse where he became a permanent employee in April 1995. Upon Gail Kaufman-Lindh's retirement, Jack was promoted to Assistant Manager of the State Fire Warehouse in 1998. He was officially hired for his current position, State Fire Warehouse Manager, in 2004 after acting in the role in 2003 while Bill Simonsma was on hiatus.

David Parsley

David Parsley – 20 Years of Service

David Parsley began working for the Division of Forestry in 1990. He was called to work on a crew but there were not enough people to put the crew together. Gail Lindh came out of the warehouse and told everyone waiting that they could work at the warehouse for the same number of hours as firefighters and sleep in their own beds at night, an offer he accepted. David worked five years in the warehouse as an emergency firefighter then did a year of initial attack with the Fairbanks Area. He took a couple years off to work construction and a few other odd jobs before returning to the warehouse as a full-time employee in 2000.

Paul Beberg has retired as Assistant Manager of the State Logistics Center after 20 years of service to the state.

State Logistics Center Staff Changes

Assistant Manager of the State Logistics Center (SLC) Paul Beberg retired after 20 years of service to the state. Paul worked as the Fairbanks burn permit coordinator, the state logistics coordinator, the equipment desk lead, and, finally, the SLC assistant center manager.

Teresa Rose accepted the position of the State Logistics Center coordinator in March 2020. As manager of the center, Teresa supervises an Area level wildland fire suppression dispatch center that is responsible for coordinating support to all personnel, aircraft, equipment, supply, support staff, and documentation for suppression activities within the Area. She also provides technical direction and supervision for four permanent seasonal wildland fire dispatcher I/IIs and all emergency hire wildland fire dispatchers.

Teresa was born and raised in Alaska and comes to this position with a wealth of knowledge and experience. She was a lead dispatcher with the Alaska State Troopers for eight years and an emergency firefighter for the state during the 2001 and 2002 fire seasons.

Teresa Rose was named the State Logistics Center Coordinator in March.

National Fire Plan & Wildland Urban Interface Projects

The National Fire Plan was adopted in 2000 to provide grants to states on a competitive basis to reduce the threat of fire in wildland/urban interface areas. Funds are also available for wildfire prevention and education programs, mitigation, capacity building, and homeowner and community assistance. The Division of Forestry supports a variety of educational and mitigation projects funded by the U.S. Forest Service.

Initial Attack Firefighters: National Fire Plan funding enables the DOF to retain 10 permanent seasonal initial attack firefighters in Palmer, Fairbanks, Soldotna, Delta, and Tok. These firefighters improve initial attack capabilities of the state, local government, and volunteer fire departments in urban interface areas. Effective initial attack of a fire reduces overall suppression costs and minimizes threats to private and public property from wildland fire.

Olness & Cripple Creek: DOF constructed a 54-acre shaded fuel break on public land adjacent to more than 100 residential lots in the Cripple Creek, Deven, Aspen Wood, and Parks Ridge subdivisions in the Fairbanks North Star Borough. Staff will begin burning slash piles in 2021 as weather permits and personnel are available.

McGrath, Takotna, Nicolai, Telida (MTNT) Hazardous Fuels: DOF completed work on the McGrath phase of the MTNT Fuels Mitigation Project between June 1 and August 31. The work began south of the emergency runway, about eight miles east of McGrath and progressed west toward the Kuskokwim River. Crews treated nine acres and created 432 piles which will be burned in 2021.

Caswell Fuel Mitigation: DOF reduced fuels on five acres along the Hidden Hills road in Caswell to create safe passage on its only access road. COVID-19 mandates and concerns limited field work in 2020; however, staff worked on planning, layout, and permitting. DOF will offer workshops and online educational sessions on creating defensible space in 2021.

Alaska Urban Interface Fire Education & Outreach Program: DOF awarded funds to Alaska Natural Resources and Outdoor Education to deliver 12 one-credit fire education and prevention courses and to develop online teaching resources for K-12 educators. They will focus on communities where wildland/urban interface areas are growing and risk of wildfire is increasing, on and off the road system. Due to COVID-19, there were no in-person sessions this year, but staff created materials and lessons for use online and will deliver workshops and online educational sessions in 2021.

LEARN Before You Burn: House Bill 355, "The Human-Caused Wildland Fire Reduction Act," passed in 2018, was the first major revision to DOF's

wildland fire and prevention program and statues since 1961. Staff mailed information to 100,000 residents statewide in February and held eight public workshops and events before COVID-19 restrictions took effect. Events included homeowner association meetings, community focused fire prevention workshops, an interagency fire prevention law enforcement workshop, and a training class for a law enforcement agency. Staff are developing virtual workshops on fire prevention, burn permit requirements, and open burning safety, and will mail information to licensed contractors and hunting and fishing guides throughout Alaska. They will also develop short video PSAs about the campaign and fire prevention, mail information to targeted audiences, and plan virtual and in-person presentations for other staff members, the public, and cooperators.

Alaska State Parks Fuels Reduction on Kenai Peninsula: Work to mitigate fuel loading and decrease fire risk on 275 acres with high to extreme hazardous fuel ratings continued in 2020. Staff hand-thinned 35 acres on stands of black spruce on two Alaska State Parks sites, Morgan's Landing and Funny River, which border the communities of Sterling and Funny River. Larger healthy spruce will be left to provide shade, limiting the introduction of bluejoint grass, which is a fire carrier in spring and fall. Useable firewood will be made available to the public free of charge. DOF constructed and installed interpretive signs at the two treatment locations and distributed Firewise and "Ready, Set, Go" materials to nearby residents.

Sunset Fuels Break: This project will reduce fuel loading and create a shaded fuel break over seven miles on state land to protect Meadow Lakes and Houston. A DOF crew will thin and remove vegetation to create a 150- to 200-foot-wide shaded fuels break using a seismic line corridor. This equates to treating 60 acres of highly concentrated hazardous fuels. Two kiosks with information about the project and benefits of fire adapted communities and shaded fuel breaks will be constructed at the project site. DOF and Matanuska Susitna Borough fire chiefs will distribute Firewise literature at public events, community council meetings, and at fire stations. COVID-19 mandates and concerns limited field work in 2020, however staff worked on planning, layout and permitting. DOF will offer workshops and online educational sessions on creating defensible space in 2021.

Anderson Community Fire Resilient Landscape: DOF partnered with Anderson, Clear Airforce Base, the Denali Borough, other stakeholders, and members of the public to create 80 acres of fuel breaks and an educational campaign aimed at becoming a Fire Wise Community. DOF crews cleared 20 acres to create a 100-foot fuel break on state and borough land adjacent to residential and city property, effectively surrounding the City of Anderson. Agencies delivered Alaska Firewise booklets, Smokey Bear materials, and Forest & Ecosystem Management pamphlets to surrounding communities and residents.

Tok Area 2019 WUI Project: COVID-19 delayed this project. In 2021, two fuel breaks, totaling 187 acres, will be established on the western side of Tok to protect the community from wildfire. In the Mackenzie South area mechanized equipment will clear-cut 125 acres in patches to create a non-continuous fuel break. DOF will create a 62-acre shaded fuel break along the eastern and southern boundaries of Eagle Subdivision. The Alaska Gateway School District will provide the equipment and labor to remove, process, and transport approximately 5,000 tons of hazardous fuel for use in the school's biomass boiler.

Building Resilience: A Landscape Approach to Fire Prevention & Education: The project will raise public awareness of wildfire risk, support activities that contribute to better prepared, more resilient fire adapted communities and prevent human–caused fires in the wildland-urban interface (WUI) areas of the Matanuska Susitna valley and rural communities in Southwest Alaska over a three-year period. Project activities fit into five categories: 1) homeowner education, 2) outdoor recreationist education, 3) homebuilder/contractor education, 4) children/youth education and 5) rural community fire prevention. There were no in-person sessions this year due to COVID-19, but staff created materials and lessons for use online and will deliver workshops and online educational sessions in 2021.

Matanuska-Susitna Borough Landowner-Hazardous Fuels Reduction: Funding will provide Firewise education and defensible space measures for Mat-Su homeowners through 50/50 cost share grants in areas of high risk. Black and white spruce and beetle-killed white spruce are the dominant fuel types. The work will reduce 130+ acres of hazard fuels on approximately 130 ownerships to meet a goal of the MSB Community Wildfire Protection Plan. Due to COVID-19 there were no in-person sessions this year, but staff created materials and lessons for use online and will deliver workshops and online educational sessions in 2021.

2020 Funding

Funding was awarded at the end of the state's fiscal year, which delayed contracting work this year.

West Wide Risk Assessment: Alaska Fuels Mapping Improvement Phase I: This project will focus on designated Critical and Full Fire Management Option lands. Improving the Alaska vegetation type and fuels map is necessary to accurately assess fire risk in wildland/urban interface areas. Mapping will be contracted to a company that has expertise in mapping the Alaska landscape. The resulting product will be used to identify issues with LANDFIRE vegetation classifications and new classifications produced, and as reference for and integration with the LANDFIRE remap effort scheduled for 2021.

Delta River West Fuels Mitigation: This project will protect the communities of Delta Junction and Whitestone in the event of a wildfire to the west of Delta Junction. Crews will construct 400 acres of shear-blade units that will be used as control lines during a wildfire.

VOLUNTEER FIRE ASSISTANCE GRANTS TO RURAL FIRE DEPARTMENTS

Fire Department	Amount Awarded
Anchor Point VFD	$7,500.00
Anderson VFD	$7,449.69
Aniak	$7,052.24
Caswell Lakes FSA #135	$7,500.00
Chena-Goldstream Fire & Rescue	$7,390.17
Chenega Bay	$6,744.22
Craig VFD	$7,473.80
Delta Junction VFD	$6,439.60
Ester VFD	$7,456.05
Fire Protection Area No. 1 (Bayside Fire Station)	$7,497.20
Gakona VFD	$7,469.91
Girdwood VFD	$7,425.00
Gustavus	$7,245.00
Haines VFD	$7,500.00
Homer VFD	$7,414.38
Hoonah VFD	$7,397.09
Iliamna VFD	$6,750.00
Kachemak Emergency Services	$7,047.65
Kenai FD	$7,398.90
Kennicott/McCarthy VFD	$7,492.20
McKinley VFD	$6,621.92
Nikiski FD	$3,476.00
Ninilchik Emergency Services	$7,169.49
NorthStar VFD	$6,307.81
Northway VFD	$5,771.90
Pelican VFD	$4,713.12
Sutton VFD	$7,500.00
Talkeetna VFD	$7,500.00
Tok VFD	$5,798.97
Trapper Creek	$7,499.99
Tri-Valley VFD	$4,495.00
Valdez VFD	$5,000.00
Willow VFD	$7,500.00
Total Awarded	**$224,997.30**

2020 Volunteer Fire Assistance Grants to Rural Fire Departments: The Volunteer Fire Assistance (VFA) program provides funds to increase firefighter safety, improve the firefighting capabilities of rural volunteer fire departments, and enhance protection in the wildland urban interface. The funds come through the U. S. Forest Service and are administered by the Division of Forestry.

In 2020, the VFA Grant Program provided $224,997.30 to rural fire departments. DOF received requests from 46 Volunteer Fire Departments for equipment, training and prevention activities, and funded 34 departments. (See list of recipients on page 65.)

FIRE TRAINING PROGRAM

Instate Training

The division provides training to maintain a qualified and safe workforce, ready to respond to wildland fires and other emergencies. Most of the training in state is provided through close cooperation of the Division of Forestry, the Alaska Fire Service, U.S. Forest Service, National Park Service, U.S. Fish and Wildlife Service, fire departments, local governments, and Forestry area offices.

Training is presented to meet national standard qualification requirements and is crucial for developing qualified, experienced personnel to fight fires both in and out of Alaska. Training is provided to fire departments, local governments, DOF personnel, federal cooperators, emergency firefighters, municipalities, military students, the Division of Homeland Security, and the Alaska Railroad.

Structure fire departments across the state assist the division in fire suppression in populated areas through cooperative agreements. These cooperators are a valuable source of trained, experienced firefighters. DOF also supports Native corporation crews through agreements with the Tanana Chiefs Conference (TCC), Chugachmiut Corporation, and the University of Alaska Fairbanks. Support consists of training, issuing red cards, tracking training and experience records, and assisting with mobilization. New IQS Account Managers from TCC attended IQS training virtually this year.

Training required by the National Wildfire Coordinating Group (NWCG) and the state's flex plan is emphasized. The flex plan for wildland fire and resource technicians and wildland fire dispatchers allows employees to move up to the next higher pay grade by meeting training and experience requirements. The following courses were offered to meet flex plan training requirements through statewide interagency, DOF area office, and Lower 48 courses:

Wildland Fire Resource Technicians: S-215 Fire Operations in the Wildland Urban Interface (virtual) and S-260 Incident Business Management (online self-study). Courses offered by the area offices: 200 level courses such as S-211 Pumps and Water Use, S-212 Wildfire Power Saws, and S200 Initial Attack Incident Commander. Online ICS courses: IS100 Introduction to ICS and IS200 Basic ICS for Initial Response.

Wildland Fire Dispatchers: Virtual classes: D-110 Dispatch Recorder, Interagency Resource Ordering Capability; Online classes: D-312 Aviation Dispatcher, D311 Initial Attack Dis-

Helicopter proficiency training for Mat-Su firefighters.

ALASKA STATEWIDE COURSES

Class type	Courses	Instructors	Hours	Students
ICS	4	0	12	108
Dispatch D110	1	0	24	9
IROC	5	5	20	21
Suppression S203, S215	2	2	56	33
Aviation S372, S270*	2	1	32	6
Plans Workshop	1	2	32	24
Warehouse Transp of Hazardous Materials	1	1	8	15
IQS	7	7	14	14
Prevention Workshops & Enforcement Training	2	8	80	38
General Fire Management GISS & LODD	7	12	40	39
Totals	**32**	**37**	**289**	**307**

STUDENTS STATEWIDE

Class type	DOF	Local Gov't	EFF	Federal	Total
ICS	35	3	70	0	108
Suppression & Prescribed Fire	43	3	5	0	51
Dispatch/IROC	27	0	2	7	36
Prevention	36	0	0	2	38
Leadership	0	0	0		0
General Mgmt.	87	0	0	0	87
Totals	**208**	**6**	**77**	**9**	**300**

patcher, S-130 Basic Firefighter, S-190 Introduction to Wildland Fire Behavior, IS-100 Introduction to ICS, IS200 Basic ICS for Initial Response, courses in Aviation Management, and S-260 Fire Business Management.

Interagency Training

Due to COVID-19, many Alaska interagency fire courses were canceled or postponed. However, several courses were delivered successfully despite a short timeline to develop a distance delivery format and train instructors. The challenges allowed instructors the opportunity to learn to deliver courses through virtual platforms.

DOF Area Offices delivered many basic firefighter courses, fireline safety refreshers, fitness testing, pumps, saws, initial attack, squad boss, and annual proficiency training for helicopters and engines.

The University of Alaska Fairbanks offered S215 Fire Operations in the Wildland Urban Interface through a cooperator crew agreement. DOF appreciates Josh Turnbow (UAF Crew) and Mitch Linebarger (USFS) for teaching the class for many years.

DOF worked with UAF, community college contract instructors, and partners in the North West Compact to deliver: S270 Basic Air Operations, S203 Information Officer, Plans Workshop, and S372 Helicopter Manager.

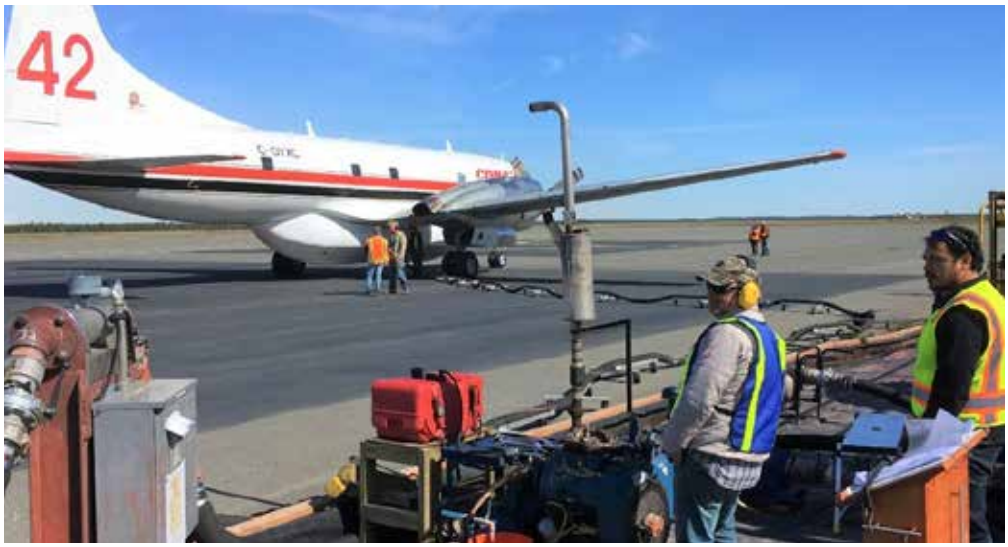
Incident Command System courses were available online and supported by FEMA. As NWCG approves distance delivery of traditional classroom courses, students will be able to attend online classes and receive NWCG certificates.

The Alaska Fire Service delivered the D110 Dispatch Recorder class virtually for the first time. A class on the new dispatch system (IROC) was delivered virtually with the support of DOF, USFS, and AFS instructors.

The following courses were delivered online as self-study or through a virtual platform, ZOOM, MS Teams, or WebEx: GIS for Firefighters; Incident Qualification System. Warehouse Transport of Hazardous Materials, ICS courses IS100, IS200, IS700, and IS800; D110 Dispatch Recorder; IROC dispatch program; S215 Fire Operations in the Wildland Urban Interface; S372 Helicopter Manager; and a Plans Workshop.

Statewide Prevention Officer Dan Govoni, with the help of other division instructors, delivered the prevention workshop and HB355 Prevention Officer Enforcement Training.

UAF Nanook Crew Superintendent Josh Turnbow has served as the lead instructor for the Fire Operations in the Wildland Urban Interface and Followership to Leadership classes for seven years. Mitch Linebarger of the U.S. Forest Service instructed the classes with Josh.



Kenai/Kodiak Area Forestry conducted air tanker proficiency training in the spring. Rusty Hippchen, Matt Hoch, Grant Stanley-Harris, and Vince Spady participated in the training.

The RT348 Air Tactical Group Supervisor training was offered as a refresher to aviation staff as they take on the role of leading air tankers into fire areas. Helicopter managers completed online aviation classes as a refresher for RT372 Helicopter Manager.

Several employees attended the Line of Duty Death and Local Assistance State Team training in Anchorage.

The new Interagency Resource Ordering Capability (IROC) program was implemented in the spring. AFS, DOF, and USFS instructors helped to deliver IROC training online. The division's Incident Qualification System (IQS) interfaces with IROC and provides incident qualifications to IROC. National IQS Program Manager Keith Smith helped states with implementation and interface. DNR-IT staff continued their valuable support to IQS.

National Level Training in Lower 48

Other geographic areas, the National Advanced Fire and Resource Institute, and the National Prescribed Fire Training Center offered training in the Lower 48. This helps DOF meet advanced level training required to serve on Alaska's incident management teams, as dispatchers and fire medics, to develop air attack and airtanker base manager programs, and to conduct prescribed fire. Personnel were also trained to serve as information and safety officers, fire program managers, and strategic operation planners. A nomination to a Lower 48 course does not guarantee acceptance by out of area students. Twelve DOF employees and one EFF attended 10 courses for 608 hours.

Changes to Training Programs

COVID-19 changed the way training was delivered in 2020. In the future, some traditional classroom courses may be converted to distance delivery formats, allowing upper division courses to be

NATIONAL LEVEL TRAINIG IN THE LOWER 48

Course	Students
Air Service Manager	3
D311 Initial Attack Dispatcher	1
D312 Aircraft Dispatcher	1
L580 Managing Complex Incidents	1
M-581 Fire Program Management	1
S203 Basic Information Officer	1
S-359 Medical Unit Leader	2
S404 Safety Officer	1
S-482 Strategic Operational Planner	1
National Prescribed Fire Training	1

combined for several geographic areas. College distance delivery instructors may be able to assist lead instructors from wildland fire suppression agencies to develop distance delivery classes.

In the fall of 2020, the National Wildfire Coordination Group (NWCG) created a Training Delivery Committee to develop and revise NWCG training courses and to provide national oversight and guidelines for geographic areas to deliver NWCG courses. The committee interfaces with the Incident and Position Standards Committee, the Wildland Fire Learning Portal Governance Board (the system for national training schedules), the NWCG Training Development Program, and other NWCG committees and groups that manage courses. The NWCG Wildland Fire Learning Portal provides an instructor's toolbox and courses to assist with virtual training.

The NWCG executive board provided national guidance through the Training Delivery Committee for prioritizing student nominations during the 2021 training season. It emphasized to training officers, supervisors, training committees, and potential students that this year there will only be the capacity to handle priority students, who are defined as:

- Individuals able to complete related position task book and qualification certification within the next 12-18 months.
- Individuals for whom the course is directly related to the skills required to function in their current position or whose career advancement within the next year will be impacted.

Priority Trainee Program

The mission of the Priority Trainee Program is to develop an interagency workforce by mobilizing trainees to incidents, helping them gain experience to meet fire management position requirements, and planning for succession for incident management teams. There is a shortage of qualified applicants for fire management and incident management positions. It is important that the interagency wildland fire community promote work force development to fill future vacancies.

All geographic areas in the U.S. participate in the Priority Trainee Program. Due to the extreme fire season in the West this year, all trainees (priority, or personnel with trainee positions on red cards) had the opportunity to go on fire assignments. DOF had 88 applicants to the Priority Trainee Program, including EFF, local government, and other state agencies, and 101 trainees who went on a fire assignment this year, including EFF, Priority Trainees, and personnel with trainee positions on red cards.

Fire Medic Program

The DOF maintains qualified fire medics to assist firefighters on the fire line. In 2020, 32 Fire Medics received incident qualification cards (red cards). Medical training is provided annually to meet certification requirements. DOF, in cooperation with the Alaska Fire Service, maintains medical kits ready to be mobilized with fire medics. Fire medics are certified as basic EMTs, advanced EMTs, and paramedics. Developing, training, and red carding fire medics is key to maintaining firefighter safety on the fire line.

Short Term Non-Permanent Positions

The Division of Forestry funded 23 short term, non-perm positions for 30 workdays this year. Positions were placed in DOF Area Forestry Offices and an Initial Attack Wildland Fire Module was placed in McGrath. This is the fifth year McGrath has hosted a fire module. In seven years, DOF has hired 140 short-term non-perm (STNP) employees. Thirty percent of STNPs are hired as permanent state employees. Twenty-four STNP employees are currently working as state employees.

Training References

A new edition of the Wildland Fire Qualification System Guide (310-1) was released in October and the title was changed to NWCG Standards for Wildland Fire Position Qualifications. Position qualification standards are also located in the NWCG Position Catalog, https://www.nwcg.gov/positions. Copies of the qualification guide may be printed from the NWCG website: Visit https://www.nwcg.gov/publications/310-1 for the links to the web-based PMS 310-1 and NWCG Position Catalog.

Additional online fire suppression, ICS, and aviation courses will be offered. Information may be found at:

- https://www.nwcg.gov/publications/training-courses – Online NWCG courses
- https://training.fema.gov/is/ – FEMA Independent Study courses, Incident Command System
- https://www.iat.gov – Interagency Aviation Training
- https://wildlandfirelearningportal.net – Wildland Fire Learning Portal (national fire training schedules for all geographic areas)
- https://www.wildlandfirelessons.net/home – Lessons learned.

Cindy Forrest-Elkins Retires

Cindy Forrest-Elkins is retiring in early 2021. Cindy began her career with the Division of Forestry in 1984 as the Southcentral Region Training Coordinator. She became the State Training Coordinator in 1993, a position she held until retirement.

Cindy thanked DOF staff, interagency cooperators, and Lower 48 geographic areas, especially the geographic area training representatives, for the years of support to wildland fire training in Alaska.

In memory of her son, Taylor Forrest Elkins, she is dedicating her final annual report to him. Taylor was honored in the fall of 2020 by the Wildland Firefighter Foundation for his service to wildland firefighting. Tongass National Forest Supervisor Earl Stewart presented the memorial to the family.

Cindy Forrest-Elkins

2020 Alaska Division of Forestry Actuals

NOTE: Dollar figures are in thousands (e.g., $40.5 is $40,500.00)

FUNDING SOURCES	FOREST MGMT & DEVELOPMENT	FIRE PREPAREDNESS	FIRE ACTIVITY	TOTALS
General Funds	$2,040.4	$8,735.9	$13,065.2	$23,841.5
Federal Funds	$1,844.5	$1,285.7	$48,668.9	$51,799.1
Capital Improvement	$265.0	$582.2	0	$847.2
Interagency Receipts	$177.9	$307.5	0	$485.4
Timber Receipts	$474.8	0	0	$485.4
Other (SDPR)	0	0	0	0
TOTALS	**$4,802.6**	**$10,911.3**	**$61,734.1**	**$77,448.0**
POSITIONS				
Permanent Full-Time	29	29	0	58
Permanent Part-Time/ Seasonal	4	169	0	173
Non-Permanent	5	0	0	5

FOREST MANAGEMENT & DEVELOPMENT COMPONENT

RENEWABLE RESOURCE DEVELOPMENT & SALES	COASTAL REGION	NORTHERN REGION	STATEWIDE	TOTALS
Board of Forestry	0	0	$12.2	$12.2
Forest Practices	$206.3	$210.0	$782.0	$1,198.3
Forest Management	$313.0	$326.5	$862.2	$1501.7
Interagency Receipts	0	0	$177.9	$177.9
Stat. Desig. Program Receipts (SDPR)	0	0	0	0
Federal Cooperative Forestry Assistance	0	0	$1,321.9	$1,321.9
Capital Improvement Receipts (Other)	0	0	$265.0	$265.0
Subtotals	*$519.3*	*$536.5*	*$3,421.2*	*$4,477.0*
Director's Office	0	0	$325.6	$325.6
COMPONENT TOTALS	**$519.3**	**$536.5**	**$3,746.8**	**$4,802.6**

FIRE SUPPRESSION PREPAREDNESS COMPONENT

	COASTAL REGION	NORTHERN REGION	STATEWIDE	TOTALS
Preparedness	$1,828.2	$1,125.9	$5,781.8	$8,735.9
Interagency Receipts	0	0	$307.5	$307.5
Federal Cooperative	$287.0	$112.2	$886.5	$1,285.7
Intial Attack	0	0	0	0
Capital Improvement Receipts	0	0	582.2	582.2
(Other)	0	0	0	0
COMPONENT TOTALS	**$2,115.2**	**$1,238.1**	**$7,558.0**	**$10,911.3**

2021 Alaska Division of Forestry Budget

NOTE: Dollar figures are in thousands (e.g., $40.5 is $40,500.00)

FUNDING SOURCES	FOREST MGMT & DEVELOPMENT	FIRE PREPAREDNESS	FIRE ACTIVITY	TOTALS
General Funds	$2,466.8	$17,173.8	$13,641.0	$33,281.6
Federal Funds	$3,599.5	$1,556.2	$23,960.4*	$29,116.1
Capital Improvement Receipts (Fed, GF,& SDPR)	$265.0	$585.0	0	$850.0
Interagency Receipts	$608.8	$406.2	0	$1,015.0
Timber Receipts	$1,029.7	0	0	$1,029.7
Other (SDPR)	$29.7	0	$1,500.0	$1,529.7
TOTALS	**$7,999.5**	**$19,721.2**	**$39,101.4**	**$66,822.1**
POSITIONS				
Permanent Full-Time	30	28	0	58
Permanent Part-Time/ Seasonal	11	190	0	201
Non-Permanent	5	0	0	5

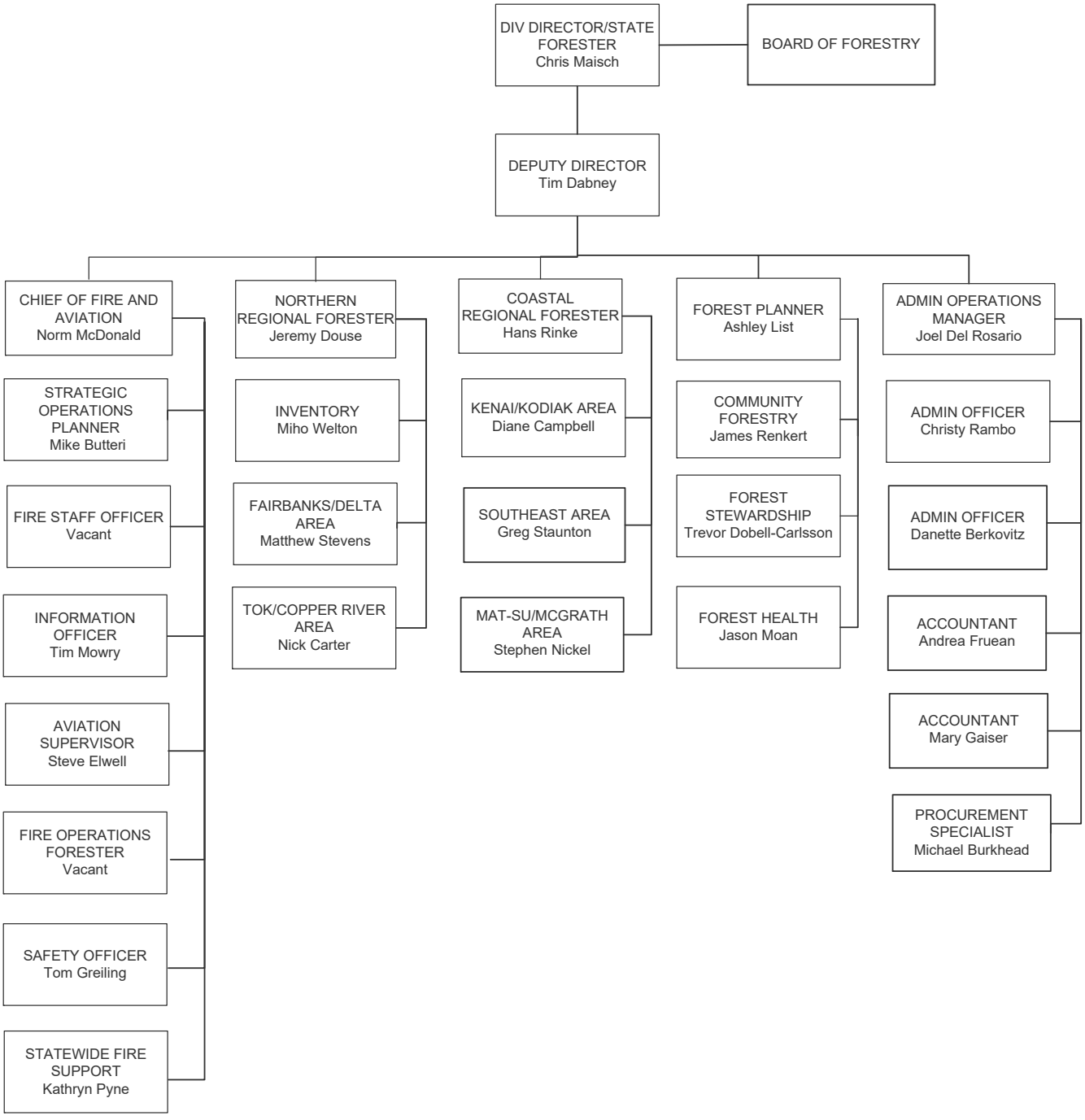
FOREST MANAGEMENT & DEVELOPMENT COMPONENT

RENEWABLE RESOURCE DEVELOPMENT & SALES	COASTAL REGION	NORTHERN REGION	STATEWIDE	TOTALS
Board of Forestry	0	0	$14.4	$14.4
Forest Practices	0	0	$227.9	$227.9
Forest Management	$1,089.9	$559.7	$1,296.1	$2,945.7
Forest Inventory and Analysis	0	0	$1,109.3	$1,109.3
Tongass Young Growth	0	0	$1,029.7	$1,029.7
Interagency Receipts	0	0	$608.8	$608.8
Stat. Desig. Program Receipts (SDPR)	0	0	$29.7	$29.7
Federal Cooperative Forestry Assistance	0	0	$1,260.0	$1,260.0
Capital Improvement Receipts (Other)	0	0	$272.6	$272.6
Subtotals	*$1,089.0*	*$559.7*	*$5,848.5*	*$7,498.*
Director's Office	0	0	$501.4	$501.4
COMPONENT TOTALS	**$1,089.9**	**$559.7**	**$6,349.9**	**$7,999.5**

FIRE SUPPRESSION PREPAREDNESS COMPONENT

	COASTAL REGION	NORTHERN REGION	STATEWIDE	TOTALS
Preparedness	$4,430.8	$3,057.0	$9,686.0	$17,173.8
Interagency Receipts	0	0	$406.2	$406.2
Federal Cooperative Forestry Assistance	0	0	$1,556.2	$1,556.2
Capital Improvement Receipts (Other)	0	0	$585.0	$585.0
COMPONENT TOTALS	**$4,330.8**	**$3,057.0**	**$12,233.4**	**$19,721.2**

2020 Alaska Division of Forestry Organizational Chart



2020 Alaska Division of Forestry Directory

For current contact information, see state employee directory: http://alaska.gov/whitepages/

State Forester's Office
550 West Seventh Avenue,
Suite 1450
Anchorage, Alaska 99501-3566
269-8463, fax 269-8931
Deputy State Forester
Tim Dabney, 269-8476
Admin. Operations Manager
Joel Del Rosario, 269-8477
Forest Planning
Ashley List, 269-8481
Community Forestry Program
Jim Renkert, 269-8465
Forest Health & Protection (Insects & Disease)
Jason Moan, 269-8460

Fairbanks Office
3700 Airport Way
Fairbanks, Alaska 99709-4699
State Forester
John "Chris" Maisch, 451-2666

Forest Stewardship Program (Landowner Assistance)
101 Airport Road
Palmer, Alaska 99645
Trevor Dobell-Carlsson,
761-6309
fax 761-6201

Fire Program Management
101 Airport Road
Palmer, Alaska 99645
Chief of Fire and Aviation
Norm McDonald, 761-6225
Fire Training & Prevention
269-8441

State Fire Operations
P.O. Box 35005
Ft. Wainwright, Alaska 99703
356-5850 fax 356-5855
Operations Forester
Vacant, 356-5850
AICC Logistics
356-5645
Intelligence
Gabriella Branson, 356-5671
AICC Coordinator
Katie Rubin, 356-5682
Strategic Operations Planner
Mike Butteri, 356-5858

State Fire Support
3700 Airport Way
Fairbanks, Alaska 99709-4699
451-2608 fax 451-2763
Support Forester
Kathryn Pyne, 451-2608
State Logistics
451-2680
State Fire Warehouse
451-2640

Aviation Program
101 Airport Road
Palmer, Alaska 99645
761-6270 fax 761-6273
Aviation Manager
Steve Elwell, 761-6271
Coastal Aviation Mgmt
761-6231
Air Attack
761-6280

Regional Forester – Coastal
101 Airport Road
Palmer, Alaska 99645
761-6200
Regional Forester
Hans Rinke, 260-4200

Regional Forester – Northern
3700 Airport Way
Fairbanks, Alaska
99709-4699
451-2660, fax 451-2690
Regional Forester
Jeremy Douse, 451-2670

Fairbanks – Delta Area
3700 Airport Way
Fairbanks, Alaska
99709-4699
451-2600, fax 458-6895
Area Forester
Matthew Stevens, 451-2601
Fire Mgmt. Officer
Ed Sanford, 451-2634
Fire Line
451-2626
Fire Operations
fax 451-2633
Lead Dispatcher
451-2620
Logistics
451-2627
Dispatch
451-2623

Delta Office
P.O. Box 1149
Delta Junction, Alaska 99737
(Mi. 267.5 Richardson Hwy)
895-4225, fax 895-2125
Area Forester
Matthew Stevens, 451-2601
Fire Mgmt. Officer
Mike Goyette, 895-2103
Fire Line
895-4227

Tok/Copper River Area
Box 10
Tok, Alaska 99780
(Mile 123.9 Tok Cutoff)
883-1400, fax 883-5135
Area Forester
Nick Carter, 883-1403
Fire Mgmt. Officer
Peter Talus, 883-1404
Fire Line
883-3473

Valdez/Copper River Office
P.O. Box 185
Glennallen, Alaska 99588
(Mi. 110 Richardson Hwy.)
822-5534 fax 822-8600
Area Forester
Nick Carter, 883-1403
Fire Mgmt. Officer
Mike Trimmer, 822-5534

Mat-Su/Southwest Area Office
101 Airport Road
Palmer, Alaska 99645
761-6300, fax 761-6319
Area Forester
Stephen Nickel, 761-6301
Fire Mgmt. Officer
Phillip Blydenburgh, 761-6302
Dispatch
761-6220
Fire Line
761-6311
Burn Permit
761-6312

Southwest Area Office (Seasonal)
Box 130
McGrath, Alaska 99627
524-3010, fax 524-3932
Area Forester
Stephen Nickel, 761-6301
Fire Mgmt. Officer
Phillip Blydenburgh, 761-6302

Kenai/Kodiak Area Office
42499 Sterling Highway
Soldotna, Alaska 99669
(Mi. 92.5 Sterling Hwy)
260-4200, fax 260-4205
Area Forester
Diane Campbell, 260-4210
Fire Mgmt. Officer
Howie Kent, 260-4220
Fire Line
260-4100
Burn Permit
260-4269
Dispatch
260-4232

Southeast Area Office
2417 Tongass Avenue, Suite 213
Ketchikan, Alaska 99901
225-3070, fax 247-3070
Area Forester
Greg Staunton, 225-3070
Fire Line
524-3366

DIVISION OF FORESTRY **State Forester** John “Chris” Maisch (907) 451-2666 | **Deputy Director** Tim Dabney (907) 269-8476
550 W. Seventh Avenue, Suite 1450 | Anchorage, Alaska 99501-3566 | (907) 269-8463 | **www.forestry.alaska.gov**