DEPARTMENT OF NATURAL RESOURCES

Annual Report on Emergency Firefighting Expenditures

Fiscal Year 2021

01/15/2022

Aichele Road Fire – Lake of the Woods County

Minnesota Department of Natural Resources

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Contents

Summary

This report details the Minnesota Department of Natural Resources' (DNR's) wildfire response activities and costs for Fiscal Year 2021 (FY2021). This report finalizes the FY2021 information provided in a Minnesota Wildfire Update transmitted on September 28, 2021, which summarized the state-led[1] wildfire response activities and costs through August of calendar year 2021 in light of the exceptionally active wildfire season.

The DNR expended a total of $30,682,803 from the General Fund in FY2021 for wildfire protection and emergency response. This includes $22,659,658 from the Emergency Firefighting Open Appropriation. Overall, FY2021 fire expenditures exceeded the 10-year average expenditures by more than 20 percent. This increase is directly related to the weather conditions in the spring and early summer of 2021. The dry weather pattern and early snow melt required extensive preparedness, additional resources, and additional suppression costs.

In FY2021, DNR responded to 1,120 wildfires that burned 10,710 acres in Minnesota. While the annual number of fires was similar to the 20-year annual average of 1,061 fires, the number of acres burned was less than half of the 20-year average of 25,444 acres. With that said, the spring and early summer of 2021 (i.e. the last quarter of FY2021) saw much greater fire activity than in the previous five years.

Wildfire expenditures are related to both 1) the number and size of fires, 2) the level of fire potential/risk and the associated preparedness and staffing levels needed so the DNR is ready to respond to a wildfire should one start, and 3) the DNR's strategy of responding aggressively to fire starts when risk is high to quickly contain the blaze and thereby minimize the acres burned. The success of the DNR's preparedness and quick-response efforts is demonstrated in the fact that the number of fires and acres burned in FY2021 were similar (number of fires) or less (acres burned) than the 20-year annual average in spite of the high and extended wildfire risk in the second half of the FY2021.

Weather conditions contributed to the active early fire season in spring 2021. Warm temperatures, early snowmelt, and a dry spring spurred large grass fires in northwest Minnesota. Dry conditions progressed to drought conditions across most of the state during the summer, extending into FY2022 without the typical mid-summer reduction in fires. As a result of this continued high level of wildfire activity in July through September of 2021, FY2022 wildfire response expenditures will be above average, even if the second half of FY2022 exhibits below-average wildfire activity.

In FY2021, the DNR once again used a variety of ground and aerial resources to prepare for and suppress wildfires. The ground fleet consists of 182 firefighting engines and 53 tracked vehicles designed to access off-road and remote areas. The DNR uses a mix of state-owned and contracted aircraft and also accesses aircraft via interagency and state partnership agreements. Tactical firefighting aircraft responded to 264 requests on 117 wildfires.

[1] Under Minnesota's interagency wildfire management system, the lead responsibility for wildfire response is determined by the land on which the fire originates, with the DNR generally having lead responsibility for state, county and private lands.

In-state cooperative fire response was active throughout the fiscal year. The Minnesota Incident Command System (MNICS), with cooperation of the partner agencies, rostered three Type III Incident Management Teams (IMTs) beginning in fall 2020. All three IMTs were assigned to multiple wildfire incidents through June 30, 2021. All told, seven large wildfire incidents required an IMT response in FY2021.

Fire activity was also high on a national level in FY2021. During summer and fall 2020, many DNR staff were mobilized via interagency agreements on a reimbursable basis to support fire suppression efforts in 15 states. In addition, the two Eastern Area Type II IMTs (silver and gold teams), which include Minnesota DNR personnel, mobilized three times. Minnesota's active fire season in spring 2021 limited the DNR's ability to assist other states with their firefighting efforts, and this continued through the rest of the fiscal year. Beyond firefighting response, the DNR provided staff to two national All Hazard Response events.

The COVID-19 pandemic continued to influence firefighting operations, including wildfire response, training, and community outreach. Firefighting operations followed the "Wildland Fire Best Management Practices" procedures, implemented in FY2020, to reduce the risk of COVID-19 transmission and implemented a "Large Incident Recovery Plan" in conjunction with partners to safely address situations should firefighters contract COVID-19. In-person trainings continued to be limited in effort to reduce the possibility of COVID-19 transmission. Most wildfire prevention activities remained virtual with limited in-person outreach.

Purpose of this Report

The costs for state-led emergency wildfire response are borne by the General Fund via both a direct appropriation and an open appropriation. The DNR is required by statute to submit a report to the legislature by January 15 of each year identifying all firefighting costs incurred and reimbursements received in the prior fiscal year.[2] This report addresses that statutory requirement.

State Funding for Emergency Firefighting

Minnesota statutes charge the Commissioner of Natural Resources with preventing and extinguishing wildfires in the forested and prairie areas of the state. Although these statutes have been adjusted several times over the years, the initial charge adopted in 1911 remains, and current laws outline the funding sources to meet the requirements of the statutes.

Funding Authorized

Emergency Firefighting Direct Appropriation: Laws 2019, chapter 4, section 3, Subd. 4 appropriated $7,521,000 the first year and $7,521,000 the second year for prevention, presuppression, and suppression costs of emergency firefighting and other costs incurred under *Minnesota Statutes*, section 88.12.

Emergency Firefighting Open Appropriation: Laws 2019, chapter 4, section 3, Subd. 4, further states "the amount necessary to pay for presuppression and suppression costs during the biennium is appropriated from the general fund."

Expenditures

During FY2021, the DNR expended $8,023,145 from the Direct Appropriation and $22,659,658 under the Open Appropriation authority, for a total FY2021 expenditure of $30,682,803 for state-led wildfire response. The FY2021 Direct Appropriation expenditures exceeded the FY2021 appropriation because the expenditures also include $502,531 rolled forward from the first year of the biennium. The actual total FY2021 expenditures is slightly greater than the estimated total included in the Wildfire Update provided in September, by $44,803.

The greater than average expenditure in FY2021 was largely due to drought conditions from the fall of 2020 that extended into the spring of 2021. The drought conditions, combined with an extended period of weather that included warmer temperatures, lower relative humidities and high winds, created the circumstances for an extended period of high fire activity in the second half of FY2021.

Wildfire expenditures are related to both 1) the number and size of fires, 2) the level of fire potential/risk and the associated preparedness and staffing levels needed so the DNR is ready to respond to a wildfire should one start, and 3) the DNR's strategy of responding aggressively to fire starts when risk is high to quickly contain the fire, protecting life and property. The success of the DNR's preparedness and quick-

[2] See Minnesota Laws 2019, First Special Session Ch. 4, Art. 1, Sect. 3, Subd. 4.

response efforts is demonstrated in the fact that the number of fires and acres burned in FY2021 were similar (number of fires) or less (acres burned) than the 20-year annual average in spite of the high and extended wildfire risk in the second half of the FY2021.

Attachment 1, FY2021 Emergency Fire Direct and Open Appropriations / State Expenditures by Category, summarizes state firefighting expenditures by salary and operating costs.

Reimbursements to the General Fund

Payments and Collections

The DNR receives payments for certain fire-related activities. These receipts are from supplies sold to local government units (e.g., fire departments) through the Interagency Fire Cache (cache sales authorized under *Minnesota Statutes*, section 88.065), and collections from parties responsible for starting illegal or negligent fires (reimbursement for suppression costs is mandated under *Minnesota Statutes*, section 88.75). These receipts are deposited directly into the General Fund.

FY2021 Receipts:

Cache Sales	$52,263
Fire Cost Collections	$179,249
Total	$231,512

Special Revenue Fund

This fund provides an avenue for reimbursement to the General Fund for expenditures related to fulfilling interagency agreements regarding wildfire suppression. These expenditures and subsequent reimbursements constitute a temporary use of the state emergency firefighting appropriation and are included in this report for enhanced transparency. The DNR provides firefighters and aircraft to assist federal partners within Minnesota, mobilizes firefighters for out-of-state assistance with national wildfire emergencies, and assists Great Lakes Forest Fire Compact (GLFFC) partners. These costs are initially charged to the Emergency Fire Special Revenue Fund and invoiced for reimbursement as soon as practical. The federal government reimburses federal costs and GLFFC partners (adjoining states and Canadian provinces) reimburse their costs. During FY2021, the DNR expended $1,401,104 from the Emergency Fire Special Revenue Fund on reimbursable costs for national mobilizations and GLFFC support.

The reimbursements to the Special Revenue Fund include the actual costs of out-of-state deployments, as well as a portion of the fixed costs associated with any mobilized equipment, such as wildland fire engines. The emergency firefighting appropriation pays for fixed costs including program administration. Reimbursement revenue received in excess of actual cost (Excess Recovery) is periodically transferred to the General Fund. No transfers were made in FY2021. The DNR anticipates a transfer in FY2022.

Total Reimbursements

The total reimbursements include payments and collections as well as excess revenue transfers. As noted in the table below, the total reimbursements to the General Fund in FY2021 were $231,512.

Total FY2021 Reimbursements to the General Fund:

Cache Sales	$52,263
Fire Cost Collections	$179,249
Excess Recovery (Special Revenue)	None
Total	$231,512

Planning and Readiness

Weather patterns and fuel conditions, as well as actual fire occurrence, affect wildfire preparedness and response costs. In advance of each wildfire season, the DNR trains firefighters, maintains and secures equipment, establishes contracts for aerial detection and suppression, supports rural fire departments in securing equipment, and engages in fire prevention efforts. Together, all of these efforts encompass preparedness activities.

To guide its level of readiness from week to week, the DNR uses a tiered system to determine potential wildfire risks and establish fire-preparedness levels. Attachment 2, A Guideline for Statewide Planning Level Determination, shows the criteria and preparedness or planning levels currently in use. These guidelines are used to determine the current planning levels statewide and by DNR Region, on conference calls with fire managers from all cooperating agencies that suppress Minnesota wildfires. Conference call frequency is dependent on fire conditions and ranges from daily to weekly.

The planning level, in combination with daily fire danger indices, establishes the appropriate level necessary to effectively respond to wildfires. Historically, about 80 percent of the state's wildfires happen during Planning Level III. Major fires can and do occur at Planning Level III.

FY2021 had 265 days of possible wildfire danger (i.e. at least one DNR Region at Preparedness Level II or higher). Of those possible wildfire days, 152 were at Preparedness Level II, 44 were at Preparedness Level III, 33 were at Preparedness Level IV, and none were at Preparedness Level V.

Each Region and Area needs to have equipment and staffing available that is sufficient to respond to wildfires based on the likelihood of occurrence (preparedness level). Thus, some Regions and Areas may be at a higher staffing level than others and require presuppression expenditures when the overall state is not anticipating high fire activity. During FY 2021, on 36 days at least one Area was at Preparedness Level II while the rest of the state was at Preparedness Level I. On 52 days, at least one Area was at Preparedness Level III while the rest of the state was at Preparedness Level II. On 18 days, at least one Area was at Preparedness Level IV while the rest of the state was at Preparedness Level III.

Various factors and requirements affected Area staffing needs in FY2021, with local weather conditions (e.g. precipitation, temperature, wind speed, and relative humidity) influencing each Area's preparedness and staffing levels. While FY2021 ended with moderate to severe drought conditions existing in over 80 percent of the state, drought severity fluctuated across the state throughout the spring and summer.

The COVID-19 pandemic continued to require increased planning and preparation to ensure safe staffing levels. To mitigate the spread of COVID-19 among firefighters and the public and address potential impacts, the "Wildland Fire Best Management Practices", implemented in FY2020, again provided

guidance to reduce the potential for COVID-19 exposures during preparation and suppression of wildfires. These practices identify how resources interact during suppression, cleaning of equipment, and even feeding personnel.

In cooperation with other agencies, the DNR implemented the "Large Incident Recovery Plan" outlining how to handle firefighters who are diagnosed with or exposed to COVID-19 while deployed on a large wildfire incident. Specifically, the plan identifies how to insulate, quarantine or isolate individuals or crews, and provides directions for notification and treatment.

Finally, to determine whether it was safe to send a resource to a particular incident, the DNR continued to use the nationally created "Interagency Checklist for Mobilization of Resources." This checklist ensures agencies requesting personnel resources have plans in place to safely care for any personnel mobilized. This checklist, implemented in FY2020, also helps to ensure each request is verified prior to sending personnel or resources to provide assistance.

Fire Suppression and Presuppression

The success of the DNR's fire suppression program is largely due to aggressive initial attack to keep fires small. Once a wildfire escalates beyond initial attack, risk of the fire spreading, risk to firefighter safety, damages to property, and overall costs all increase significantly.

Preparedness (prevention and presuppression) and suppression activities work together to reduce the number of wildfires and potential damages. Presuppression actions are those taken before a wildfire starts to ensure the safest, most effective and efficient direct suppression response. These activities include overall planning, recruitment, and training of personnel; procurement of firefighting equipment and contracts; and maintenance of equipment and supplies. Suppression activities directly support and enable the DNR to suppress wildfires, including the prepositioning of resources. As fire danger and occurrence increase, the number of resources positioned for immediate response also increases.

AT-20 operating in a remote area

Presuppression costs were approximately 40 percent, or $12,286,158, of expenditures from the Direct and Open fire appropriations in FY2021. Suppression costs were approximately 59 percent, or $17,925,235, of FY2021 expenditures from the Direct and Open fire appropriations. The final two percent of funds were dedicated to wildfire prevention efforts throughout the state. The DNR cost-coding structure provides accountability for wildfire expenditures. The fiscal system tracks expenditures by both the type of activity and location (down to the administrative Area level).

Attachment 3, FY2021 State Fire Cost Summary, illustrates the percentages of fire expenditures allocated to prevention, presuppression, and suppression activities. Attachment 4, Wildfire Activities - Ten-Year Expenditure History illustrates expenditure history. Overall, FY2021 fire expenditures exceeded the 10-year average by more than 20 percent. The additional expenditures were necessary to prepare for and respond to the early and extended fire season in the second half of FY2021.

Fire Occurrence and Causes

In FY2021, the DNR responded to 1,120 wildfires that burned 10,710 acres. The number of fires is similar to the 20-year annual average of 1,061 fires. The number of acres is significantly less than the average of 25,444 acres burned.

Number of Wildfires by Cause

	FY 2021	%	20-Year Average	%
Debris Burning	363	32.4	365	34
Incendiary / Arson	105	9.4	271	26
Misc. / Unknown*	405	36.2	180	17
Equipment Use	133	11.9	123	12
Campfires	63	5.6	47	4
Lightning	24	2.1	19	2
Smoking	16	1.4	22	2
Railroad	11	1.0	34	3
Total	1,120	100%	1,061	100%

*Misc./Unknown includes items that usually do not account for a major percentage on their own such as electric fences, power lines, fireworks, fires started within a structure, prescribed fires, other sources like hot ashes, spontaneous combustion, and cause unknown.

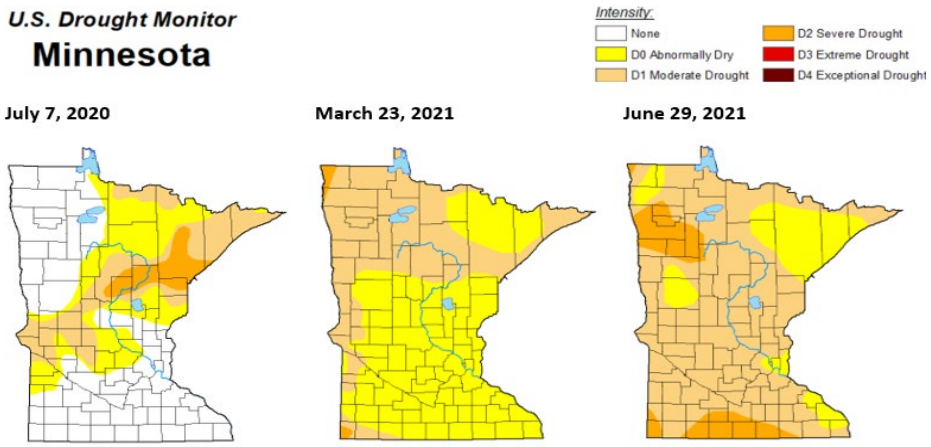
There is a notable difference between the percentage of wildfires with a misc. or unknown cause in FY2021 (36 percent) and the 20-year average (17 percent). The types of ignition sources that are encompassed by the Misc./Unknown category include power lines, electric fences and small roadside fires where the exact cause is not determined. These ignition sources typically cause a relatively lower percentage of fires each year, and they usually do not present the same level of risk as other potential sources of wildfire. However, the very dry statewide conditions experienced during the spring and summer of 2021 meant that conditions were ripe for even these typically lower-risk ignition sources to cause a wildfire.

To reduce the likelihood of wildfire starts, the DNR established burning restrictions early in the spring of 2021 that remained in place through the summer – much longer than a year with normal precipitation and temperatures. These preventative measures helped reduce early season wildfires and helped keep the total FY2021 number of fires close to the 20-year average.

Attachment 5, Minnesota Fires and Acres Burned, and Attachment 6, FY2021 Number of Wildfires by Cause graphically illustrate fire history and causes.

Weather Summary

FY2021 began with abnormally dry to severe drought conditions extending over roughly a third of Minnesota (see figure at right). Field reports of rivers running abnormally low began to come in during the fall, then winter came and went with snowfall totals that fell well short of normal.



An early 2021 snow melt, coupled with a warmer and drier than normal March, kicked off an early spring fire season with many large wildfires occurring in grass fuels in the northwest part of the state. A little reprieve occurred in April, but dry conditions returned in May. By June, most of Minnesota was experiencing at least moderate drought conditions.

June brought prolonged periods of record heat without precipitation and wildfires burned with great intensity, extending the normal spring fire season into summer, and ultimately well into September (i.e., Q1 of FY0222). Fire occurrence in the last quarter of FY2021 was three to four times the normal rate and fire danger indices reached levels that have never been reached before during early summer.

Fire Response

Cooperative Fire Response

In-state cooperative fire response was active throughout FY2021. MNICS rostered three Type III IMTs in fall 2020 and again in spring 2021, with cooperation of the partner agencies. In addition, the DNR provided staff to fill rosters of two Eastern Area (EA) Type II IMTs. No large incidents requiring an IMT occurred in Minnesota during the first half of FY2021, but several incidents required MNICS Type III IMTs in spring 2021. All three MNICS Type III IMTs were assigned to multiple incidents through June 30, 2021. The MNICS Type III IMTs responded to seven Type III large wildland fire incidents in total during FY2021.

Responding to out-of-state mutual aid requests is included in mutual aid agreements to support wildfire suppression efforts nationally. Cooperative fire response provides training opportunities, helps maintain the DNR's response capabilities, ensures Minnesota will receive assistance when needed, and can help offset state costs. As summer 2021 progressed, Minnesota requested and received out-of-state resources and staffing to assist with wildfire conditions and suppression response in late FY2021 and the first quarter of FY2022.

National fire activity in the first half of FY2021 was longer and busier than usual. Two EA Type II IMTs (silver and gold team), supported by sixteen DNR staff, mobilized to California on three different assignments in September and October of 2020. The DNR sent more than 140 agency employees to assist with out-of-state firefighting efforts during summer and fall 2020, many of whom took multiple

assignments. This included response to wildfires in Arizona, California, Colorado, Idaho, Michigan, Montana, Nevada, Oregon, Pennsylvania, South Dakota, Texas, Utah, Washington, Wisconsin, and Wyoming.

During the second half of FY2021, DNR staff participation in out-of-state wildfire incidents was very limited because of the high-risk conditions and active wildfires within Minnesota. In late April, during the short reprieve of in-state wildfire activity, 15 DNR staff supported an EA Type II IMT (gold team) that was mobilized to Michigan.

COVID-19 continued to present many challenges to the DNR, as well as other wildland fire agencies throughout the country, during FY2021. Each agency continued to utilize the "module of one" concept – deploying fire response personnel who consistently worked together as a single unit. Sharing agency resources across states while following this approach worked well. MNICS agencies were able to respond effectively while minimizing firefighter exposure to COVID-19.

In addition to aiding firefighting efforts, the DNR works with agency partners to provide wildland fire training for firefighters. These trainings provide an opportunity to learn and experience firefighting in diverse conditions throughout North America, gaining valuable skills and acquiring advance Incident Command System (ICS) qualifications needed for fighting wildfires in Minnesota. Training with other agencies and local fire departments also builds important relationships that prove critical when responding to Minnesota incidents together. Due to COVID-19 concerns and protocols, wildland fire agencies limited fire training to mission-critical courses required for fire line safety.

Interagency All Hazard Response

Minnesota trains firefighters to national standards for firefighting and IMT response. DNR wildfire qualifications meet both federal wildfire standards and those of the Federal Emergency Management Agency (FEMA). As a result, Minnesota wildland firefighters can respond to and manage incidents regardless of the cause (i.e., "all hazard").

In FY2021, there were two national all-hazard response events the DNR supported with personnel.

- The DNR provided training and equipment to personnel from various fire departments that participated in a strike team of structural engines that mobilized to Oregon through an Emergency Management Assistance Compact request.
- The DNR also supported an IMT with two staff assigned to manage front line medical response for the Presidential Inauguration in January 2020.

In-state Wildfire Response

Minnesota experienced 1,120 wildfires that burned 10,710 acres in FY2021. A low number of wildfires in summer and fall 2020 were balanced by high wildfire starts in spring 2021, resulting in an overall number of wildfires in FY2021 that that is close to the 20-year average. Of note, and mentioned in the September 2021 Wildfire Update, is the fact that the number of wildfires and total acres burned in calendar year 2021, which spanned two fiscal years, is significantly higher than average. Summer and fall 2021 wildfire responses and expenditures will be documented in the FY2022 report.

DNR wildfire response followed previously established COVID-19 and updated vaccination protocols. Firefighting efforts utilized aerial resources when possible and necessary in suppression efforts to minimize the number of extended response incidents, reducing the potential of COVID-19 transmission among firefighters. The complement of aircraft, continued partnerships, and attention to wildfire preparedness conditions helped keep most wildfires small and controlled within 24 hours.

Firefighting Ground Fleet

The DNR firefighting ground fleet is comprised of engines and tracked vehicles. Engines are medium to large-sized pickup trucks, customized for wildland firefighting. Engines are used for firefighting on mostly dry, upland sites.

Tracked vehicles are custom-built firefighting units driven by two endless metal belts, or tracks. They are designed to fight fires on wet to very wet sites, as well as those with difficult accessibility. The DNR uses two basic models of tracked vehicles: the J-5 and the Muskeg. These tracked vehicles are positioned on trailers and towed to a fire site.

DNR Equipment working a remote fire

The complement of equipment varies from one DNR Area to another depending on local fuel, topography, and soil conditions. The DNR strives to have reliable and efficient engines and tracked vehicles that meet the needs of the firefighters. This requires an annual investment to specify, test, and secure equipment before older units become inoperable.

Engines

DNR engines vary in size and capacity. In general, a lighter vehicle is more maneuverable, but cannot haul as much water and as many firefighters. Each DNR Forestry Area has a mix of engine types best suited to its location.

Many Forestry areas use heavy-duty half-ton trucks. These units are less expensive (both base and operating rates) than larger sized engines yet serve well as a maneuverable initial attack unit when equipped with a small slip-on (water tank and pump). The most common fire vehicle is a one-ton pickup; these trucks haul 300 gallons water. Service body pickups are 1½-ton medium pickups. They are fitted with storage compartments providing room for an assortment of firefighting equipment. Three-ton fire engines carry more than 750 gallons of water and are capable of towing large equipment, like bulldozers, to a fire.

Engines		
Type	Size	Number
T7	½ ton HD	34
T6	1 ton	90
T6 – Service Body	1 ¼ ton	17
T6 – Service Body	1 ½ ton	27
T4	3 ton	14
Total Engines		182

Tracked Vehicles

The DNR fleet includes 52, mostly older, tracked vehicles. Maintenance of these aging machines is becoming costly and time consuming as parts are harder to find. The DNR tracked vehicle fleet includes 12 smaller units, known as J-5s, that were manufactured in 1988. These smaller units are designed to get into forested areas that larger units cannot reach and have limited water carrying capacity. In FY2019, the DNR acquired and began piloting the use of three AT 20s as replacements to the aging J-5s. The AT 20s performed well during FY2021 and the DNR is ordering an additional six units.

A similar situation exists in the muskeg fleet, the DNR's larger tracked vehicles. The oldest muskeg was manufactured in 1993, and all eight units were manufactured prior to 2007. Recent pilot testing of a newer model -- the AT-50 -- proved it is a good replacement for the older Muskegs. Based on this success, the DNR plans to order up to two AT-50 units each year until the Muskegs are replaced.

Tracked Vehicles		
Type	Model	Number
CT	Cross Tracker	3
LT-5	Lite Tech	3
Total Light Tracks		6
J-5	Bombardier	13
J-5	Camoplast	21
AT-20	All Track	3
Total Medium Tracks		37
Muskeg	Bombardier	7
Muskeg	Camoplast	1
AT - 50	All Track	1
Total Muskeg		9
Total Tracked Vehicles		52

Firefighting Aircraft

The DNR uses several types of aircraft to provide tactical aerial firefighting suppression and real time fire information to firefighters on the ground. In FY2021, the DNR filled 264 aircraft requests on 117 state-led wildfire responses. During FY2021, the DNR used a mix of aircraft procured under Exclusive Use and Call-When-Needed contracts, aircraft owned and operated by the DNR, and aircraft obtained through interagency and partnership agreements.

At the start of FY2021 the DNR Division of Forestry owned and operated two airplanes, a Cessna 310 and a Quest Kodiak, used for fire detection, transportation, aerial photography, and logistical and tactical aerial supervision. The Cessna was a 1977 model and the oldest aircraft in the State of Minnesota's fleet. Projected maintenance costs in FY2021 would have exceeded the value of the airplane; the DNR sold this aircraft near the end of FY2021 and is in the process of replacing it with another Kodiak (to be purchased in FY2022).

School Forest Road Fire - Clearwater County

Through Exclusive Use contracts in place for FY2021, DNR had four FireBoss airtankers (800 gallon single engine water-scooping airplanes); two Single Engine Air Tankers (SEATs, ground-based airtankers on wheels); eight helicopters with water buckets; two light airplanes used for aerial supervision; and 22 light airplanes available for fire detection and tactical intelligence. Additionally, DNR Enforcement provided fire detection support with an agency-owned light airplane.

Interagency partnerships continued to be a key part of the DNR's aerial firefighting program. The Red Lake Agency, with assistance from the Bureau of Indian Affairs (BIA), and the U.S. Forest Service (USFS), provided detection aircraft, aerial supervision planes, helicopters, FireBoss and SEATs, as well as large airtanker and CL-415 water scooping air tanker support. The DNR, BIA and USFS partnered to contract additional Call-When-Needed SEATs, two CL-215s, a helicopter, and additional travel trailers to allow flight crews to social distance at airtanker- and heli-bases.

The DNR can also request firefighting aircraft when needed from a variety of other sources including: helicopters from the Minnesota Army National Guard (Blackhawks with 660 gallon water buckets and Chinooks with 2,000 gallon water buckets); helicopters from the Minnesota State Patrol; and CL-215s, CL-415s, and aerial supervision aircraft from the Canadian Provinces of Ontario and Manitoba. In FY2021, two CL-215 water scoopers and an aerial supervision plane from Manitoba responded to a fire near Hibbing while assisting in Ontario.

The DNR operates three airtanker bases and two SEAT bases which accommodate dispatchers, aircraft loaders and ramp personnel, flight crews, helicopters and crew members, as well as equipment for loading water and fire chemicals. The infrastructure at these bases is in need of repair and replacement.

A large airtanker, loaded with fire retardant, leaving the Brainerd airtanker base for a fire.

Rural Fire Department Support

The DNR's Rural Fire Program objectives are to obtain low-cost equipment, manage cost-share grants, and provide technical expertise for Minnesota fire departments.

Federal Excess Property Program

The Federal Surplus Property Program obtains equipment and supplies from military bases across the country; the program distributed items to 410 Minnesota Fire Departments and three state agencies in FY2021. These items included medical supplies and equipment such as defibrillators and blood pressure cuffs. "Rolling stock" items such as a Chevy ¾-ton pickup truck, a Freightliner chassis, and ATVs were also acquired and prepared for distribution. DNR program staff inspected and repaired as necessary the items the agency received to ensure they would provide reliable service.

ATV ready for distribution

Federal Surplus ¾ -ton truck, as received

This Federal Excess Property Program provides an avenue by which rural Minnesota fire departments can secure items to support their emergency response; this often includes items they would likely not be able to acquire on their own.

State Surplus Engines

The Rural Fire Program purchased nine trucks from the State of Minnesota Fleet Program and sold them to rural fire departments. Although these trucks have met the criteria for replacement by state agency fleet managers, they still have service life and can fitted with a pump and tank and used as a grass truck to extinguish small fires. Demand from rural Minnesota communities far exceeds the availability of these units.

Surplus Engine Converted - Grand Lake Fire Department

Volunteer Fire Assistance Grants

The Volunteer Fire Assistance (VFA) 50/50 cost-share program is available to Minnesota fire departments that protect communities of populations of 10,000 or less. The VFA program received 285 applications for the FY2021 grant cycle and awarded 146 grants to Minnesota communities to complete projects or secure emergency response equipment. A total of $488,457 in federal and state funds was granted to provide cost share for radios, pagers, personal protective gear, water movement equipment and wildland firefighting safety items. Funding from a portion of Minnesota's fireworks sales tax provided an additional $100,000 to support 26 grants to rural communities.

Training

The DNR and MNICS offered only a few in-person trainings in FY2021, in accordance with COVID-19 safety guidance. Additionally, the DNR and GLFFC continued their suspension of in-person fire training and meetings. To meet training needs, the DNR developed and delivered virtual versions of the wildland fire safety refresher and other courses. These online courses provided required training and were available to all state agencies and partners. MNICS offered 21 in-person training sessions to 288 personnel under a reduced schedule that accommodated COVID-19 safety guidance.

For a second year in a row, the annual Minnesota Wildfire Academy was canceled due to COVID-19. This joint effort between DNR, MNICS, and Itasca Community College normally draws over 700 students with courses ranging from basic wildfire suppression to dispatch to advanced incident command system (ICS) leadership.

The DNR wildland fire-training program is working with partners to offer more in-person courses in FY2022, in accordance with COVID-19 safety protocols. Student engagement and satisfaction is higher for in-person trainings than E-learning environments. The complexity of course content is best delivered in an interactive, hands-on, face-to-face training where students can apply and improve firefighting techniques and engage in immediate conversation to advance learning.

Fire Prevention

The DNR has long recognized the importance of providing consistent, statewide wildfire prevention messaging to reduce wildfire starts and improve Minnesotans' fire safety awareness and conduct. Delivering fire prevention and safety tips with current wildfire weather information helps Minnesotans avoid burning in unsafe conditions. Minnesota uses a variety of methods to reach residents, including news releases, social media, community events, workshops, classroom visits, parades, and the State Fair. Each activity seeks to provide targeted information to a given audience.

Prevention Activities

As with the other efforts in FY2021, the necessary public health measures under COVID-19 affected DNR wildfire prevention efforts. The DNR substituted traditional prevention efforts, which largely rely on interacting one-on-one with the public at community events and in classroom settings, with virtual and other approaches that did not involve large gatherings.

Wildfire Prevention Week, the third full week of April, included focused social media communications in addition to traditional radio ads to raise awareness about wildfire prevention. Given the extreme wildfire conditions in spring and summer 2021, an aggressive social media campaign was developed to effectively engage the public on safe behaviors, increase awareness of wildfire danger and burning restrictions, and reduce wildfire starts. Frequent, often daily, social media posts were deployed on DNR Facebook, Instagram, and Twitter channels. Newly forged communication partnerships with the Division of Parks and Trails, U.S. Forest Service, MNICS, and others greatly expanded the reach of wildfire prevention messaging and provided tremendous benefit to the effort. The vast majority of public engagement around wildfire prevention and active fire incident safety concerns was well-received and supported by the public.

The first half of FY2021 also saw the cancelation of the in-person Minnesota State Fair due to COVID-19 and a shift to a virtual format. Working with the Governor's Council on Fire Prevention, the DNR participated in a virtual Fire Prevention Day at the State Fair. To help provide a State Fair experience, the DNR hosted a "virtual" climb of the State Fair fire tower. Although the virtual Fire Prevention Day provided a limited experience, it maintained the relationships and collaboration between agencies and the connection between the State Fair and fire prevention education.

Firewise Program

The Minnesota Firewise Program supports Minnesota communities through a combination of grants and technical assistance. This combination helps communities reduce their risk and prepare for wildfires and mitigate potential damage. The program assists with wildfire assessment and planning, resulting in the establishment of a Community Wildfire Protection Plan. When implemented, this plan reduces fire risk by addressing known hazards or problems. Each plan identifies issues or areas on which the community should focus its fire prevention and mitigation efforts.

The Minnesota Firewise Program also supports home risk evaluations and trains local emergency response staff to conduct evaluations. In FY2021, program staff developed and launched a digital survey tool that allowed local emergency response staff to record and upload on-site home and property risk assessment data electronically. In addition, the program provided curriculum to teachers and schools across the state through the Firewise in the Classroom Program. During FY2021, 16 educators requested the curriculum materials for delivery to approximately 400 students.

In FY2021, DNR Firewise staff participated in the Northeast Regional Strategy Committee in support of the National Cohesive Strategy. This committee developed a Wildfire Risk Assessment Portal for use by the public, natural resource professionals, and emergency managers. This tool will help individuals identify risk and connect both landowners and community planners with wildfire mitigation specialists. Additionally, Fire Prevention staff presented numerous virtual webinars and virtual training events to continue providing information to communities at risk for wildfire.

Fire Wardens and Burning Permits

For most of FY2021, DNR encouraged the public to contact area offices to obtain burning permits to reduce numbers of the public going to fire warden homes for permits. As COVID-19 guidance adjusted, fire wardens had the option of issuing the three-day permits if they were comfortable resuming that service.

In response to the COVID-19 pandemic, the DNR once again canceled in-person training sessions for fire wardens. Fire wardens remained updated on burning restrictions and changes to burning permits via email and postcards. The DNR plans to resume in-person training sessions in FY2022, as COVID-19 safety protocols allow.

An update to the burning permit electronic system now allows for an electronic signature for open burning permits issued online. This improvement eliminates the need for individuals to print out and sign their permits. In addition, the system is also undergoing an improvement that will streamline the activation process for open burning permits and upgrade the automated permit activations phone system.

Conclusion

The drought that began in the latter part of 2020 extended into 2021, and dry conditions led to an extended fire season in the latter half of FY2021. This extended season affected wildfire expenditures and required firefighters to remain ready to respond with few breaks. Those conditions worsened through the first part of FY2022, putting further strain on firefighters and resources. As a result of this continued high level of wildfire activity in July through September of 2021, FY2022 wildfire response expenditures will be above average, even if the second half of FY2022 exhibits below-average wildfire activity.

Fortunately, by mid-September the drought conditions across the state begin to improve, allowing for slow recovery from the extreme wildfire conditions. Additional precipitation is needed if Minnesota is to fully recover from the drought conditions that still affect much of the northern and central portions of the state.

COVID-19 guidance and requirements greatly influenced FY2021 wildfire preparation and suppression activities. The DNR followed processes and protocols necessary to reduce firefighter exposure while maintaining suppression capabilities, allowing for continued resource protection throughout the state. The COVID-19 procedures, implemented in March 2020, remained in place to guide the DNR's preparations and suppression operations.

Attachment 1: 2021 Emergency Fire Direct and Open Appropriations / State Expenditures by Category

FY2021 Emergency Fire Direct and Open Appropriations	
Direct Appropriation	$ 8,023,145
Open Appropriation	$ 22,659,658
Total Expenditures	$ 30,682,803
State Expenditures by Category	
Salary Costs	$ 14,875,658
Operating Costs	$ 15,807,145
Total Expenditures	$ 30,682,803

Attachment 2: Guideline for Statewide Wildfire Planning Level Determination

Guideline for Statewide Wildfire Planning Level Determination					
	PLANNING LEVEL I	**PLANNING LEVEL II**	**PLANNING LEVEL III**	**PLANNING LEVEL IV**	**PLANNING LEVEL V**
BI (Q) spring, pre-green, floating 5 day average	Not applicable	0-45	46-70	71-95	96+
BUI (**after June 1**, floating 5 day average)	Not applicable	0-25	26-50	51-67	68+
ERC (Q) (alternate summer/fall indicator, after June 1, floating 5 day average)	Not applicable	0-15	16-29	30-36	37+
8-14 day Weather Forecast	Winter conditions, most of state snow covered, temps below freezing.	Normal conditions for season, adequate precip. expected	Less than normal precip. and RH, higher than normal temps forecast	Dry weather patterns persisting, no change forecast	Dry pattern intensifying. Unstable weather forecast leading to extreme fire behavior conditions.
MN DNR Regional Planning Levels	All DNR Regions/Agencies at P.L. I	One or more DNR Regions/Agencies at P.L. II	Two or more DNR Regions/Agencies at P.L. III	Two or more DNR Regions/Agencies at P.L. IV	Two or more DNR Regions/Agencies at P.L. V
Eastern Area Planning Level	I	I - II	I - III	I - IV	I - IV
National Planning Level	I - II	I - III	I - IV	I - V	I - V
Fire Occurrence (Initial Attack)	Rare, infrequent fire occurrence	Fires reported in scattered Areas. Generally less than 10 fires/day statewide.	Multiple Areas/Agencies reporting fires. 10 to 20 fires/day statewide	Multiple Areas/Agencies reporting fires. 20 to 30 fires/day statewide	Multiple Areas/Agencies reporting fires. 30+ fires/day statewide.
Fire Occurrence (Escaped fires)	None	None	1-2 fires requiring extended attack statewide (with active fire)	3-5 fires requiring extended attack statewide	5+ fires requiring extended attack statewide
Sociopolitical Considerations	Statewide or Regional events such as fishing opener or the Fourth of July; natural events such as floods or windstorms; other unexpected or unusual events that may have large scale impacts should be considered.				
Resource Availability	Normal complement of personnel.	No shortages expected.	Moderate demand for some in-state resource types expected	Shortage of certain in-state resource types	Most in-state resources committed. Out-of-State assistance necessary.
In-State Mobilization	None	Less than 5% of statewide resources assigned out of home unit.	Some short term movement occurring, 5-10% of statewide resources assigned out of home unit.	10-20% of statewide resources assigned out of home unit.	20%+ of statewide resources assigned out of home unit.
Out-of-State Mobilization	If out-of-state mobilization is occurring or anticipated to occur, an 'A' designator will be applied at the current Planning Level.				

- Once Planning Level III has been reached in the spring, preparedness will not drop below that level until May 31 or later.
- Terms used above, which are calculated daily from weather and fuel measurements:
  - BI (Q) = **Burning Index**, fuel model Q: A measure of fire danger based on the probability of ignition and fire spread in a specified forest type.
  - BUI = **Build Up Index**: An indication of the dryness of larger-sized woody fuels, which becomes a significant factor during a drought.
  - ERC (Q) = **Energy Release Component**, fuel model Q: A measure of the expected heat release from a fire, which will be experienced by firefighters on the fire line

Attachment 3: FY2021 State Fire Cost Summary

FY2021 - State Fire Cost Summary			
By Type of Activity and Appropriation			
	Emergency Firefighting Direct Appropriation	**Emergency Firefighting Open Appropriation**	**Total Open and Direct Combined**
Fire Prevention	5.9%	0%	**1.5%**
Fire Presuppression	84%	24.5%	**40%**
Fire Suppression	10.1%	75.5%	**58.4%**
Total	**100%**	**100%**	**100%**

Fire Prevention activities include public information and education, fire permitting, and operation of the Township Fire Warden system, as well as advice and assistance to communities and homeowners about protecting their property in the event of a wildfire (Firewise).

State fire prevention activities are supplemented by annual grants from the U.S. Forest Service as follows:

- State Fire Assistance – approximately $638,000 (supports fire prevention and readiness).
- Volunteer Fire Assistance – approximately $335,000 federal support and $8,000 state support through sales tax on fireworks (supports Rural Fire Department readiness).
- Cooperative Fire Assistance – approximately $300,000 (Wildfire Risk Reduction grants support Firewise – Community Fire Protection activities).

Fire Presuppression includes activities undertaken before a fire happens to ensure more effective suppression. These activities include: overall planning; recruitment and training of personnel; procurement of firefighting equipment and contracts; and maintenance of equipment and supplies.

Fire Suppression includes direct action to suppress wildfires and other activities that support and enable the DNR to suppress wildfires, including the prepositioning of firefighting resources.

Attachment 4: Wildfire Activities 10-Year Expenditure History

10/20/2021

Department of Natural Resources, Division of Forestry

Wildfire Activities Ten Year Expenditure History

Nominal Dollars By Source of Funds		FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	10 Year Average
Emergency Fire-Direct	(c)	$7,066,975	$7,184,311	$6,918,792	$7,363,656	$6,739,596	$7,160,792	$6,939,074	$7,840,566	$7,018,468	$8,023,145	$7,225,538
Emergency Fire-Open		$17,303,580	$23,373,476	$15,008,912	$18,971,895	$17,709,549	$16,271,730	$16,487,420	$15,312,697	$16,811,184	$22,659,658	$17,991,010
Fire Activity Total		$24,370,555	$30,557,787	$21,927,704	$26,335,551	$24,449,145	$23,432,522	$23,426,494	$23,153,263	$23,829,652	$30,682,803	$25,216,548
Cost Recovery	(a)	$1,523,872	$3,426,210	$602,622	$1,032,502	$628,660	$262,871	$1,626,745	$1,458,506	$467,535	$231,512	$1,126,104
Net Cost to General Fund		$22,846,683	$27,131,577	$21,325,082	$25,303,049	$23,820,485	$23,169,651	$21,799,749	$21,694,757	$23,362,117	$30,451,291	$24,090,444
Reimbursable Mobilization Fire Costs	(b)	$4,913,097	$4,451,095	$1,806,396	$2,106,290	$4,370,469	$3,423,285	$4,558,888	$3,722,193	$1,701,859	$1,401,104	$3,245,468

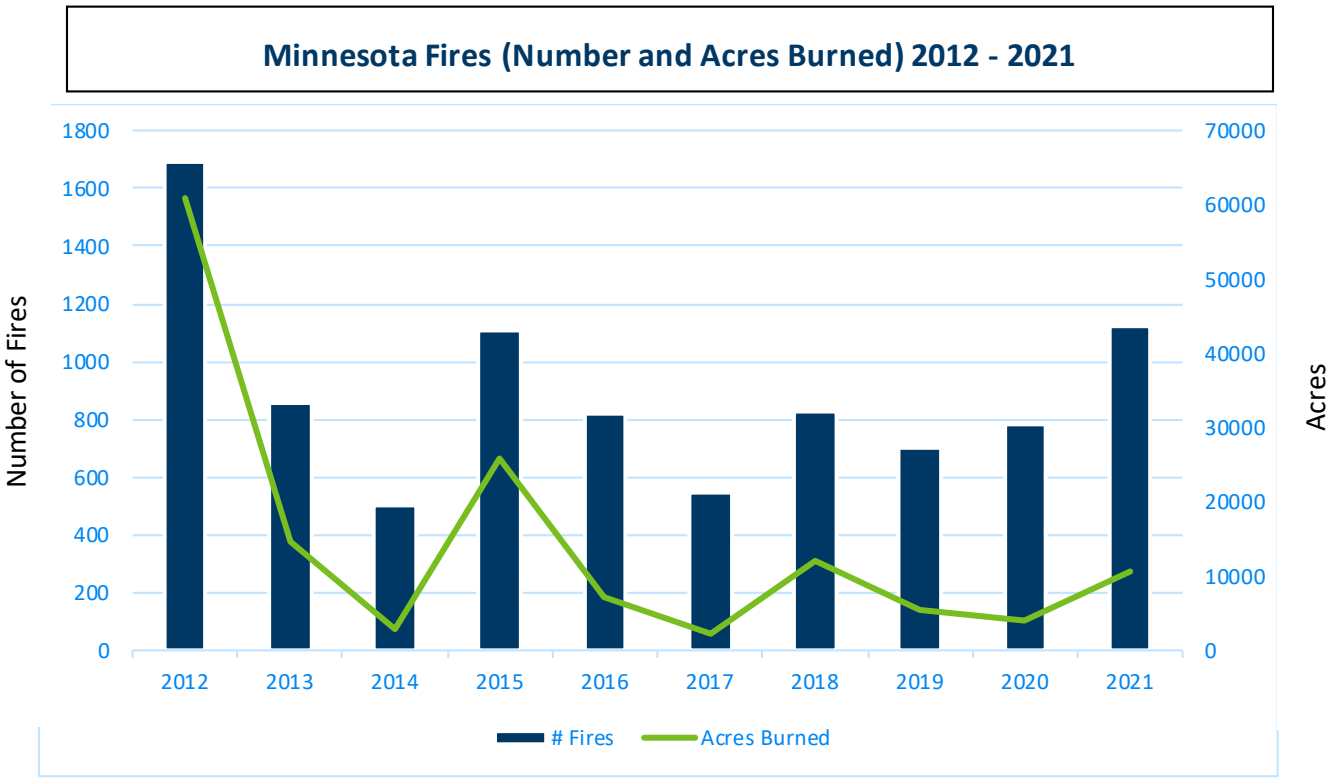
(a)Fire Cache Sales, Fire Cost Collections, Permanent School Trust Fund - protection services reimbursement, excess recovery from Special Revenue Fund. Beginning in FY 02, Cost Recoveries were deposited to the general fund. In FY 10, School Trust Fund protection services were included retroactive to FY 2001. FY 2013 was the last year School Trust Funds were applied.

(b) This is not a state expenditure. Costs are initially expended from the Fire Fund for assistance to federal partners and other states. Minnesota will be reimbursed.

(c) Beginning in FY2009, $600,000 leave time (vacation, sick leave) attributable to fire activity that had been funded through the forest management account, moved to the emergency fire appropriation.

(a) Cost Recovery Breakout	$ 231,512
Fire Cost Collections -	$ 179,239
Fire Cache Sales -	$ 52,263
Excess Recovery, Sp. Rev.	$ None

Attachment 5: Minnesota Fires, Numbers and Acres Burned 2012 - 2021



Attachment 6: FY2021 Wildfires by Cause