DEPARTMENT OF NATURAL RESOURCES

Annual Report on

Emergency Firefighting Expenditures

Fiscal Year 2022

01/15/2023

Figure 1: Firefighting aircraft flies over the Greenwood Fire in Lake County.

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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 2022 (FY2022). The DNR expended $37,879,846 from the General Fund in FY2022 for wildfire protection and emergency response. This includes $30,562,459 from the Emergency Firefighting Open Appropriation.

Overall, FY2022 fire expenditures exceeded the 10-year average expenditures by more than 40 percent. This increase is directly related to weather and drought conditions through the summer and into the fall of 2021. The continuance of the drought that began in the second half of FY2021 required additional preparedness and suppression costs during the first quarter of FY2022.

In FY2022, the DNR responded to 740 wildfires that burned 5,568 acres in Minnesota. This is below the 20-year annual average of 1,027 fires and 24,676 acres. With that said, the first quarter of FY2022 saw much greater fire activity than the previous five years. Fire risk began to subside in the second quarter of FY2022, and a good winter snowpack and delayed snow melt reduced wildfire risk and occurrence in the third and fourth quarters of FY2022.

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 reflected in the fact that the number of fires and acres burned in FY2022 were less than the 20-year annual average despite a very active and prolonged fire season in the first quarter of FY2022.

Dry conditions at the end of FY2021 progressed to drought conditions across most of the state during the first half of FY2022, without the typical mid-summer reduction in wildfire risk and fire occurrence. As a result of the continued high level of wildfire activity in the first quarter of FY2022, the overall FY2022 wildfire response expenditures were above average even though the second half of FY2022 had below-average wildfire activity.

In FY2022, 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 56 tracked vehicles designed to access off-road and remote areas. The DNR uses a mix of state-owned and contracted aircraft plus aircraft from interagency and state partnership agreements. Firefighting aircraft responded to 230 requests on 90 wildfires.

In cooperation with partner agencies, the Minnesota Incident Command System (MNICS) rostered three Type III Incident Management Teams (IMTs) in FY2022. The MNICS and other IMTs supported several incidents during the first quarter of FY2022, responding to eight large wildland fire incidents in Minnesota. There were no incidents in the remainder of FY2022 that required IMT activation.

Purpose of this Report

The costs for state-led emergency wildfire response are borne by the General Fund via both direct and open appropriations. 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.[1] 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 2021, special session 1, chapter 6, article 1, 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 2021, special session 1, chapter 6, article 1, 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 FY2022, the DNR expended $7,317,381 from the Direct Appropriation and $30,562,459 under the Open Appropriation authority, for a total FY2022 expenditure of $37,879,846 for state-led wildfire response.

The greater-than-average expenditure in FY2022 was largely due to the continuance of the FY2021 drought conditions into FY2022. The drought conditions, combined with the extended weather period of warmer temperatures, lower relative humidity, and high winds, created the conditions for an extended period of high fire activity during the second half of FY2021 that continued into the first quarter of FY2022.

Wildfire expenditures are related to 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 and protect life and property. The success of the DNR’s preparedness and quick-response efforts is demonstrated by the fact that the number of fires and acres burned in FY2022 were

[1] See Minnesota Laws 2021, First Special Session Ch. 6, Art. 1, Sect. 3, Subd. 4.

less than the 20-year annual average despite the elevated and extended wildfire risk in the first quarter of FY2022.

Attachment 1, FY2022 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 are 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.

FY2022 Receipts:

Cache Sales	$17,903
Fire Cost Collections	$137,213
Total	$155,116

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 open appropriation and are included in this report for enhanced transparency. The DNR provides firefighters and aircraft to help federal partners within Minnesota, mobilizes firefighters to assist national wildfire emergencies in other states, and aids 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 FY2022, the DNR expended $7,227,090 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 open 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 FY2022, as there was a delay in reimbursements from federal agencies for expenditures related to wildfire suppression aid the DNR provided.

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 FY2022 were $155,116.

Total FY2022 Reimbursements to the General Fund:

Cache Sales	$17,903
Fire Cost Collections	$137,213
Excess Recovery (Special Revenue)	None
Total	$155,116

Planning and Readiness

Weather patterns, fuel conditions, and actual fire occurrence affect wildfire preparedness and response costs. Before 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-planning levels. Attachment 2, A Guideline for Statewide Planning Level Determination, shows the criteria and 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.

FY2022 had 275 days of possible wildfire danger (i.e. at least one DNR Region at Planning Level II or higher). Of those possible wildfire days, 64 were at Planning Level II, 40 were at Planning Level III, 74 were at Planning Level IV, and 16 were at Planning 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 (planning 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 FY2022, on 10 days at least one Area was at Planning Level II while the rest of the state was at Planning Level I. On 64 days, at least one Area was at Planning Level III while the rest of the state was at Planning Level II. On seven days, at least one Area was at Planning Level IV while the rest of the state was at Planning Level III.

Various factors and requirements affected Area staffing needs in FY2022, with local weather conditions (e.g. precipitation, temperature, wind speed, and relative humidity) influencing each Area's planning and staffing levels.

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.

Figure 2: An "AT-20" tracked vehicle operating in a remote area.

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 staff and resources. As fire danger and occurrence increase, the number of resources positioned for immediate response also increases.

Presuppression costs were approximately 33 percent, or $12,625,293, of expenditures from the Direct and Open fire appropriations in FY2022. Suppression costs were approximately 66 percent, or $24,981,813, of FY2022 expenditures from the Direct and Open fire appropriations. One 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, FY2022 State Fire Cost Summary, illustrates the percentages of fire expenditures allocated to prevention, presuppression, and suppression activities. Attachment 4, Wildfire Activities 10-Year Expenditure History, illustrates expenditure history. Overall, FY2022 fire expenditures exceeded the 10-year average by about 40 percent. The additional expenditures were necessary to prepare for and respond to the extended fire season in the first quarter of FY2022.

Fire Occurrence and Causes

In FY2022, the DNR responded to 740 wildfires within our jurisdiction that burned 5,568 acres. The number of fires is less than the 20-year annual average of 1,027 fires. The number of acres is significantly less than the 20-year average of 24,946 acres burned.

Number of Wildfires by Cause

	FY 2022	%	20-Year Average	%
Debris Burning	201	27.2	353	34
Incendiary / Arson	53	7.2	254	25
Misc. / Unknown*	296	39.7	181	18
Equipment Use	123	16.8	122	12
Campfires	25	3.4	47	4
Lightning	31	4.2	19	2
Smoking	8	1.1	20	2
Railroad	3	0.4	31	3
Total	740	100%	1,027	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.

The only category that increased significantly when compared to the 20-year average is the Miscellaneous/Unknown category. With the restrictions in place for most of 2021 and severe drought conditions, any electric fence, power line, or roadside starts quickly became a wildfire. Imposing restrictions to open burning do not control these types of fire starts.

To reduce the likelihood of wildfire starts, the DNR established burning restrictions early in the spring of 2021 that remained in place into the fall – much longer than a year with normal precipitation and temperatures. Fire restrictions were also put in place in the spring of 2022, to reduce the risk of wildfires during the typical dry period before plants break dormancy and begin to green up. These preventative measures helped keep the total FY2022 number of fires below the 20-year average despite the drought conditions that occurred in the first half of FY2022.

Attachment 5, Minnesota Fires and Acres Burned, and Attachment 6, FY2022 Wildfires by Cause graphically illustrate fire history and causes.

Weather Summary

FY2022 began with drought conditions extending over almost the entire state (see Figure 3 at right). Those conditions peaked in August and included Exceptional Drought (the highest category of drought intensity) covering approximately 8% of the state.

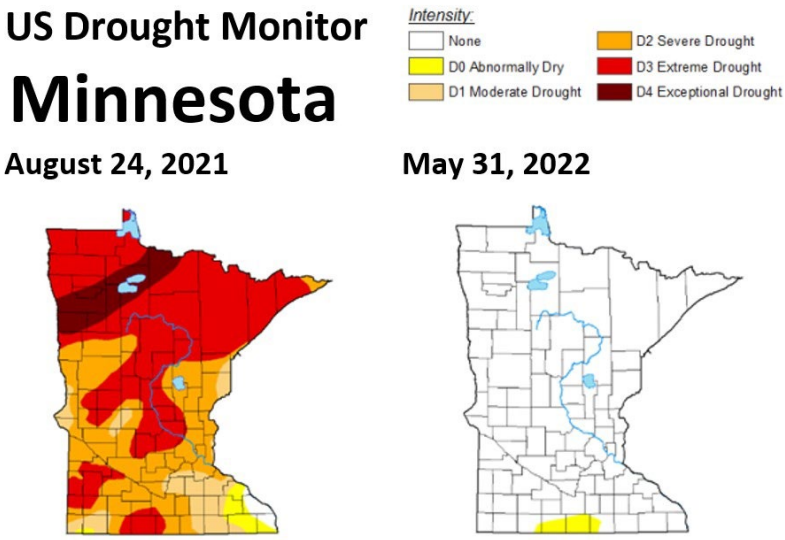


Figure 3: A snapshot of the US Drought Monitor.

By early fall, a change in the national weather pattern brought rainfall that began to lessen the drought conditions across Minnesota. The wet fall was followed by a winter with near record-setting snowpack over parts of northern Minnesota. Aided by a cool, wet spring, this excess snow remained in place longer than normal. While this lingering snowpack helped to reduce wildfire risk and the number of wildfires, it also contributed to historic flooding along the Canadian border. By May 2022 nearly all indicators of drought had disappeared. June marked the start of summer with more a typical weather pattern. By the end of the month, however, some locations in the southern half of Minnesota saw the return of abnormally dry conditions.

Fire Response

Cooperative Fire Response

In-state cooperative fire response was active throughout FY2022. In cooperation with partner agencies, MNICS rostered three Type III IMTs, which all remained in active rotation through the summer and fall of 2021, and were reactivated in the spring of 2022. The MNICS IMTs in addition to IMTs from other states or regions supported several incidents during the first quarter of FY2022. All three MNICS Type III IMTs were mobilized to Minnesota incidents during the summer and fall of 2021. These IMTs responded to eight large wildland fire incidents within that timeframe. There were no incidents in the spring of 2022 requiring activation of an IMT.

The DNR also provided staff to fill rosters of two Type II IMTs within the US Forest Service Eastern Area (EA); both were resource ordered to assist Minnesota on incidents in the summer and fall of 2021. The first EA Type II IMT was ordered to support suppression operations of the Superior West Zone Complex (several wildfires west of Duluth). The second EA Type II IMT, which was heavily supported by Minnesota fire staff and resources, was ordered for the Greenwood Fire (a large fire near Isabella).

The DNR requested and received significant mutual aid support from federal agencies and other states during the summer and fall of 2021 due to the high fire risk and activity across the state. In addition to the EA Type II IMTs referenced above, a Northern Rockies Type II IMT was brought in to relieve the EA

Type II IMT managing the Greenwood Fire. Two out-of-state Type III IMTs were also requested and received to support Minnesota fire suppression efforts and provide a brief reprieve for the MNICS teams: the Southern Idaho Type III IMT and the Great Basin Type III IMT. The Southern Idaho Team managed the Crane Fire in Polk County, while the Great Basin Team helped manage fire operations more generally. The DNR also requested resources under the GLFFC. All told, more than 50 wildfire suppression crews, 100 engines, and 370 single-resource personnel were ordered and received from out-of-state to suppress Minnesota wildfires in 2021.

The assistance summarized above reflects the support and cooperation outlined in mutual aid agreements with federal agencies, other states, and adjacent Canadian provinces. These mutual aid agreements helped Minnesota meet its fire suppression needs during the extreme conditions experienced in the first quarter of FY2022. These agreements also allow the DNR to respond to out-of-state requests for mutual aid when wildfire activity and risk is low in Minnesota, provide training opportunities, help maintain the DNR's response capabilities, and can help offset state costs.

Minnesota's historic fire season in the first quarter of FY2022 limited resources available to assist out-of-state requests. As Minnesota's fire risk conditions improved during the second half of FY2022, the DNR provided 70 personnel to assist with wildfire response in Alaska, Arizona, California, Colorado, Idaho, Indiana, Illinois, Missouri, Montana, New Mexico, Nevada, Oregon, South Dakota, Texas, Vermont, Washington, and Wyoming.

The COVID-19 virus continued to present challenges for the DNR, as well as other wildland fire agencies throughout the country, during FY2022. 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.

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. In-person instruction, suspended during the height of the COVID-19 pandemic, resumed in June 2022 when the Minnesota Wildfire Academy was held for the first time in two years.

Interagency All Hazard Response

Minnesota trains firefighters to national standards for wildfire and incident management 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 FY2022, there were three in-state all-hazard response events that the DNR supported with personnel.

- In January 2022, the DNR mobilized personnel and vehicles to help distribute COVID-19 vaccines under Governor's Executive Order 21-24.
- In May and June 2022, the DNR mobilized 78 personnel to assist with flood response efforts in Koochiching and St. Louis counties under Governor's Executive Orders 22-13 and 22-15.

In-state Wildfire Response

In FY2022, Minnesota experienced 740 wildfires that burned 5,568 acres. The number of wildfires and acres burned is below the 20-year average (1,027 and 24,946, respectively). The relatively high number of fires and acres burned that occurred in July and August of 2022 (compared to the five-year average for those same months) was offset by relatively lower numbers as FY2022 progressed.

Firefighting Ground Fleet

The DNR firefighting fleet includes fire engines and tracked vehicles. Fire engines are medium- to large-sized pickup trucks, customized for wildland firefighting. Fire engines are deployed 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 and difficult-to-access sites. 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 wildfire site.

Figure 4: Type 6 service body engine towing a J-5 tracked vehicle.

The complement of equipment varies among DNR Areas depending on local fuel, topography, and soil conditions. The DNR strives to have reliable and efficient fire 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 to purchase and operate than larger sized engines and 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 200 gallons of water. Service body pickups are 1½-ton medium pickups. They are fitted with storage compartments that provide 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, such as bulldozers, to a fire.

Engines		
Type	Size	Number in all DNR Forestry Areas
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 56, mostly older, tracked vehicles. Maintaining these aging machines is costly and time-consuming as replacement parts are harder to find. The DNR tracked vehicle fleet includes nine 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. The DNR is in the process of transitioning to AT-20 units as replacements for the aging J-5s based on a successful pilot of the AT-20s that began in FY2021. The DNR plans to order multiple AT-20 units each year until all of the J-5s have been replaced.

A similar situation of aging equipment exists in the Muskeg fleet, the DNR's larger tracked vehicles. All of the Muskeg units were manufactured before 2006. Pilot testing of a newer model -- the AT-50 -- proved it is a good replacement for the older Muskegs. The DNR plans to order one AT-50 each year until all the Muskegs are replaced.

Tracked Vehicles		
Type	Model	Number in all DNR Forestry areas
CT	Cross Tracker	3
LT-5	Lite Tech	3
Total Light Tracks		6
J-5	Bombardier	9
J-5	Camoplast	21
AT-20	All Track	9
Total Medium Tracks		39
Muskeg	Bombardier	7
Muskeg	Camoplast	1
AT - 50	All Track	3
Total Muskeg		11
Total Tracked Vehicles		56

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 FY2022, the DNR filled 230 aircraft requests on 90 state-led wildfire responses. DNR-owned and contracted aircraft were also deployed to wildfires in other jurisdictions; the cost of those deployments is reimbursable.

Figure 5: An aerial view of the Duck Creek Fire in Morrison County.

In FY2022 the DNR Division of Forestry owned and operated a Quest Kodiak, which is used for fire detection, transportation, aerial photography, and logistical and tactical aerial supervision. The DNR procured a second Kodiak airplane to replace the 1977 Cessna 310 that was sold at auction near the end of FY2021. The DNR received the airplane in December 2022.

During FY2022 the DNR relied on 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 for fire detection and suppression efforts. Through exclusive use contracts in place for FY2022, the DNR had four Fire Boss 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, the DNR Division of Enforcement provided fire detection support with an agency-owned light airplane and supported fire suppression efforts using an agency-owned helicopter with a water bucket.

Figure 6: Large airtanker loaded with fire retardant, leaving the Brainerd airtanker base

Interagency partnerships continued to be a key part of the DNR's aerial firefighting program in FY2022. The Red Lake Nation, Bureau of Indian Affairs (BIA), and the U.S. Forest Service (USFS) provided detection aircraft, aerial supervision planes, helicopters, Fire Bosses, SEATs, and large airtanker and CL-415 water-scooping air tanker support. The DNR, BIA, USFS and the U.S. Fish and Wildlife Service partnered to contract additional Call-When-Needed SEATs, two CL-215s, and helicopters.

The DNR received additional firefighting aircraft support from the Minnesota Army National Guard (Blackhawks with 660-gallon water buckets). Two CL-215 water scoopers and an aerial supervision plane from Manitoba were also positioned in Brainerd for fire response for 13 days in August and September, 2021.

The DNR operates three primary 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. In FY2022, the DNR purchased an existing hangar at the Grand Rapids airport to store DNR-owned aircraft for the divisions of Forestry and Enforcement. Prior to that purchase, the DNR had been leasing hangar space that did not fully meet the needs of the department.

Rural Fire Department Program

The DNR 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 Excess Property Program obtains surplus equipment and supplies from military bases across the country; the equipment and supplies are refurbished and made available to rural fire departments in Minnesota. The Federal Excess Property Program allows rural Minnesota fire departments to secure items to support their emergency response efforts, including items they are less likely to acquire on their own. In FY2022, hundreds of pieces of equipment valued at over $8 million were provided to more than 60 Minnesota communities. This equipment included heavy-duty pickup trucks, Type 6 engines, Type 1 pumpers, Water Tenders, generators, all-terrain vehicles, and shipping containers.

Figure 6: A fire tender used by the Ellendale Rural Fire Department

Figure 7: A tender used by the Randall Fire Department Tender

State Surplus Engines

The Rural Fire Program purchased six trucks from the State of Minnesota Fleet Program and sold them to rural fire departments at low or no cost. Although these trucks have met the criteria for replacement by state agency fleet managers, they still have service life and can be fitted with a pump and tank and used as a grass/brush truck to extinguish small fires. Demand from rural Minnesota communities far exceeds the availability of these trucks.

Figure 8: Ellendale Fire Department Brush Truck

Volunteer Fire Assistance Grant Program

The Volunteer Fire Assistance (VFA) 50/50 cost-share program is available to Minnesota fire departments that protect communities with populations of 10,000 or less. The VFA grant program received 284 applications for the FY2022 grant cycle and awarded 152 grants to Minnesota communities to complete projects or secure emergency response equipment. A total of $504,880 in federal and state funds was granted to provide cost share for radios, pagers, wildland firefighting gear, personal protective gear, and water movement equipment. Funding from a portion of Minnesota's fireworks sales tax provided an additional $100,000 to support 20 grants to rural communities.

Training

The DNR and MNICS resumed in-person wildfire training in spring 2022. With the cooperation of MNICS and GLFFC, the DNR offered more than 92 courses in FY2022 to GLFFC partner agencies, fire departments, and affiliates. Courses ranged from basic firefighting to advanced leadership and reached more than 2000 students in FY2022.

The 20th Annual Wildland Fire Academy, held in June 2022, featured over 20 nationally certified courses related to basic wildland firefighting wildland fire planning, operations, and leadership. A total of 521 students registered for these courses. Nearly 50 instructors from MNICS agencies were also involved. A feature of the 2022 Wildland Fire Academy was the creation of an IMT that included trainees to facilitate

the delivery of the week-long academy. This IMT allowed participating trainees to work toward national certifications while gaining real-world experience and mentoring from certified team members. More than 15 IMT trainees participated.

The DNR and partners offered an additional 24 fire-related training courses to 415 personnel. Courses ranged in topic from basic wildfire suppression to leadership and dispatch. Also in FY2022 the DNR delivered 46 fire line refresher courses to over 1,100 personnel from federal, state, and local agencies.

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.

Figure 9: Minnesota State Fair Fire Tower

Prevention Activities

Public health concerns related to COVID-19 continued to affect DNR wildfire prevention efforts in the first half of FY2022. The DNR substituted many of the large and in-person prevention efforts with virtual and remote learning options, along with small group or focused outreach efforts. The COVID-19 threat was reduced in the second half of FY2022, which allowed the return to more typical fire prevention efforts.

Due to the timing of the Minnesota State Fair in the first half of FY2022, the DNR had to limit participation to protect staff and volunteers from COVID-19 and to focus on suppression work during the record-breaking fire season. However, DNR staff were able to participate outdoors with Governor's Fire Prevention Day activities on the DNR grounds as well as the flag raising ceremony. The DNR also worked with numerous fire service partners to develop an interactive, virtual event that extended a single day of contact to six weeks of activities that participants could access from home, such as a DNR-created virtual state fair fire tower video.

With the onset of the spring wildfire season, prevention efforts shifted to communicating wildfire risk through radio ads, news releases, and social media. During the third week of April, Minnesota Wildfire Prevention Week, social media was used to educate Minnesotans about wildfire prevention, engage on safe behaviors, increase awareness of wildfire danger, and reduce wildfire starts. Frequent, often daily, social media posts were deployed on DNR Facebook, Instagram, and Twitter channels.

Finally, newly forged communication partners such as the DNR Division of Parks and Trails, U.S. Forest Service, MNICS, and others, greatly expanded the reach of wildfire prevention messaging. The public responded well to most wildfire prevention and active fire safety communications.

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 FY2022, Firewise Program staff trained partners in the use of a newly developed digital survey tool that allows 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 FY2022, 13 educators requested the curriculum material for delivery to approximately 350 students. Additionally, Firewise staff presented numerous webinars and virtual training events to landowners, community members and community leadership in the northern part of the state.

Program staff also worked closely with the USFS and other Northeast Region state fire officials on the development of the Northeast-Midwest Wildfire Risk Assessment Portal, which was deployed in spring of 2022. This portal allows the public to access data and communicate wildfire risk with other landowners. In addition, the portal provides wildfire risk assessment capability for professional users to evaluate hazards and identify mitigation steps for local communities.

Fire Wardens and Burning Permits

The DNR manages the open burning permit system based on current conditions and the potential for wildfires. To insure easy access, the DNR uses a combination of an electronic permit system and volunteer fire wardens. Individuals may obtain a permit in person from a fire warden, or online in the electronic system.

When fire activity in Minnesota necessitates action, the DNR restricts open burning in the affected counties. If conditions worsen, additional restrictions (e.g., restriction of campfires) can be implemented through DNR Commissioner's Orders in counties of greatest concern. Each expansion or elevation of the restriction level is communicated through news releases, media interviews, and the DNR's Fire Danger and Burning Restriction web page. When conditions improve, restrictions are reduced or lifted, and those changes are communicated.

Due to the COVID-19 pandemic, many fire wardens paused issuance of burning permits to limit contact (permits could still be obtained online). In the first quarter of FY2022, the availability of burning permits was restricted due to the drought conditions and the extreme wildfire activity in several northern Minnesota counties. As the pandemic threat lessened in the second half of FY2022, most fire wardens

resumed issuing burning permits in person if they felt comfortable doing so once burning restrictions were lifted. The DNR continues to use social media to promote the online burn permit system.

The COVID-19 pandemic continued to affect fire warden trainings in FY2022 and the DNR continued to refrain from in-person trainings. Rather, the DNR communicated information about burning restrictions and permits through email, postcards and phone calls. In-person training will resume in FY2023.

The DNR is currently updating how we activate burning permits via a phone to activation through Twilio, a digital communications platform. The system will begin testing soon. Once functional and reliable, the new system will be implemented.

Conclusion

The drought that began in the latter part of 2020 persisted into fall 2021, and continued dry conditions led to an extended fire season in the first part of FY2022. This extended season affected wildfire expenditures and required firefighters to remain ready to respond with little opportunity for reprieve. The continued need for fire readiness and suppression in the first quarter of FY2022 caused wildfire response expenditures to exceed the 10-year average.

Drought conditions improved in fall 2021, followed by abundant snowfall and a delayed snowmelt that mitigated fire risk in spring 2022. As a result, the overall number of wildfires and acres burned in FY2022 were below the 20-year average.

COVID-19 guidance and requirements remained in place for FY2022 for all wildfire preparation and suppression activities. The DNR continued to follow the processes and protocols established to reduce firefighter exposure while maintaining suppression readiness and response to protect life, property, and natural resources throughout the state.

Attachment 1: 2022 Emergency Fire Direct and Open Appropriations / State Expenditures by Category

Appropriations	
Direct Appropriation	$ 7,317,387
Open Appropriation	$ 30,562,459
Total Expenditures	$ 37,879,846
Expenditures, by Category	
Salary Costs	$ 16,448,551
Operating Costs	$ 21,431,295
Total Expenditures	$ 37,879,846

Attachment 2: 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: FY2022 State Fire Cost Summary

FY2022 - 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	3.7%	0%	**0.7%**
Fire Presuppression	84.4%	21.1%	**33.3%**
Fire Suppression	11.9%	78.9%	**66%**
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, 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

10/24/2022

Department of Natural Resources, Division of Forestry

Wildfire Activities Ten Year Expenditure History

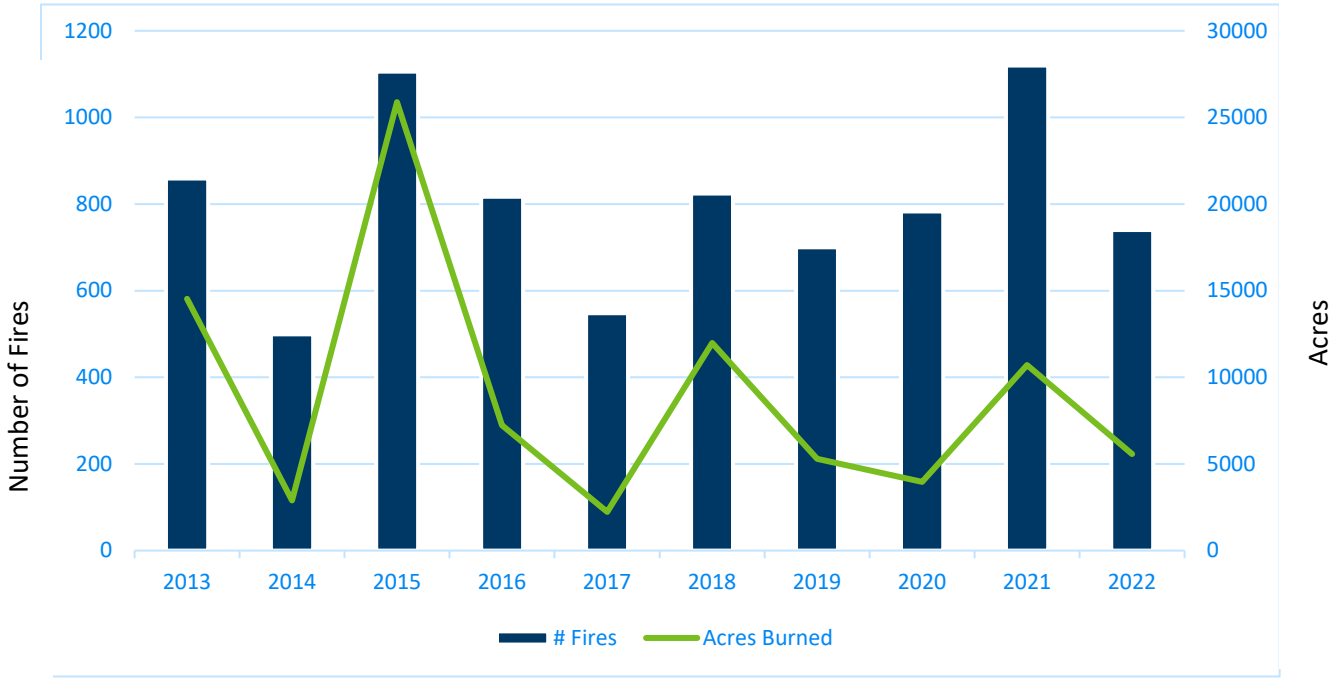
Nominal Dollars By Source of Funds		FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	10 Year Average
Emergency Fire-Direct		$7,184,311	$6,918,792	$7,363,656	$6,739,596	$7,160,792	$6,939,074	$7,840,566	$7,018,468	$8,023,145	$7,317,387	$7,250,579
Emergency Fire-Open		$23,373,476	$15,008,912	$18,971,895	$17,709,549	$16,271,730	$16,487,420	$15,312,697	$16,811,184	$22,659,658	$30,562,459	$19,316,898
Fire Activity Total		$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	$37,879,846	$26,567,477
Cost Recovery	(a)	$3,426,210	$602,622	$1,032,502	$628,660	$262,871	$1,626,745	$1,458,506	$467,535	$231,512	$155,116	$989,228
Net Cost to General Fund		$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	$37,724,730	$25,578,249
Reimbursable Mobilization Fire Costs	(b)	$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	$7,227,090	$3,476,867

(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.

(a) Cost Recovery Breakout	$ 155,116
Fire Cost Collections -	$ 137,213
Fire Cache Sales -	$ 17,903
Excess Recovery, Sp. Rev.	$ None

Attachment 5: Minnesota Fires, Numbers and Acres Burned 2013 - 2022



Attachment 6: FY2022 Wildfires by Cause