

Mapping the future: Fire progression files help forecast tactics¹

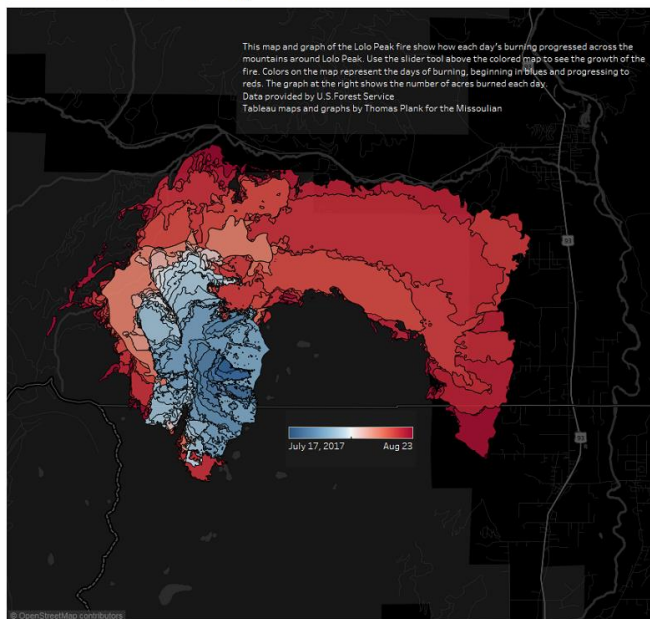
ROB CHANEY rchaney@missoulian.com Aug 27, 2017

http://missoulian.com/news/local/mapping-the-future-fire-progression-files-help-forecast-tactics/article_fa373b42-803a-5829-81c4-2a749b954c5f.html

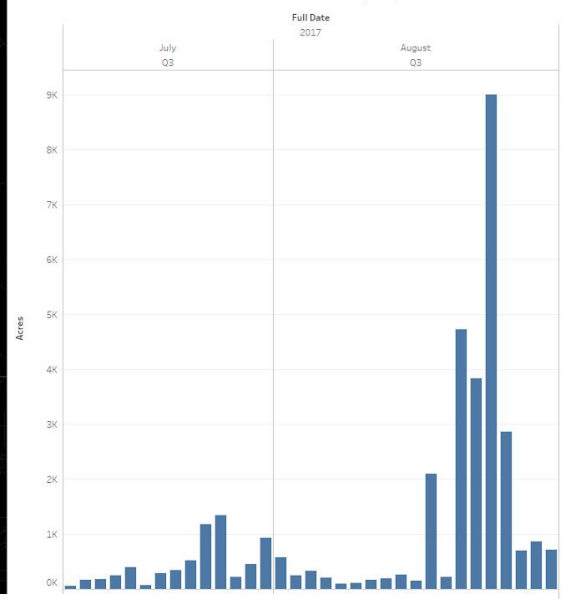
Many Missoulians will never forget watching the Lolo Peak fire race along its namesake mountain last week.

From a computer's perspective, the outbreaks on Aug. 17 and 18 look no less impressive, if somewhat detached from the drama of after-dark evacuations and homes burning to the foundations. And thanks to the expanded real-time capabilities of modern mapping, fire behavior specialists have magnified their ability to turn yesterday's progression into tomorrow's prediction.

Lolo Peak fire growth; July 17-August 22



Growth in acres by day



This [map and graph](#) of the Lolo Peak fire show how each day's burning progressed across the mountains around Lolo Peak. Click this link to activate the map page, where a slider tool bar displays the growth in acres each day of the fire.

"I used to do manual calculations — that's how old I am," said Tobin Kelley, who started fighting fires in 1979. He switched to fire behavior analysis for the U.S. Forest Service in 2008, and has been enduring annual equipment obsolescence and upgrades ever since. This week, he's finishing up a rotation on the 25,540-acre Sunrise fire near Superior.

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“Fire progression mapping has been around for decades,” Kelley acknowledged. “We used to do it with hand mapping, where you drive around and draw lines on a map. We’ve had infrared capability on planes for about 15 or 20 years. Now what happens is we get an IR flight, it automatically draws lines in GIS (geographic information system), which gets downloaded to an FTP (file transfer protocol) site, and we have it ready for the morning briefing.”

Such predictions justified assigning a Type I incident command crew (one of the most experienced in the nation) to the Lolo Peak fire when it was just 200 acres in a roadless fringe of the Lolo National Forest. At the time, the Sunrise fire was several times larger but managed by a smaller Type II incident command.

Lolo Peak fire spokesman Mike Cole said the projections made at the time came out “right on the money” as far as risk to the Highway 12 corridor, Lolo, Traveler’s Rest and Florence areas.

On the Sunrise fire, much of the early growth followed wind events after the initial lightning strike. But after those first weeks, expansion came from burn-out operations triggered by drops of plastic sphere dispensers — like ping-pong balls filled with napalm that can be spread by helicopter. The PSD fires scorched hillsides under semi-controlled conditions so that an uncontrolled fire won’t have fuel to burn when it arrives there.

“They light those late in the evening, let them burn all night and let it back down into a creek bottom,” Kelley said. “That’s a little different from how some fires spread. A lot of the times the wind pitches around the ridges, runs along the ridgeline, and then drops off and backs down into the creek bottoms. But you don’t often see that progression unless you’re mapping every six hours.”

As forest fires hopscotch around, they often leave islands of unburned trees deep inside the perimeter. Given certain wind conditions, those islands can ignite. The fire mappers have spotting distance models that predict how far a burning ember might drift from its flaming tree. That might reveal a threat inside the fire line that could endanger firefighters outside the line and downwind from the island of trees.

While larger fires like Lolo Peak and Sunrise have a crew of fire behavior specialists in camp, they also rely on a central Decision Support Center for heavier analysis. Like an air traffic control tower, the Decision Support Center in Missoula’s Lolo National Forest headquarters crunches weather reports, topographical images and historic fire patterns. That gives incident commanders blocks of facts to build into strategies.

“A fire gets a signature when it’s burning in similar fuels and weather as previous fires,” Kelley said. “One part of the Sunrise fire in Quartz Creek is not growing real fast. Maybe one- or two-tenths of a mile per day. That’s consistent, which helps persistence probability forecasting.”

In other words, as long as the kinds of trees and slopes of hillsides don’t change, the fire will predictably move at that same daily rate. Change those factors, like Kelley saw on a fire in Oregon recently, and the fire might accelerate to a mile a day or more.

“Then we adjust our models,” Kelley said. “When you start burning more in four days than the model was saying, you have to recalibrate. You really have to ramp things up in your model.”

Updated: More wind, more fire, more smoke - another tough day for firefighters and residents alike

http://missoulian.com/news/state-and-regional/updated-more-wind-more-fire-more-smoke---another/article_f2dfb59a-9411-5710-8070-4bfe889e076d.html

GWEN FLORIO gwen.florio@missoulian.com, Sep 4, 2017

Heat, a red flag wind warning, atmospheric instability and prolonged dry conditions meant there was only one thing certain about Sunday for Lolo Peak fire public information officer Larry Bickel.

“Today is a day for fire.”

On Sunday morning, the Ravalli County Sheriff’s Office implemented evacuation orders for residents threatened by the fire. Roughly 200 homes — those west of Highway 93 from the north side of Bass Creek Road to the south side of Hannaford Avenue and west of Florence Carlton Loop — received visits from a deputy telling them it was time to go.

National Guard members were stationed at the roads leading into each of the evacuation zones. By mid-afternoon, the sheriff’s office decided that fire conditions were too unsafe to allow anyone back in, with the hope of allowing escorted access Monday if conditions improve.

Evacuation warnings were also expanded to include residents south of Bass Creek Road and west of Highway 93 to South Kootenai Creek Road.

“There’s a lot of concerned people out here today. A lot of people wondering what is going to happen next,” Bickel said.

Julie Roberson and her 7-year-old son Nathan — who live in the Kootenai drainage — joined the small group gathered around the fire information trailer in the parking lot of the Super 1 grocery store in Stevensville.

She said she didn’t get internet at her home, but on Sunday started getting text messages from friends asking if she was being evacuated.

“I’m just here to double-check if I’m in a warning area or not because I have horses. I’m ready to go if I need to,” Roberson said.

Roberson said the thing that worried her most about the possibility of being told she needs to leave her home was what to do with her animals. She’s already taken a black marker and written her phone number on the hooves of her horses.

“What if someone comes knocking at your door and says it’s time to go? I’m just going to have to let them loose and hope.”

Sonya Germann, incident information officer, said there was no one particular danger from the Lolo Peak fire. The blaze had pushed over containment lines on the northwest edge and reached the backup contingency lines, and firefighters didn't have a full picture of just how far it had spread in that direction.

A cold front coming down from the north throughout the day had the potential to draw the southwestern tip of the fire eastward, which could mean the blaze racing down one of the drainages toward homes and the highway.



National Guard Sgt. Rachael Vandolah stands outside her vehicle on Bass Creek Road on Sunday afternoon after an evacuation order was issued for the Lolo Peak fire. She and another National Guard member were tasked with blocking the road off, even to home owners. Rebekah Welch, Missoulain.

High winds raised the danger of embers being carried from inside the fire lines to the newly evacuated zones, creating spot fires that would be beyond the containment lines. Patrols were busy looking for new spotting, and structure protection teams were in place in the evacuated drainages along the highway to snuff out anything that sparked.

“It’s really, unfortunately, an all-of-the-above problem,” Germann said.

John Barnes, a retired deputy, got a call from Ravalli County Sheriff Steve Holton on Sunday morning, telling Barnes they needed all the help they could get. Barnes manned the check-in trailer for evacuees throughout the day, helping people like Whitney McBeth of the Sweeney Creek area fill out the form letting the sheriff’s office know she had gotten out safe.

This was the second time in as many weeks that a deputy had shown up on her doorstep, knocked and told her the time had come to leave, McBeth said.

“We actually laughed about it a bit. I just said 'same routine?' and he said, 'Yep,’” she said.

More than 1 million acres have burned this summer; state fire fund drained²

http://missoulian.com/news/state-and-regional/more-than-million-acres-have-burned-this-summer-state-fire/article_71f0c9bf-2c0b-53ed-842c-c57945fb39cf.html

By HOLLY K. MICHELS holly.michels@lee.net, Sep 7, 2017

The cost to the state of Montana for battling wildfires that have burned more than a million acres this summer has reached \$53.7 million, a staggering price tag that has completely drained a state fire fund that was already slashed in half by decisions made in the 2017 Legislature.

In April lawmakers passed a cost-cutting bill that called for taking \$30 million from the roughly \$62 million fire fund to maintain an informal \$200 million rainy-day account for state government and to reduce the depth of cuts to other state operations and services, cuts that would be triggered if state revenues came in lower than projected. That happened in July.

The fire account was left with \$32.5 million, which has all been spent. The state is now paying for its share of fighting fires out of the Department of Natural Resources' budget. So far \$3.4 million has been spent out of an available \$11.84 million. The remaining \$21.4 million has been covered through DNRC's operational budget and the governor's emergency fund.

During the heavy snows of last winter when lawmakers decided to tap the fire fund, it would have been hard to imagine the smoke-filled skies, numerous evacuations and burned range land that has dominated this summer. But an incredibly dry spring led to significant drought, creating prime fire conditions.

Nearly 1,700 fires statewide have burned 1,005,803 acres this year.

Legislators also considered the average annual cost of fighting fires for the state is about \$20.6 million, offset by an average of \$5.2 million in federal reimbursements, according to legislative



During a fire season that has burned over one million acres, the state of Montana has spent \$53.7 million fighting wildfires. Joy Ballew photo.

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records. But there are outliers — in the past decade, fire suppression costs to the state topped \$100 million in 2008 and in 2013 reached \$57 million.

While the cost of fighting fire has come in dramatically higher than expected this year, tax revenues have been much less than the Legislature projected, leaving Gov. Steve Bullock to seek another possible \$236 million in cuts from state agencies. More information about those cuts is expected Friday.

State Sen. Jon Sesso, D-Butte, said the fire fund was still probably the most logical place to look for money.

“It was as good a place as any to provide a contingency, and when you compare using available cash assets compared to making deeper cuts in other areas of the government, I think it was still a prudent contingency plan.”

He called current conditions “almost like the perfect storm.”

“Not only did we get less revenue than we had anticipated for ’17, but the fires are probably going to hit an historical level of expense.”

Costly year

The Northern Rockies Coordination Center’s website tracks the total cost — including those to state, federal and tribal governments — of fighting all active fires. Who picks up the tab depends on where the fire is burning. On Thursday, updated figures put cost for all active fires at nearly \$211 million. That estimate is only for active fires, not ones that were put out earlier this summer like the 270,000-acre Lodgepole complex in Eastern Montana, which cost an estimated \$9.27 million, though that tally is not final. Federal agencies do not track fire costs in real time as closely as the state does and stressed that total costs will not likely be known for about a year.

The most expensive fire currently burning in Montana is the Lolo Peak fire, 10 miles southwest of Lolo. It has consumed 48,686 timbered acres, has 415 people working the fire and has cost \$39.6 million so far. The second-most expensive are the Sapphire Complex, burning 15 miles southeast of Clinton, and the Rice Ridge fire, six miles north of Seeley Lake. Both have cost about \$32.6 million so far. The Sapphire Complex has burned 43,516 acres and Rice Ridge has burned 119,857 acres.

The state has applied for and been approved to receive assistance from the Federal Emergency Management Agency for the Lolo Peak fire and the Lodgepole complex. The grants can match up to 75 percent of approved state costs for fighting fires.

On Thursday, Bullock met with FEMA administrator Brock Long to urge more assistance and resources to help fight Montana’s wildfires.

“It has been a long and challenging fire season in Montana,” Bullock said. “We’ve had losses to homes, livestock, forage and infrastructure, and we’ve tragically lost the lives of two wildland firefighters. We are experiencing impacts to individuals and businesses across the state, who have endured losses due to evacuations, hazardous air quality, and sustained threats to our tourism and recreation industries.

“The situation is likely to get worse before it gets better. While I will continue to pursue every available resource to support fire response and recovery, I am asking that we work together to

ensure the long-term health, safety, and livelihood of Montanans impacted by this disaster,” Bullock continued.

Bullock asked Long to expedite the review and approvals of additional grants and consider the ability to apply for grants across multiple fires.

Bullock also asked Long for help accessing assistance for individuals affected by fires. The governor requested that criteria and thresholds across multiple fires be addressed to make resources available for those who have faced significant impacts.

Stacie Greff, a spokesperson for FEMA, said the conditions that exist in the state at the time of the request and whether the fire threatens enough destruction to constitute a major disaster are part of what determine funding decisions.

“We’re trying to fend off a major disaster,” she said.

FEMA evaluates based on four key criteria:

- Threat to lives and improved property, including critical infrastructure and facilities and watersheds;
- Availability of state and local firefighting resources, such as aircraft or firefighters;
- High fire danger conditions, as determined by a national rating system; and
- Potential major economic impact.

FEMA assistance grants can pay for things like equipment and supplies, the cost of emergency work like evacuations, police barricades and traffic control, unified command centers, meals for firefighters and other costs that directly go to fighting fire. They are not for helping people who lost homes or property to fires. States have to submit receipts and documentation to receive funds.

FEMA funding is the primary way the state can get help from the federal government to pay for the cost of fighting fires. Both of Montana’s U.S. senators, Republican Steve Daines and Democrat Jon Tester, took to the Senate floor this week to impress upon their colleagues the magnitude and impact of fires burning in Montana and ask for help as Congress worked to approve aid for Texas, which has been devastated by Hurricane Harvey.

“Saving lives and property when disaster strikes is a fundamental pillar of government,” Tester said. “It is not a Democrat or Republican issue, it is an American responsibility. I am confident we can work together to ensure the victims of Harvey get the relief they need and the states that are burning, like Montana, have the resources they need to protect our citizens, our economy, and our way of life.”

Tester also on Thursday invited Republican President Donald Trump to visit Montana and tour areas that have burned.

Daines told the Senate that of the top 30 wildfires in the nation, 28 were burning Montana. “Our crisis in Montana isn’t water, it’s not too much water, it’s not hurricanes, it’s fire. It is smoke filling the air and filling our lungs. ... We need to ensure Montana gets the resources it needs first of all to stop the fires.”

U.S. Rep. Greg Gianforte, a Republican, took to the House floor, saying:

“I hope this image and the others from back home will make my colleagues more aware of the fires’ devastation and the need for relief in the Treasure State.”