

Blazing a Trail ... A New Approach to Managing Wildland Fires




WILDFIRE MATTERS REVIEW COMMITTEE



Division of Fire Prevention & Control

Division Director

Center of Excellence for Advanced Technology Aerial Firefighting


Administration and Support Services Section

Wildland Fire Management Section

Fire & Life Safety Section

Professional Qualifications & Training Section

WILDFIRE MATTERS REVIEW COMMITTEE




Wildfire in Colorado

- 68% of Colorado's forested lands are under federal jurisdiction
- Overstocked fuel conditions
- Expanding WUI
 - Currently 1.1 million acres
 - Projected to increase to 2.2 million acres by 2030
- Increasing fire activity and severity
- Lengthening fire season
- Increasing suppression costs



"We can't solve problems by using the same kind of thinking we used when we created them." - Albert Einstein


WILDFIRE MATTERS REVIEW COMMITTEE



Colorado's New Tools

- Multi-Mission Aircraft
 - Early detection, persistent surveillance, air attack, and many more missions in one package
- Colorado Wildfire Information Management System (CO-WIMS)
 - One-stop-shopping for: decision support tools, collaborative mapping, remote sensing data, and risk assessment
- Quick-Response Suppression Tools
 - Single Engine Air Tankers (SEATs)
 - Type II and Type III helicopters with helitack crews
 - DFPC & State/Local Interagency Engines
- Colorado Center of Excellence for Advanced Technology Aerial Firefighting (Center of Excellence)
 - Technology and Policy Improvement
- Weather Based Fire Prediction
 - NCAR's Coupled Atmosphere-Wildland Fire Environment (CAWFE) model


WILDFIRE MATTERS REVIEW COMMITTEE



Division of Fire Prevention & Control

DFPC's Wildfire Management Goal

... keep all wildfires with values at risk smaller than 100 acres and to suppress all fires in Wildland Urban Interface (WUI) areas at less than ten acres, 98% of the time.



WILDFIRE MATTERS REVIEW COMMITTEE



The Current Firefighting System



WILDFIRE MATTERS REVIEW COMMITTEE




Multi Mission Aircraft (MMA)

Pilatus PC-12 aircraft

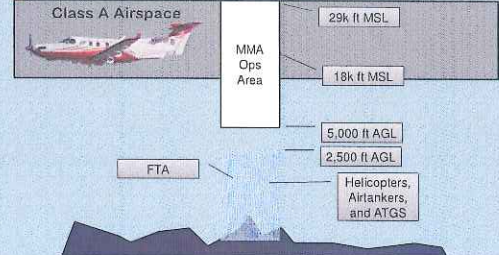
- FAA certified airframe and operations – Part 135 operations
- Pressurized, high-altitude, high speed, and affordable operations
- Night operations
- 5+ hours of on-station time



WILDFIRE MATTERS REVIEW COMMITTEE



Where the MMA Flies



WILDFIRE MATTERS REVIEW COMMITTEE



Systems and Crew

- **Systems Installed:**
 - Color and thermal cameras
 - Broadband internet
 - CO-WIMS access
 - Direct delivery of imagery and surveillance information
 - Internet chat, real-time video, and email
 - Data and image processing
 - Interoperable voice radios (programmable 800 and VHF)
- **Minimum crew of two**
 - Pilot and Mission Systems Operator (MSO)




WILDFIRE MATTERS REVIEW COMMITTEE



On-Aircraft View


- Small fire detection – [Video – YouTube](#)
- Fire Behavior – [Video – YouTube](#)
- Personnel Overwatch – [Video – YouTube](#)
- Fire Mapping – [Video – YouTube](#)
- Aviation Monitoring – [Video – YouTube](#)
- Prescribed Burn Monitoring – [Video – YouTube](#)

WILDFIRE MATTERS REVIEW COMMITTEE



Colorado Wildfire Information Management System (CO-WIMS)

CO-WIMS is SituationAnalyst for Colorado



WILDFIRE MATTERS REVIEW COMMITTEE



CO-WIMS Brings You . . .

Maps and near real time imagery from MMA aircraft of wildfire incidents in Colorado



WILDFIRE MATTERS REVIEW COMMITTEE



Multi Mission Aircraft (MMA)

Since June, the two MMA have logged 241 flight hours. A total of 35 new fires were detected and reported to the appropriate dispatch center with size-up information. The MMA also supported a Search and Rescue (SAR) mission.



WILDFIRE MATTERS REVIEW COMMITTEE




Single Engine Air Tankers (SEATs)

Enabling Goal: Provide the appropriate aviation suppression resources to every fire within 60 minutes of the request . . .

DFPC has a contract for two SEATs for the 2015 fire season with option for up to two more.




WILDFIRE MATTERS REVIEW COMMITTEE



Rotor-Wing Multi-Mission Aircraft

Enabling Goal: Provide the appropriate aviation suppression resources to every fire within 60 minutes of the request . . .

DFPC has contracted for two, Type 3 helicopters and one, Type 2 (RC) helicopter for the 2015 fire season.



WILDFIRE MATTERS REVIEW COMMITTEE



DFPC Engines

Four - Type 4 Engines



Nine - Type 6 Wildland Engines



WILDFIRE MATTERS REVIEW COMMITTEE



Federal Excess Property Program (FEPP)

118 FEPP Engines Across the State



WILDFIRE MATTERS REVIEW COMMITTEE




State Wildland Inmate Fire Team (SWIFT) Crews




CCI currently operates three, 20 member State Wildland Inmate Fire Team (SWIFT) crews, housed at various correctional facilities in Colorado.


WILDFIRE MATTERS REVIEW COMMITTEE



Veterans Fire Corps Program (SB15-205)



WILDFIRE MATTERS REVIEW COMMITTEE




DFPC Prescribed Fire Program

Background:

- On March 28, 2012, Gov. Hickenlooper issued Executive Order D 2012-006 suspending prescribed fire on State lands and by State agencies that apply prescribed fire on non-State lands pending review of agency protocols for prescribed fire.
- On January 30, 2013, Gov. Hickenlooper issued Executive Order D 2013-002 to allow for the resumption of slash pile burnings under controlled conditions.
- On March 15, 2015, Gov. Hickenlooper issued Executive Order D 2015-002 to allow for the resumption of prescribed burning on state lands or by state agencies under controlled conditions.

WILDFIRE MATTERS REVIEW COMMITTEE




Project Status – Pile Burns

The current distribution of slash pile projects is as follows:

- Total Number of Slash Piles before burning 2014/2015 – 2600 piles
- Total Number of Slash Piles Burned or Removed 2014/2015 – 959 piles
- Estimated New Piles Created - 500 piles
- Estimated Total Number of Slash Piles Remaining – 2140 piles

WILDFIRE MATTERS REVIEW COMMITTEE




Broadcast Burn Projects

The current distribution of broadcast burn projects is as follows:

- Total Number of Potential Broadcast Burn Projects – 12 projects
- Total Number of Potential Prescribed Fire Units within the Projects – 22 units
- Total Number of Acres for All Units – 2719 acres
- Total Number of Acres Burned 2015 – 0 acres

WILDFIRE MATTERS REVIEW COMMITTEE



Certified Burner Program

The current statistics for the Certified Burner Program are as follows:

- Number of CCBB Classes held – 8 classes
- Number of people trained as CCBB/RXB3 – 126 people
- Number of required people to train to meet the grant requirements – 100 people
- Number of people with final certification – 2 CCBA, 1 CCBB is in final review

WILDFIRE MATTERS REVIEW COMMITTEE



Center of Excellence for Advanced Technology Aerial Firefighting



WILDFIRE MATTERS REVIEW COMMITTEE



Center of Excellence for Advanced Technology Aerial Firefighting

According to CRS 24-33.5-1228, the CoE shall:

- Collect data and research that currently exists on aerial firefighting and make it available to interested parties
- Evaluate new and existing technologies for integration into tactical fire scenarios
- Help create a more efficient, effective, and sustainable aerial firefighting program in Colorado

WILDFIRE MATTERS REVIEW COMMITTEE



Why does Colorado need this Center of Excellence?

- USFS had 44 large air tankers (LATs) in 2002 for use in firefighting and only 8 in 2013. Many LATs were grounded because of aging planes and several fatal crashes.
- US GAO published a report in August 2013 criticizing the federal government's lack of consideration of the performance and effectiveness of firefighting aircraft.
- CoE provides the opportunity to address these issues and provide better firefighting capabilities in Colorado.

WILDFIRE MATTERS REVIEW COMMITTEE



Mission Statement

To protect the citizens, land, and resources in Colorado, the Center of Excellence will research, test, and evaluate existing and new technologies that support sustainable, effective, and efficient aerial firefighting capabilities.

WILDFIRE MATTERS REVIEW COMMITTEE



Vision Statement

The Center of Excellence is the worldwide leader in collaboratively researching and developing innovative technologies and capabilities supporting or related to aerial firefighting.

WILDFIRE MATTERS REVIEW COMMITTEE



How Does It Work?

- The Center will solicit problems from all partners which will be vetted by an Advisory Board of Colorado wildland fire stakeholders
- CoE staff will research existing data on the chosen problems and determine whether or not more research needs to be conducted on the problem
- If more data is required, and collecting this data is feasible, the CoE will do innovative science-based research to collect the necessary data or information
- The end product will be user-friendly best practices, one pagers, lessons learned, demonstrations, presentations, and education and training exercises that are beneficial for Colorado's firefighting community


WILDFIRE MATTERS REVIEW COMMITTEE



What Types of Projects?

- Night Operations
- Sustainable contract models
- Identifying better ways to locate ground resources from the air
- Colorado Disaster Prediction and Decision Support System (HB 15-1129)

WILDFIRE MATTERS REVIEW COMMITTEE



Timeline

- August 2014: Initial Scoping Meeting
- August-December 2014: Monthly Stakeholder Meetings
- Early 2015: Stakeholder Outreach Meetings
- March 2015: Location Chosen – Rifle, CO
- July 1, 2015: Move into permanent location
- Hiring and Project Solicitation
- November 2015: Show Early Successes


WILDFIRE MATTERS REVIEW COMMITTEE



Goals

- By the 2017 Fire Season, the Center of Excellence will have developed or created a product or procedure that is being used regularly in Colorado wildland firefighting
- By 2019, the CoE will host an international conference on aerial firefighting
- By 2019, the CoE will have established statewide standards for determining the efficiency, effectiveness, and sustainability of aerial firefighting


WILDFIRE MATTERS REVIEW COMMITTEE



HB 15-1120 Colorado Disaster Prediction and Decision Support System

- Legislative Declaration on need for better prediction of fire behavior and weather
- For two decades, NCAR scientists have been working on a modeling system that couples numerical weather prediction with a wildland fire module to predict fire behavior and its feedback on the local atmosphere.
- This 3D model will help incident commanders determine where to place resources when multiple fires are burning by predicting which fire is mostly likely to grow to a large fire and/or threaten critical infrastructure

WILDFIRE MATTERS REVIEW COMMITTEE

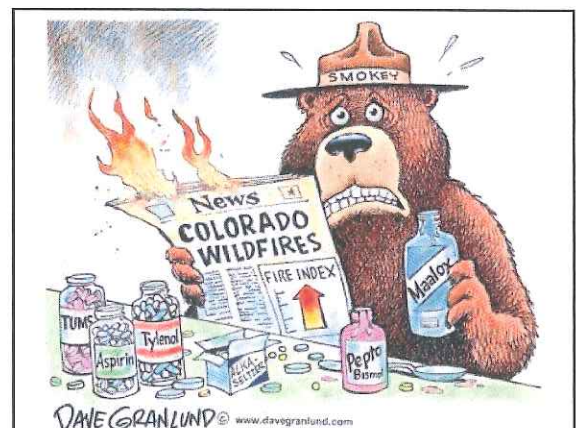
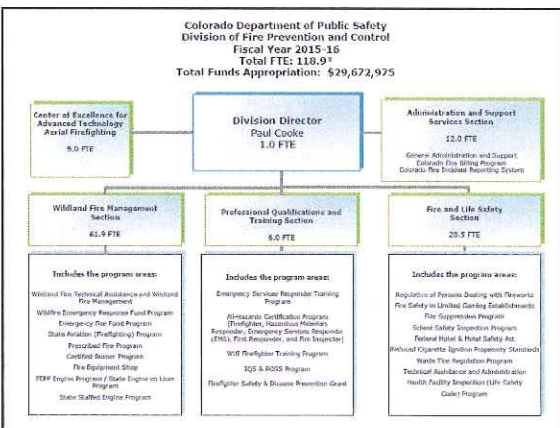


Funding Sources

Several funding sources aid DFPC in meeting its wildfire management responsibilities:

- Wildfire Preparedness Fund (\$4.15 million - Insurance Premium Taxes)
- State & Local Interagency Engines (\$622k GF)
- DFPC's Fire Aviation Program (\$9.5 million GF)
- Center of Excellence (\$1.0 million GF)
- Wildland Fire Decision Support System (\$600k GF)

WILDFIRE MATTERS REVIEW COMMITTEE





Colorado Division of Fire Prevention and Control

690 Kipling Street # 2000

Lakewood, CO 80215

Phone: (303) 239-4600

Fax: (303) 239-5887

<http://dfs.state.co.us>

Multi-Mission Aircraft Support of Oregon Wildfires

08/01/15 to 08/14/15

Oregon Department of Forestry (ODF) ordered a Multi-Mission Aircraft (MMA) from the Division of Fire Prevention and Control (DFPC) on July 31, 2015. ODF had been experiencing substantial lightning storms over the previous days. Several large fires were already burning in the state and many more fires were being ignited by the lightning. ODF wanted to explore the technology of the MMA to support large fire monitoring, as well as new fire detection. The two week assignment (from August 1 – August 15) for ODF was to the Stout's Creek Fire for perimeter mapping and Infra-red image acquisition. Additionally they requested detection flights for other ODF protected lands.



The crew of MMA 328SF (L to R): Jesse Moreng, Guy Jones, Craig Hall, and Scott Skelton. Rocco Smart (not pictured) provided ground support for CO-WIMS.



Stout's Creek fire as seen through the MMA's Electro-Optical (EO) color sensor.



The same location seen through the MMA's infrared (IR) sensor.

"Safeguarding those that live, work, learn and play in Colorado"

During the fire assignment to Oregon, MMA 328SF flew for a total of 60 hours. Twenty missions were flown for mapping and new fire detection. During these missions, 15 new fires were detected. A video and or photo image of these fires was provided to ODF fire management staff, and dispatch centers both directly and via the Colorado Wildfire Information System (COWIMS). Additionally over fifty other fires were confirmed. In many instances updated information was relayed to crews on the ground through the assigned Air Attack ship.

The large fire support to ODF consisted of mapping perimeters for Stout’s Creek (four times), Cables Crossing Fire (two times), and other smaller fires for a total of 11 mapping missions.

Mission Summary:

08/01	1 mission	Mapped the Stouts and Cable Crossing fires.
08/03	2 missions	Lightning detection Southwest Oregon. We found the one undetected fire.
08/04	2 missions	Lightning detection in Western Oregon. We found five undetected fires.
08/05	2 missions	Lightning detection Central Oregon. One undetected fire. Mapped the Stouts Fire.
08/06	1 mission	Lightning detection in Klamath County. No new fires detected.
08/07	4 missions	We mapped the Blue and Phillips fires. Passenger transport.
08/11	2 missions	Lightning detection Western and Southern Oregon. Five undetected fires were found.
08/12	3 missions	Flew lightning detection South-central Oregon and the Coastal Range in Eastern Oregon. Found three undetected fires. Mapped the Eagle and Cornet fires in NE Oregon.
08/13	2 missions	Mapped the Stouts Creek fire and the Chandler Mill fires.
08/14	1 mission	Mapped the El Dorado fire.

From the Oregon State Forester . . .

“I had the opportunity to spend part of my day with Guy, Craig and Jesse last week and I have to pass along my greatest thanks and admiration for their work. They represented Colorado extremely well and provided a very high level of service and value to Oregon. I was able to ride along on a flight into eastern Oregon and was amazed and impressed with the capacity of the MMA.”

“Please know we are grateful for your service to Oregon and appreciative of the professionalism of the crew.”

Doug Decker, Oregon State Forester

DURANGO INTERAGENCY FIRE DISPATCH

From: Jodi Mallozzi, Fire Prevention and Education, Pagosa Ranger District

FOR IMMEDIATE RELEASE: Little Devil Fire Update

August 21, 2015, 17:30 p.m.

PAGOSA SPRINGS, CO —

Fire Facts:

Start: August 18, 2015

Cause: Lightning

Size: 48 acres*

Percent Contained: 50%

Number of Personnel: 93 including 4- handcrews, 8 smokejumpers, and 9- miscellaneous overhead

Aircraft: 1- Air Attack, 2- Single Engine air Tankers, 1 Type 3 Helicopter

**Acreage has been corrected due to more accurate mapping.*

Update on Today's Activities: Fire resources are close to completing all the containment lines and mop up operations have begun. Mop up kits, which include hose and portable water bladders, have been ordered and will be flown into the fire by the Type 3 helicopter. Firefighters will search out and extinguish burning and smoldering fuels along the fireline and within the perimeter. They will use hand tools and water to dig and stir hot materials that threaten the containment lines. "Cold trailing" tactics will also be utilized, firefighters will feel with their hands along the fireline for heat and making sure the area is cold. The Little Devil Fire received light precipitation during today's operations.

During the course of the fire the single engine air tankers were highly effective in the steep terrain and played a key role supporting firefighter's success on the ground. Since August 18th the Little Devil Fire has received 24 retardant drops totaling 16,880 gallons.

A Type 6 engine from the Black Hills National Forest arrived today to assist the Pagosa Ranger District with new fire starts.

Closures: Road closures remain in effect: 626, Devil Mountain Road, and 627, which access the Devil Creek State Wildlife Area, are closed for public safety.

Community Concerns: The fire and smoke will be visible from Highway 160 and Highway 151.

There are no immediate structures, private property or critical infrastructure threatened by the Little Devil Fire.

Weather: Moisture is predicted to increase on Saturday along with lighter winds. Monsoonal moisture is forecasted to increase early next week but there is still the possibility of isolated showers and thunderstorms.

Fire Information: The public can obtain fire information via the following:

San Juan National Forest Public Affairs Officer, Ann Bond: 970-385-1219

Pagosa Springs Ranger District Fire Prevention, Jodi Mallozzi: 480-695-1313

San Juan National Forest Web Site: <http://www.fs.usda.gov/sanjuan/>

Archuleta County Emergency Information Website: <http://www.acemergency.org/>

Follow San Juan National Forest fire updates on TWITTER @SanJuanNF



Jodi Mallozzi
Fire Prevention and Education

Forest Service
San Juan National Forest, Pagosa Ranger District

p: 970-264-1542

c: 480-695-1313

f: 970-264-1538

jmallozzi@fs.fed.us

180 Pagosa Street
Pagosa Springs, CO 81147

www.fs.fed.us



Caring for the land and serving people

Paul Cooke - CDPS

From: Mark Miller
Sent: Sunday, August 09, 2015 7:03 PM
To: Paul Cooke - CDPS
Cc: Wilson Branch - CDPS
Subject: MMA success

Director Cooke,

I just wanted to convey our thanks for a successful effort of the MMA this afternoon. We received a report of a wildland fire in the Palisade Mountain area in rugged territory west of Loveland in the Big Thompson Canyon. Due to the terrain, it was a 45 minute hike into the area, and I immediately notified the DFPC dispatch to see if we could utilize the MMA resource to determine size, if there were additional fires, terrain, etc. Phil Daniels (I think that is the correct last name) was a huge help, and the MMA was in the air and over the fire within 45 minutes.

They found our fire (USFS land) and also found two other fires, one being worked by Larimer County SO in the Glacier View area, and another one, in the Rist Canyon area that looked like a single tree lightning strike. The Rist Canyon resources have been notified, are enroute, and hopefully this early notification will keep that particular fire manageable.

Our fire was approximately ¼ acre in size and we have crews on scene as we speak. Thankfully the weather was relatively calm. A wind driven event could have been extremely serious.

Without the MMA resource, it would have taken our crews hours to determine the size and potential of the Palisade Fire. Additionally, the notification of the fire in Rist Canyon is precisely the reason the MMA is such a valuable tool.

Many thanks, Director Cooke. It will be of great help to have the logistics uploaded on the CO-WIMS site as well.

Excellent!

Regards,

Mark A. Miller
Fire Chief
Loveland Fire Rescue Authority
Mark.Miller@cityofloveland.org
Cell - 970-470-9333
Office – 970-962-2827

