
LEARNING FROM AN UNUSUAL SUMMER AT THE TRAPPER CREEK JOB CORPS CIVILIAN CONSERVATION CENTER

Darby, Montana

A FACILITATED LEARNING ANALYSIS



AUGUST 27, 2021

"This is less about the specifics of each incident and more about what connects them. More about the systems and organizations. How do we connect Job Corps students to Forest Service culture?"

Senior Job Corps Leader

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“You can’t really understand how quickly things can go south until you experience it. We were all digging hand line up the hill when a firefighter said that his hand was cramping. We were close to the spot where we planned to take lunch and the EMTs started to assess his condition. At first, he was sitting up, and then he was laying down, then he was out.”

STUDENT FIREFIGHTER

INTRODUCTION

Over the course of five weeks, five separate medical incidents occurred involving the Trapper Creek fire crew. This FLA examines the two air ambulance rides and the stress-, heat-, and nutrition-related illness events to see what lessons might be shared with others.

LEARNING FROM UNINTENDED OUTCOMES

“OUR COMMITMENT IS NOT TO PUNISH PEOPLE BUT INSTEAD COMMIT TO HONORING THE EMPLOYEES’ COMMITMENT TO LEARNING, SHARING AND TELLING THE STORY IN A WAY WE CAN ALL LEARN. THE IDEA IS TO SHARE IN THE KNOWLEDGE.”

- SENIOR LEADER

In the mid-2000s, the Forest Service began changing how it investigated accidents and other unintended outcomes. This shift occurred as agency officials realized that fear of punitive actions was suppressing employees’ willingness to openly share information about incidents. Without that information, little progress could be made on addressing the conditions that contributed to incidents. Not addressing those meant the unintended outcomes would continue.

The change required a paradigm shift from “shame and blame” to learning-focused reviews. One of the Forest Service’s first steps toward becoming a [Learning Organization](#) was to adopt the [Facilitated Learning Analysis](#) (FLA) process, which views unintended outcomes as learning opportunities and a way to reduce future undesirable outcomes.¹ With a focus on *forward-looking accountability*, an FLA relies on the accounts of multiple people involved with incidents, which allows us to identify and address weaknesses and strengths in the system. Readers are encouraged to click on hyperlinks in this document to learn more about these concepts that serve as the foundation of this FLA.

“Fire has pioneered deliberate focus on learning.”

SENIOR LEADER

¹ For a more complete explanation of the process, see the 25-minute video titled *Facilitated Learning Analysis, an Introduction* at the following link: <https://www.youtube.com/watch?v=J1H6vHSHFRA>

While conducting this FLA, we spoke with employees of the Bitterroot National Forest and Trapper Creek Civilian Conservation Center and met virtually with Trapper Creek's students. We heard their stories of how they experienced the incidents as they occurred. We also asked them what lessons they would share with others based on what they experienced. Some key points to keep in mind for this learning review are:

- People act rationally and with good intent.
- We seek to understand why people did what they did. Why did it make sense for them? What were the conditions that contributed to their actions?
- Identifying causal factors is ineffective. Identifying conditions within systems is more likely to lead to change and fewer unintended outcomes.
- Identifying conditions that led to a person's actions is more important than the actions themselves.
- While many in the fire and safety communities are familiar with FLAs, most interviewees and readers of this report are not. This report is an opportunity to introduce the concepts of learning organizations, FLAs, human factors, and systems thinking.

TRAPPER CREEK CIVILIAN CONSERVATION CORPS & FIREFIGHTING

JOB CORPS AND THE FOREST SERVICE

The Department of Labor, Employment and Training Administration, oversees the national Job Corps program originally established by the 1964 Economic Opportunity Act, subsequently re-authorized by the Workforce

"Society calls the students at-risk; we call them at-promise. The Job Corps program is the most diverse in USDA."

JOB CORPS CENTER DIRECTOR

Investment Act of 1998, and then the Workforce Innovation and Opportunity Act of 2014. There are approximately 120 Job Corps Centers nationwide, the majority of which are operated by private contractors; 24 conservation centers operate on public lands under an interagency agreement between the U.S. Department of Labor and the U.S. Department of Agriculture. The U.S. Forest Service is the operator of these 24 Civilian Conservation Centers (CCCs). The mission remains the same for both contracted Job Corps Centers (JCCs) and CCCs: to educate and train young people

for successful careers in the nation's fastest-growing industries.

Under the Public Land Corps Act of 1993, and as amended in the Public Lands Corps Healthy Forests Restoration Action of 2005, CCCs fall under an authorized conservation corps program and are authorized to provide community and national service, work experience, and training in conservation or development of natural resources to students.

TRAPPER CREEK JOB CORPS CIVILIAN CONSERVATION CENTER

The Trapper Creek Job Corps Civilian Conservation Center (Trapper Creek) is in the rugged Bitterroot National Forest in western Montana. Built as a Civilian Conservation Corps camp in the 1930s, and officially opened as a Job Corps Civilian

"Job Corps saved my life. I was a Job Corps student at this center and know how this place can change lives."

JOB CORPS TRADE INSTRUCTOR
AND PRIOR STUDENT

Conservation Center in 1966, the center sits on 55 acres near Darby, Montana, a rural area at the foot of the Bitterroot Mountains.

The center offers training in welding, carpentry, cement masonry, electrical, facilities maintenance, painting, culinary arts, forestry conservation and firefighting, and advanced wildland fire management. Trapper Creek offers academic instruction that assists students in obtaining a GED or high school diploma as well as a driver's license.



FIGURE 1. VIEW OF TRAPPER CREEK JOB CORPS CIVILIAN CONSERVATION CENTER FROM ABOVE THE "B-WALL". PHOTO COURTESY OF TRAPPER CREEK.

An integrated relationship with the local national forest can provide a unique work-based learning and training experience for the students. The relationship between the Bitterroot National Forest and Trapper Creek has been long and fruitful. Some of the resources and conservation work Trapper Creek can provide include:

- trail maintenance
- food services for catering events
- mobile kitchen for wildland fire assignments
- making Forest Service signs
- electrical work on recreation sites and buildings
- facilities maintenance
- forest conservation
- firefighting
- clerical and office support
- building incident food boxes
- deferred maintenance
- installing sidewalks
- painting buildings
- manufacturing gates, fire rings, bear boxes, bear-proof trash cans, and fee tubes



FIGURE 2. SIDEWALK AT TRAPPER CREEK. PHOTO BY LINDA PETERSON.

ADVANCED FIRE TRADE

All 24 CCCs allow students studying different trades to participate as fire militia on camp crews or fire suppression assignments based on their training, fire qualifications, and interest. When working on fire suppression assignments, the students are hired as Administratively Determined (AD) Wildland Firefighters. In addition to the Advanced Wildland Fire Management trade at Schenck Job Corps CCC, Trapper Creek and Collbran CCC (Collbran, CO) began offering an [Advanced Wildland Fire Management](#) trade in 2021. Known on the Trapper Creek Center as Advanced Fire, or AF, the trade is a one-year program designed to train students and provide them with firefighting experience to make them competitive when pursuing wildland firefighter careers.

For the CCCs offering the advanced fire trade there is an added responsibility of integration with the Forest Service Fire and Aviation Management (FAM) program. Integration with a national forest is the cornerstone of any CCC's fire program. They work together to provide students basic fire training and work-based learning opportunities through student employment on center fire crews. When students graduate from a CCC in the advanced fire trade, they are prepared and qualified for entry level wildland fire positions.

"We provide opportunity and training, and against all odds, they become successful."

JOB CORPS CENTER DIRECTOR

WORKING THROUGH A PANDEMIC

In early 2020, every federal agency was mandated to adopt new workplace protocols to prevent the spread of COVID-19. Forest Service CCCs diligently implemented mitigations on their campuses as prescribed by the Department of Labor. This meant most students were placed on virtual learning, resulting in a total loss of fire assignments for the 2020 fire season.

Trapper Creek was just starting up its Advanced Fire trade in 2021 shortly after approval had been received to start bringing enrolled students back to campus. They implemented the Forest Service fire COVID mitigations that were in place during the 2020 season to comply with requirements for fire crews while on assignments.

UNINTENDED OUTCOMES, SUMMER 2021

During all the following incidents, the Trapper Creek students were hired as ADs by the Bitterroot National Forest and are therefore considered Forest Service employees. However, we will refer to them as students for this FLA.

JUNE 17: ADVANCED FIRE STUDENT GOES DOWN FROM DEHYDRATION & FATIGUE

"THE LINE ON THE B-WALL (THE MOUNTAIN ACROSS THE RIVER) IS INTENTIONALLY ARDUOUS. THIS IS WHERE THEY LEARN WHERE THEIR BODY IS AT, WHAT IT CAN AND WHAT IT CAN'T DO. THIS IS THE DAY THEY WILL KNOW IF THEY CAN HACK IT OR NOT."

- JOB CORPS TRADE INSTRUCTOR

Trapper Creek's AF students were completing the final day of a two-week basic wildland fire training. The activities were physically challenging and specifically designed to let students experience how arduous wildland firefighting really is. The students were to hike about 1,000 feet up a very steep hillside (commonly referred to as "B-Wall") and construct a contoured fireline with hand tools. Later in the day, they planned to simulate an emergency medical event. Temperatures were in the high 80s and humidities in the mid-20s. Leading up to this field day, crew leaders had been emphasizing the need for hydration. The students expressed some concern about the steepness of the climb but initially didn't share any concern with getting overheated.

Just before stopping for lunch, one student started feeling very fatigued and noticed his hands were cramping. Others observed that he was favoring his left arm. He sat down for a rest and then passed out. This was very alarming to the crew because he had not complained of any sickness and, as the crew boss noted, *"The kid is an amazing athlete, probably the strongest and fittest member of the crew."*



FIGURE 3. THE BRIDGE TO B-WALL. PHOTO BY BELLE CRAIG.

Several EMTs were on the crew, one of whom took command of the incident within an incident. Initially they were going to bring the student down the hill by hand, but as the student's condition deteriorated, they decided to cut out a helispot to get him out by helicopter instead.

The incident within an incident Incident Commander (IWI IC) requested a helicopter from Bitterroot National Forest dispatch. He also ordered the crew to clear out the helispot and transport the student down to it. The medical trauma

"When he went down, we behaved just like any fire crew. We train in this type of rescue, and the EMTs were dialed in; 45 minutes from notification to landing at hospital."

FIRE CREW LEADER

bag and backboard had been prepositioned at the base of the hill and the IWI IC sent two people down the hill to retrieve the medical gear while the helispot was being constructed. In the meantime, *"we used two lodgepole poles, space blankets, and fiber tape to build a stretcher, and worked together to caterpillar him down to the LZ [landing zone]"* recalled one of the students. The Bitterroot National Forest's contract helicopter was able to respond to the scene, pick up the unconscious student and the EMT, and fly them to the hospital in Hamilton, Montana.

On [high reliability](#) wildland fire crews, the crew leadership will call a crew together after an event such as this and conduct an ["After Action Review" \(AAR\)](#). These reviews are crafted to identify weaknesses and sustain strengths. AARs enhance crew cohesion, trust, camaraderie, and a shared understanding of how to perform better next time. Crew-level AARs are typically informal discussions with no written documentation, which helps the crew feel comfortable about being open and transparent.

The advanced fire crew conducted an AAR on this event and noted several things that went right and identified things they will do differently next time.

"This was like a test and everyone passed."

FIRE CREW LEADER

The Center Leadership Team (CLT), also champions of learning culture, wanted to conduct an AAR and document it. In their AAR, the Center Leadership Team noted that the AF crew leadership were highly professional, responsive, and, as several commented, *“Those guys were dialed-in”* during the incident.

An area for improvement was noted in the AAR: All agreed they need to order emergency services through the Forest Service dispatch. When the ambulance was ordered through 911 by the center, as requested, it caused the 911 dispatcher to deny the air ambulance order coming from the Forest Service dispatch center because the ambulance already en route had not ordered it. The Forest Service dispatch did not realize the ambulance had been ordered,

resulting in some confusion there as well. Despite this, those interviewed felt it was a near flawless emergency medical response. However, it was still distressing for those involved.

“Like all firefighters at the center, we teach them to be first to volunteer and last to complain.”

JOB CORPS TRADE INSTRUCTOR

The student who was transported to the hospital was released later that same day with a medical diagnosis of “fatigue and dehydration.” The attending physician indicated there was an issue with nutrition and hydration, which was a big surprise to the crew boss.

It didn’t make sense to others that this student, one of the fittest and most attentive of all the students, was not eating and hydrating as instructed. When talking to the student about this, the trade instructor learned the student was lactose intolerant, and not just a little bit intolerant, but *severely* intolerant. The meals at the center were not completely lactose free so he had just been picking through his food and only eating what he felt he could safely eat.

Cultural conditions related to this are significant. The student knew he was taking a risk by not eating but he was highly motivated to excel as a firefighter. He loves being a firefighter and can’t see himself doing anything else for a career. He knew he needed good performance records and good recommendations, so he didn’t want to complain or be known as a complainer.

The Center Nurse and Center Leadership Team began to address the need for lactose free meals for this student and progress was being made. A lesson learned and applied!

“He is so intolerant of any lactose that he can’t just pull the cheese off a ham and cheese sandwich. That will rip him up.”

FIRE CREW LEADER

JUNE 23: TRAPPER CREEK FIREFIGHTER GOES DOWN WITH RHABDO

A supervisory firefighter employed by the Bitterroot National Forest and assigned to Trapper Creek, became extremely fatigued and felt groggy about an hour after completing an arduous physical fitness training. The weather was moderate with overcast skies and just barely into the 80s. It was, however, unusually humid for the time of year. A crew member took the firefighter to a local hospital where he received multiple bags of IV solution and was diagnosed with Rhabdomyolysis (Rhabdo) due to environmental conditions and overexertion.

Rhabdomyolysis

“A potentially life-threatening syndrome resulting from the breakdown of skeletal muscle fibers with leakage of muscle contents into the circulation. The most common causes are crush injury, overexertion, alcohol abuse and certain medicines and toxic substances.”

Source:

<https://www.aafp.org/afp/2002/0301/p907.html>

Rhabdo diagnoses of wildland firefighters are reported several times a year. However, it is likely that most incidents are not reported because they are not severe. The FLA team included this event as another incident related to heat and overexertion.

JULY 14: TWO FIREFIGHTERS GO DOWN DURING A TRAINING EVENT

The Trapper Creek fire crew was staging at the Stevensville Ranger District in Stevensville, MT while assigned to a fire. While waiting for an assignment, they conducted an emergency medical training scenario with other crews. It was a hot day (mid-90s) with low relative humidities and poor air quality because of heavy smoke. They were under direct sun in the ranger station’s parking area.

At approximately 1330, a student felt very fatigued and overheated. He sat in the shade next to the building for a bit before the crew boss

trainee instructed him to get into his truck and turn on the air conditioner until he felt better.

About thirty minutes later, the crew boss began to feel bad, and the crew boss trainee noticed the fatigued student was also still in the truck. The trainee found the student lethargic and became very concerned having been part of the rescue of this same student the month before. The trainee decided to immediately drive the ill firefighter and crew boss to the hospital emergency room in Hamilton, MT.

Within an hour, the student and the crew boss were admitted to the hospital for evaluation. Medical staff determined their ailments were not related. The crew boss was diagnosed with a viral infection and was prescribed medication and light duty for four days.

The student was diagnosed with dehydration, exhaustion, low blood sugar, and electrolyte- and sodium-level deficiencies. He received IV fluids as treatment to balance hydration and electrolytes. Physicians were concerned the student might have a heart condition and referred him to a cardiologist for further evaluation. From these events, the student learned he has a medical condition making him susceptible to electrolyte imbalance. This problem is not uncommon, but the student will have to manage this condition to maintain good health for life.

“I wish I had known about the electrolyte issue earlier, it cost me a whole roll,” meaning he missed out on a chance for a fire assignment. “I was pretty ready for guard school. I had already been through guard school, so it was like a refresher.”

ADVANCED FIRE STUDENT

Many on the crew were very concerned about the student’s *second* occurrence of dehydration, so they conducted an AAR. The Center Director likewise wanted a documented AAR. As a result of these AARs, they learned that the center’s food services program was having trouble consistently meeting the lactose-free meal needs of the student.

The AAR also revealed that all the firefighters needed specialized meals. Specifically, they required meals high in protein, carbohydrates, and fats as recommended by Forest Service researchers for arduous duty wildland firefighters. It was a realization that although nutrition and hydration were taught in guard school as part of the Advanced Fire trade, the crew leadership missed what the firefighters were *actually* eating. In the past, the center had been provided a financial code for lunches when students were being assigned to fires. In this instance the center's Food Services was not aware of the special circumstances for the student wildland firefighters' meal needs since they were still returning to the center each night despite being assigned to a fire, which was atypical of past fire assignments.

JULY 18: A SEIZURE AND AIR AMBULANCE RIDE ON ANDERSON HILL

"HE WAS COMING IN AND OUT OF CONSCIOUSNESS AND KEPT SEIZING. AT ONE POINT HE WOKE UP AND WAS BEGGING ME NOT TO LET HIM DIE. I HAVE BEEN IN COMBAT WITH THE MARINES AND THAT WAS THE SCARIEST MOMENT OF MY LIFE. I THOUGHT WE WERE GOING TO LOSE HIM."

FIRE CREW EMT

Trapper Creek's fire crew was supporting initial attack suppression efforts on the Anderson Hill fire outside of Drummond, Montana. It was hot, hazy, and smoky. The crew worked hard on the assignment that day. The fire blew up and kept increasing in size. They were the only hand crew on the fire, and they spent the day going direct.² It was

"It was hard, but we are expected to be tough."

STUDENT FIREFIGHTER

thick and there was a lot of line construction. As they prepared to go to camp for food and sleep, the division supervisor called them back at approximately 2000 hours to work a spot fire near structures. The crew drove approximately five minutes to the new location. As they unloaded and prepared to respond, an AF student began to have seizures in the backseat of the crew truck. The student had been working hard all day, pulling brush and limbs aside as they were cut by sawyers. This task, known as "swamping," can be stressful because of the chainsaw noise, needing to be aware of where the saw bar is, heavy lifting, throwing brush away from

the fireline, and being adjacent to the fire. The student, who is extremely fit and strong, kept a good pace all day even though it was only his first- or second-time swamping.

Recognizing the student's seizures as serious, the crew decided they needed to get him to a hospital. As the seizures became worse the plan changed and the crew EMT provided initial care in the backseat as another firefighter drove to "Drop Point #4" (DP4) where they knew a Forest Service Helicopter could land. En route, they called for an air ambulance and a paramedic.

A Forest Service helicopter landed at DP4. A fireline paramedic arrived soon thereafter, and the student was transferred to the helicopter. The paramedic joined the

"We had two life flights in five weeks, I've never been there before.... it was traumatic."

JOB CORPS CENTER DIRECTOR

² Any treatment applied directly to burning fuel such as wetting, smothering, or chemically quenching the fire or by physically separating the burning from unburned fuel. Direct line is generally the most effective containment line, but also can be extremely hot and physically challenging

patient on board and the helicopter proceeded to the incident helibase where an air ambulance would pick him up and transport him to a hospital in Missoula.

By the time of transfer from the crew EMT to the fireline paramedic to the air ambulance paramedic, the student had sustained six seizures over approximately 45 minutes. The air ambulance crew intubated the student to stabilize him for flight. The student arrived at the hospital at approximately 2246 hours.

The attending physician put the student in a medically induced coma, and then contacted the student's father and recommended he come to Missoula to see his son for perhaps the last time. The father and the student's brother flew to Missoula. As they were arriving at the hospital on July 19, doctors pulled the student from the induced coma and he stabilized. He was released from the hospital on July 23 with a diagnosis of epilepsy provoked by stress and smoke inhalation.

The student was medically separated from the Job Corps program with reinstatement rights, which allows him to access necessary health care and treatment. Upon providing proof of a medical clearance, he can return without losing any of the progress achieved while enrolled in the program.

The student's father and brother flew to Missoula on a one-way ticket as they could not afford a return flight and had limited resources for hotels and meals. Thanks to efforts from a Trapper Creek AF trade instructor, the Wildland Firefighter Foundation was contacted and quickly took care of their needs. Of note, there is now guidance within the [Forest Service Handbook 1309.19 Casualty Assistance Handbook](#) that states, "when an employee is seriously injured while on assignment (including while in travel status), or suffers a medical emergency in travel status, appropriated funds, on a case-by-case basis, may be used to pay for travel expenses of family members."

Casualty Assistance Program: Family Travel

"When an employee is seriously injured while on assignment (including while in travel status), or suffers a medical emergency in travel status, appropriated funds, on a case-by-case basis, may be used to pay for travel expenses of family members."

Source:

[Forest Service Handbook 1309.19, Chapter 30.3](#)

CONDITIONS INFLUENCING RISK

After interviewing those involved in the incidents described above, the FLA team identified the following conditions present at the time of these events.

DELAYED START

Responding to the national COVID-19 pandemic, the Department of Labor (DOL), transitioned all Job Corps centers to virtual learning for most of 2020. In December 2020, the DOL started allowing previously enrolled students back on campus, a process that took through May to complete. During this time, advanced training programs, like the wildland fire program, were not operating.

The Advanced Fire Program students were finally approved to go to Trapper Creek at the end of May. Trapper Creek staff scrambled to obtain medical packets, Incident Qualification and Certification System (IQCS) files from the students' originating centers, as well as secure transportation from their previous center to Trapper Creek to get the crew ready before the western fire season started.

As the advanced fire students began to arrive on center, about twelve weeks later than planned, many needed to acclimate to the elevation. They were also required to quarantine for fourteen days and have a negative COVID test result before the crew could start working together, delaying crew cohesion building.

Ultimately, these factors contributed to a delayed start of the program by several months, limiting the time the crew had to prepare for fire season, which may have contributed to some of the issues identified by participants.

ACTIONS TAKEN TO MITIGATE THE RISK OF COVID

“THE COVID PROTOCOLS HAVE INCREASED SMOKING, INCREASED EATING, DECREASED EXERCISE, INCREASED OBESITY, AND INCREASED MENTAL HEALTH ISSUES SUCH AS ANXIETY AND DEPRESSION.”

JOB CORPS CENTER NURSE

It should be noted that Forest Service and DOL Job Corps Center guidance were both more stringent than the Center for Disease Control’s (CDC) COVID mitigation protocols during the summer of 2021. The Department of Labor protocols included:

- COVID testing and a 14-day isolation quarantine for any student on-boarding or any student who leaves campus overnight (as wildland firefighters are prone to do),
- strict sanitizing regimens,
- daily attestations that one’s temperature is below 100 degrees and no contact with COVID-positive people for 14 days,
- strict social distancing,
- no visitors on campus, and
- masking requirements.

Perhaps most significantly, the protocols required masking on campus except when eating, sleeping, smoking, or when a student was in their dorm room with the door closed. The FLA team noted there were no doors on the dorm rooms at the Trapper Creek Job Corps Center.

Any form of physical exertion is potentially impeded by a mask. Strenuous exercise, required for firefighters, is *significantly* impeded. Exercising in hot weather in a mask, such as was experienced almost the entire summer at Trapper Creek, is extremely uncomfortable.

“The atmosphere is depressing.”

STUDENT FIREFIGHTER

Center staff noted physical and emotional stress on students and staff as a result of constant masking. The students rarely got to relax without a mask, except as noted above, and were continuously reminded to physically distance and spent much of their time sanitizing. While in the dorms, movies and TV are activities that students have generally done to relax but even then, they were required to remain distant and masked.

When a crew returns to the center from a fire assignment, they are required to quarantine together for fourteen days unless they get another fire assignment, in which case they can go back on assignment. The crew spent all day, every day together during assignments, during quarantine, and were isolated from other students. One fire crew leader who is a veteran remarked, “They are essentially going through a combat deployment right now.”

There is a recognition that the measures we take to protect ourselves from one hazard may increase our risk for other hazards.



FIGURE 4. THE GYM WHERE STUDENT FIREFIGHTERS QUARANTINED BETWEEN FIRE ASSIGNMENTS. PHOTO COURTESY OF TRAPPER CREEK.

CREW COHESION

Cohesion of the advanced fire crews was slowed with student quarantine and a delayed start. As noted above, there was a delayed start to enrolling the new class for the Advanced Fire program. The fire crew staff had expected to have three months to build crew cohesion. The new students for AF came from many centers. Job Corps students are in a unique situation, especially if enrolled in a CCC. Centers are remote and often like a foreign country to new enrollees. Even though the students may have completed training on another center, they still had to get used to a new environment.

Upon arrival, all were placed into quarantine – one student per room – for fourteen days. Even though they were in the same dorm, their opportunities for building strong relationships were limited due to all the safety protocols.

The Bitterroot National Forest hired new personnel to support the Trapper Creek Fire Program (militia fire crews and camp crews, the Forest Conservation and Firefighter trade, and AF). These personnel did not have any time with the students to build relationships prior to Guard School training.

Training began during quarantine. It was intensive and meant to get the crew together, fire hardened, and ready to go out on assignment for the season. The students and staff were still in the process of getting to know each other and their “comfortability” (as one student put it) wasn’t where it could have been if they had been together longer.

The crew did learn in trials by fire – three medical incidents within a month of each other forced them to react and bond.

RECORD HEAT

In 2021, the western U.S experienced record heat in addition to a prolonged and severe drought. From late June through mid-July, an extreme “heat dome,” which media analysis identified as a 1,000-year weather event, affected northern California, Idaho, western Nevada, Oregon, Washington, and many Canadian provinces. Inland regions of central and southern California, northwestern and southern Nevada, and parts of Montana were also affected, although the temperature anomalies were not as extreme as in areas farther north.

Record heat and drought caused the early onset of a severe fire season. On July 14, the Chief of the Forest Service requested that all eligible employees be excused from regular duties to support fire suppression activities. At that time, the nation was at Fire Preparedness Level 4,³ with 87 large fires burning, and a national shortage of fire resources. Fire crews from CCCs became an important resource to aid the Forest Service in responding to wildland fire incidents across the nation.

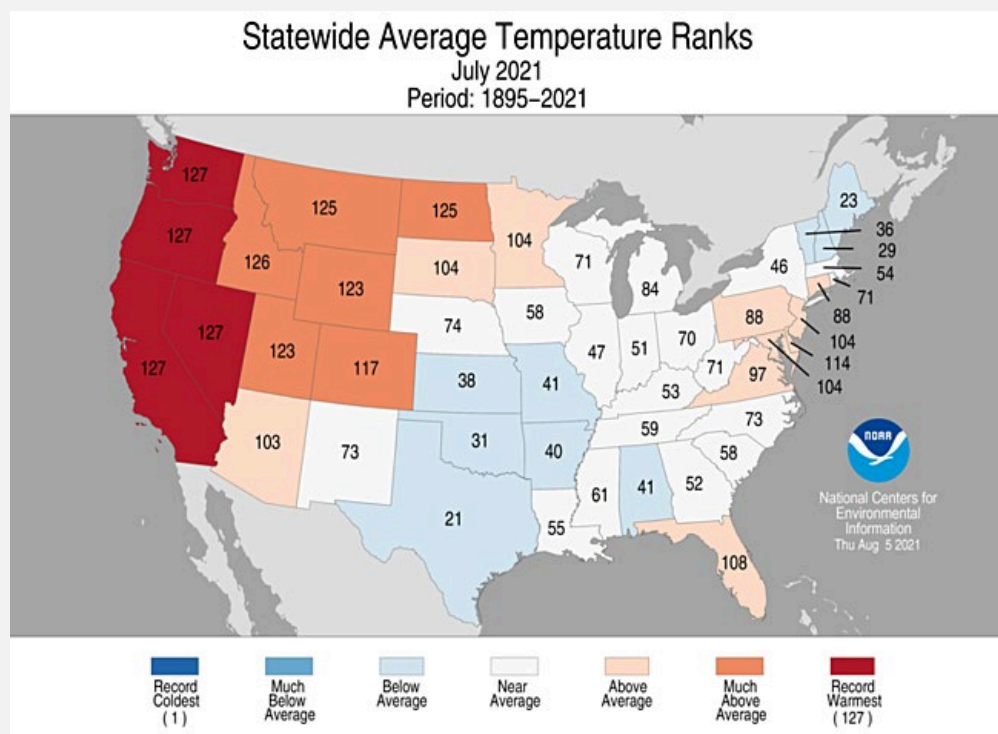


FIGURE 5. MONTANA HAD “MUCH ABOVE AVERAGE” TEMPERATURES FOR JULY OF 2021.

COMPETITIVE PRESSURES ON TRAPPER CREEK

The Trapper Creek center leadership expressed concerns regarding competitive pressures within Job Corps, including those related to both the Advanced Fire trade and the fire program. Onboard Strength (OBS), which is the number of students on center, is directly related to a center’s performance rating. The COVID-19 pandemic has placed restrictions on onboarding students significantly limiting OBS. Trapper Creek currently has a fraction of its planned

³ Increments of planning and organizational readiness dictated by burning conditions, fire activity, and resource availability. There are five Preparedness Levels, ranging from the lowest (1) to the highest (5).

OBS with only 44 students on campus compared to the expected enrollment of 214 students. The low number limits the number of students available for the center's fire militia and camp crews, as well as the AF trade.

The Trapper Creek center leadership also spoke about the constant stress of being compared to other centers regarding performance. The Department of Labor gathers monthly data to measure all centers' performances. Centers are ranked from 1 to 120, with number 1 representing the highest cumulative ranking and rating for the Program Year to date. Currently and for many years Trapper Creek has been one of the highest rated centers and staff are very proud and protective of this rating.

Other pressures include thorough DOL Job Corps Regional Office Center Assessments performed on an average of every two years. Centers also go through random Regional Office Targeted Assessments. The assessment teams write up reports to include any findings of non-compliance with Job Corps policies, and then the center is required to respond to those findings within a designated time frame in the form of a Corrective Action Plan. If a center is found to be non-compliant repeatedly, then actions can be taken against the center by the DOL. One example is that if a center is found to be 'unsafe' DOL may place a pause on enrollment which will eventually have a significant effect on performance that could ultimately lead to a closure of a center. Failure to comply with COVID mitigations could cause an 'unsafe' finding. Fire crews coming and going from campuses represented a huge risk to ongoing operations of the center, requiring special considerations for implementing COVID mitigations.

NUTRITION AND MEALS

Like many young people, Job Corps students may not have received information about good nutrition. As such, they may not know how to maintain dietary health and hydration when working outdoors in variable climates. Trapper Creek has a well-equipped kitchen with staff who prepare all the student meals. The center utilizes this service to support their culinary arts trade as well. Meals are designed for the needs of a typical student/young adult while giving them an opportunity to consume a diversity of foods. The Food Service Manager seeks to comply with the United States Department of Agriculture's Dietary Guidelines for Americans, 2020-2025 (see: www.dietaryguidelines.gov). Of note, several people interviewed complained that there was little in the way of fresh foods and produce offered due to a contracting issue and complexity of being in a very remote location. Often the produce is delivered in a less than fresh state.

Several studies over the past 20 years have shown wildland firefighters require food that meets *significantly* higher energy demands than the standard dietary guidelines suggest. Firefighters who do not consume sufficient foods to meet these energy demands will lose muscle mass and become fatigued more easily. For example, the USDA dietary guidelines call for 2,000 to 3,000 calories per day for a typical American diet, whereas an arduous duty firefighter needs 4,000 to 6,000 calories per day to keep up with energy demands.⁴

To maintain adequate blood glucose and energy levels during a fire shift, firefighters need a continuous supply of



FIGURE 6. A CALFIRE RECOMMENDED WILDLAND FIREFIGHTER "LUNCH" WITH HIGH ENERGY FOODS DESIGNED TO BE CONSUMED THROUGHOUT THE DAY. PHOTO CREDIT: WILDFIRETODAY.COM

⁴ See US Forest Service Technology and Development Program publication 0751-2302P-MTDC, *Wildland Firefighter Nutrition and Education Program*.

carbohydrates. Specifically, they should consume fruits and carbohydrate-rich snacks amounting to about 200 calories every two hours.⁵ Low glucose levels not only affect muscle output but can also lead to mental confusion and moodiness.

AARs following Trapper Creek's June and July emergency medical events noted that Trapper Creek fire crews received typical center meals, falling short of the protein, fat, and carbohydrate needs of a wildland firefighter. Some AAR participants speculated this contributed to the medical emergencies as the firefighters involved suffered from fatigue. Trapper Creek food service staff now provide special wildland firefighter meals to the firefighters.

LACTOSE INTOLERANCE

Lactose intolerance is a digestive disorder caused by the inability to digest lactose, the main carbohydrate in dairy products. People with lactose intolerance don't make enough of the enzyme lactase, which is needed to digest lactose. The severity of symptoms can vary, depending on how much lactose you can tolerate and how much you have eaten. Symptoms may include [abdominal pain](#), [bloating](#), [diarrhea](#), [gas](#), and [nausea](#). These symptoms typically start thirty minutes to two hours after eating or drinking lactose-based food. Lactose intolerance is very common. In fact, it's thought to affect around 75 percent of the world's population.

The student who experienced two of the medical events, suffers from severe lactose intolerance. As a student, he has little control over the food provided to him, relying on the center's food services to meet his needs. As an AD firefighter assigned to an incident, the student also has little to no control over the food that is provided to him, relying on the incident to provide all meals.

PRESSURE FOR ADVANCED FIRE TRADE SUCCESS

"WE NEED TO STOP CALLING IT BLACK FRIDAY AND START THINKING OF IT AS GOOD FRIDAY. WE WERE GIVEN AN OPPORTUNITY TO REBUILD JOB CORPS TO BETTER ALIGN WITH THE FOREST SERVICE MISSION."

JOB CORPS FIRE FIELD COORDINATOR

Trapper Creek staff still think about the Chief's announcement on May 24, 2019, referred to as "Black Friday", when the Secretary of Agriculture requested the transfer of CCCs to the Department of Labor. The transfer did not occur as the Secretary grew to understand the vital role the CCC Job Corps can play in delivery of the mission of the Forest Service.

When making decisions that could affect the status or future of the Advanced Fire trade and the center, the memory of "Black Friday" is not forgotten. Some Forest Service CCC employees are still concerned about losing programs or losing their jobs if something goes wrong or if the integration of CCCs with the Forest Service does not advance rapidly enough. The Advanced Fire trade is an area of emphasis for integration.

There was a perceived risk tradeoff associated with further delaying the AF trade by not enrolling students, and in turn not having the crew ready and available for fire assignments quickly. After students complete the training, the students in AF need enough time to get the experience needed to qualify and compete successfully for jobs. The delayed start meant that the one-year program would only have seven months in which to complete the trade

⁵ See <https://www.nwcg.gov/committee/6mfs/firefighter-nutrition> and <https://www.fs.fed.us/t-d/pubs/htmlpubs/htm06512833/index.htm>

requirements and gain competitive experience. If students don't get jobs in their trade it affects the center's rating and the rating of the trade. No one wanted to see the trade fail, and no one wanted the trade instructor to have his program at risk. Several of the Forest Service staff hired to support Trapper Creek had been on-boarded during the period when no students were on campus and some felt their jobs may also have been at risk if the AF trade failed or failed to start.

Staff recalled being asked on several occasions what the latest date was for starting the program. Their first response was sometime in May, then late May, and then finally it was decided that it would be an early June start date. After an entire year of not having students at the center, everyone was ready to get back to work. Trapper Creek fire crews have a history of getting a lot of assignments throughout the summer. Delaying the crew's availability affects how much money the students earn, potentially influencing their ability to transition into jobs after graduating from the program. Student success is very important to the program.

There was an initial plan to have the students travel to Trapper Creek on June 1 to start the scheduled fire training on June 7. Forest Service Job Corps National Office leadership found out late on May 25 that Trapper Creek enrollment was likely to get put on "pause" later in the week due to the pandemic. The center directors at both Collbran and Trapper Creek, as well as the fire program personnel, quickly initiated student movement to centers for the AF students to ensure they were on center by May 27, thus avoiding a scenario that would have prevented them from starting.

"Fire gives the students a huge advantage in particular the chance to leave with 10 to 20 thousand dollars in their bank account to help them transition to independence. They leave here with the opportunity to pay the first and last months' rent, buy a truck, become independent."

ADVANCED FIRE INSTRUCTOR

INTEGRATION

"OUR JOBS CORPS CCCs CAN EASE HIRING CHALLENGES IN FORESTRY, FIREFIGHTING AND CONSERVATION WHILE SHOWING RURAL AND URBAN YOUTH A PATH TOWARD HIGH-QUALITY JOBS AS THE NEXT GENERATION OF LAND MANAGERS. SO, I AM CALLING ON ALL JOB CORPS CENTERS—INDEED, ALL OF US IN THE FOREST SERVICE—TO FIND MORE WAYS TO INTEGRATE JOB CORPS INTO THE FABRIC OF OUR AGENCY TO HELP MEET OUR MOST CRITICAL MISSION NEEDS."

FOREST SERVICE CHIEF, OCTOBER 2019

In addition to pressures described above, Job Corps Centers have been tasked with integrating more closely with the Forest Service. However, as one participant noted "there are very limited slides as to how we function together." Although integration is a priority of the Job Corps and of the Forest Service, it isn't necessarily a priority for DOL. The Department of Labor operates the Job Corps program with the objective of "helping eligible young people ages 16 through 24 complete their high school education, train them for meaningful careers, and assist them with obtaining

employment.” Much of the ranking of the centers is based on data regarding student placement in their trade and their salary. To add the Advanced Fire Trade, the center had to eliminate one of the other trades. This posed a risk to the center since there was no full market analysis of the new trade.



FIGURE 7. FOREST SERVICE AND JOB CORPS FLAGS FLOWN AT TRAPPER CREEK.

Until the placement data are directly influenced by the integration efforts and integration successes match the DOL metrics, the DOL may not recognize the significance of the union between Job Corps and the Forest Service. Integration efforts have increased student retention on the center, benefiting the ranking of the center, and getting students out into the forest environment has given them unique experiences they had not had prior to Job Corps. The Center Director remarked, “We’ve had students who didn’t know lawns had to be mowed because they hardly ever saw grass. The things the students learn by being part of the fire crew, like work ethic and integrity, are invaluable for the students.” The Forest Service also benefits from this relationship, gaining thousands of hours of firefighter labor and hundreds of incident responders to help serve the agency’s mission; however, unless the students end up with jobs as firefighters, integration won’t be viewed as successful by the DOL. Several interviewees referred to the dichotomy of missions as “serving two masters”, reaching for two different measures of success, which compounds the responsibilities of the center staff.



PARTICIPANTS' LESSONS LEARNED

The lessons below were shared by participants. They include "sensemaking" which for those not familiar, is an exercise in understanding how it made sense to the participants at the time of – and leading up to – the incident to:

- Expect what they expected.
- Ignore a risk that (in hindsight) seems so obvious.
- See things the way they were seen in their eyes.
- Forgo an available hazard mitigation.
- Shortcut a standard procedure or process.

STARTING FIRE TRAINING EARLIER IS IMPERATIVE.

The goals of the Trapper Creek fire program are to create a Type II Initial Attack (T2IA) crew with mostly student firefighters, create camp crews, and to support an engine module with one or two students. To be a T2IA crew is an ambitious goal. This is a much higher standard than a Type 2 crew but not quite the elite status of a hotshot crew. T2IA crews have highly qualified leadership and can break up the crew into three separate modules, each working independently. A T2IA crew will also have at least three sawyers making them highly valued for initial and direct attack.

Experienced fire leaders know it takes time to train and condition a group of young men and women to become a T2IA crew. Therefore, the plan last fall was to bring on the crew in early March, giving them three months of training, hardening, and team building. Crew leaders understand these firefighters need to be able to get along and trust each other – literally with their own lives. Crew cohesion is essential, and it takes time to develop. Likewise, bodies needed to become ‘fire-hardened,’ that is, to be very physically, emotionally, and mentally fit for wildland fire duty as well as acclimatized for higher elevation. Students needed to know their bodies physical limits to know when they could push-on or back-off. They also needed to know how to get along with each other under high mental and physical stressors and minimal sleep.

The NWCG publication “Fitness and Work Capacity” recommends a periodization of training throughout the year. This publication also identifies work hardening as a method to prevent illness and injury, “Work hardening uses a gradual progression of work-specific activities to bring you to the job ready to deliver a good day’s work.”

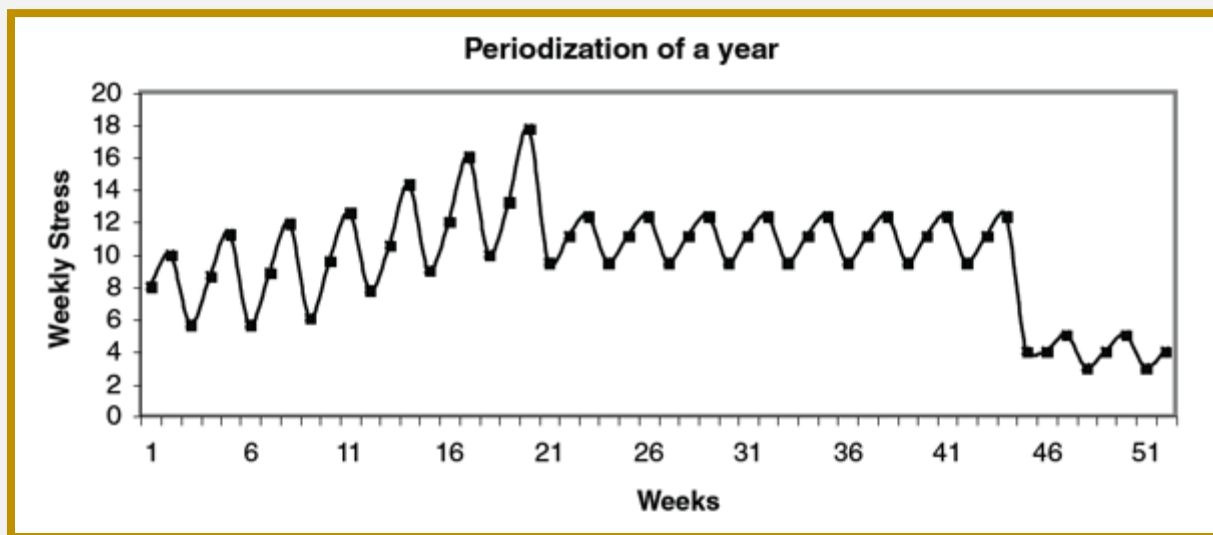


FIGURE 8. A GENERALIZED SCHEMATIC OF PERIODIZING TRAINING BEFORE THE FIRE SEASON. WEEKS 1 TO 20 ARE SHOWN AS THE TRAINING PERIOD. DURING THIS TIME THERE IS A GRADUAL INCREASE IN OVERLOAD BUT WITH WEEKLY VARIATION. WITHIN EACH TRAINING WEEK A FIREFIGHTER SHOULD ALSO HAVE EASIER AND HARDER DAYS. DURING THE FIRE SEASON THE AVERAGE WORK INTENSITY WILL BE LOWER THAN DURING THE FINAL WEEKS OF TRAINING AND, IF POSSIBLE, THERE SHOULD BE DAILY AND WEEKLY VARIATIONS IN PHYSICAL STRESS. AFTER THE FIRE SEASON, PHYSICAL ACTIVITY MAY BE REDUCED FOR SEVERAL WEEKS OF RECOVERY BEFORE A NEW YEAR BEGINS (FITNESS AND WORK CAPACITY, 2009).

When personnel were asked the question, “What did you learn from the unintended outcomes of this summer?”, effectively everyone the FLA team interviewed noted that they needed to start in March. Given the pressure they were under, several said they felt they “couldn’t say no.” The ideal situation is to start training as early as possible.

SENSEMAKING

Seeking to exploit hindsight, we asked how it made sense for experienced fire leaders, from the Forest Supervisor’s Office down to the center, to accept a June start and proceed ahead with trying to build a T2IA crew? Below is what the FLA team observed and heard.

CARE AND COMPASSION FOR STUDENTS

COVID essentially cancelled the 2020 Job Corps experience as students were sent home to study online. For many of the students, this meant returning to environments not as conducive to their success. Some had no internet connection at home to participate in virtual classes, and at least one student had no electricity in their home to charge their center-provided Chromebook.

Importantly, the staff at the center are passionate about helping disadvantaged youth. To the staff, it would be heartbreaking to cancel on the students.

The March start was delayed until June by DOL and that could not be helped. How then to make the best of a bad situation? Collbran and Trapper Creek had two bad options: 1) accept the delayed start and do their best to manage the risks, or 2) cancel the advanced program and T2IA crew and send the students 'home'. Regardless, once Guard School was completed, fire leadership evaluated the crew and clearly felt they met T2IA standards.

Moreover, there were pressures to make the crew available for fire assignments right after they completed the training. If they delayed availability to allow more time for crew cohesion and fitness training, the students in AF wouldn't have enough time to get the experience needed to qualify and compete successfully for jobs once they were ready to graduate from Job Corps.

Having students back on center paired with the perspective (at the time) that COVID rates were slowing down and things were starting to return to normal gave everyone the confidence that starting the AF program could happen successfully.

FOREST AND REGIONAL SUPPORT

In fiscal years 2020 and 2021, with special funding from the Regional Office, the Bitterroot National Forest made investments of several hundreds of thousands of dollars into the AF program at Trapper Creek, including several permanent fire positions to ensure the suppression crew could meet T2IA standards and ambitious integration goals. At all levels, Forest Service and Forest Service Job Corps leaders committed to develop Trapper Creek into a fire management program that was highly integrated with the fire management mission of the Bitterroot National Forest. In the future, this meant not just fire suppression and camp crews, but also fuels management crews and single resources such as dispatchers, cache managers, etc. When the staff learned they couldn't bring the students on in March, they again had two bad options: 1) accept the delayed start and do their best to manage the risks, or 2) cancel the Advanced Fire program for 2021 which would negate the investments of the region and forest and might cause a loss of future support.

PRESSURE TO SUCCEED

"Black Friday" as the staff refer to it, was the sudden and unexpected decision in 2019 to close all Civilian Conservation Centers. Staff felt that neither the DOL nor the Department of Agriculture fully appreciated the importance of the CCCs to the staff, the Forest Service, to the communities, and to the students. Black Friday was traumatic to most of the staff at Trapper Creek and still generates an ambient level of stress that they could be cut, especially if they are not visibly successful.

Participating in Trapper Creek's fire program allows students to earn money that helps them transition into independence. The delayed start in June affected the student's potential for earnings as they missed out on assignments while they received training two months later than planned. Fire money is huge for a student. It's a

make-it-or-break-it deal for earning startup costs as many students have no familial and financial support when they leave Job Corps.

WERE THE IMPACTS OF A DELAYED START REALLY A LESSON LEARNED?

There is a paradox inherent to asserting that the impact of a delayed start is a 'lesson learned' from the unintended outcomes of 2021. Crew leaders evaluated how the crew performed on the last day of Guard School (after building an arduous fireline and then responding to an actual life-or-death emergency) and said: *"they passed the test."* So then, according to the national standards as well as internal crew standards, after just two weeks of training, the crew met T2IA qualifications and were ready to be on the line.

Would any of the unintended outcomes have occurred if the crew had a full three months to train? That's unknowable. The culture within the training and particularly within the Forest Service Job Corps is to "improvise, adapt, and overcome."

There may be less of a paradox to say that the students needed more than two weeks to become physically and mentally "fire-hardened." Again, would any of the unintended outcomes of this summer have occurred if there were three months of PT and crew cohesion? We cannot know the answer to that question.

Of note, the student who experienced the two dehydration events was in tip-top shape and referred to as a true athlete by his peers. It would seem far more likely that a person of marginal physical fitness would be the one who would suffer dehydration, not an athlete. However, since two of the incidents occurred as a result of dehydration *and electrolyte imbalance, complicated by inadequate nutrition, which was exacerbated by severe lactose intolerance*, it is reasonable to assume that, yes, a March start-up could have precluded at least these two incidents. This is assuming that had the crew had the time, and took the time, to know each other better and know their own bodies better; it could have made a big difference. Given three months, it's reasonable to assume the crew would have discovered ways to mitigate lactose intolerance, resolve the deficient nutrition situation, and learn symptoms of electrolyte imbalance *before* these issues became a life-or-death emergency.

Everyone involved knew that accepting a delayed start was not ideal and could carry risks. Whether acknowledged or not, making risk optimization choices is stressful in and of itself. They mitigated the risks they understood at the time. It came down to the "human factors" of helping the students enrolled in the program. "If we didn't do something, the students would live with nothing" – Advanced Fire Trade Instructor

"It wasn't easy to see the holes starting to line up in our 'organizational cheese.'"

FOREST FIRE LEADER

THE PANDEMIC ENVIRONMENT ADDED CHALLENGES TO PREPAREDNESS AND RESILIENCY.

As previously noted, the pandemic and the actions taken to mitigate its risk created stress and were mentioned by most of the people interviewed about the unintended outcome events for this FLA. To many of the interviewees, the COVID protocols were a factor influencing the preparedness, cohesion, and well-being of Trapper Creek fire crews.

SENSEMAKING

The intent of actions taken to mitigate the risk of spreading COVID-19 is sound; however, the mitigations themselves represent a risk/risk tradeoff. Forest Service Fire and Aviation Management employees have been increasingly taught how to implement thorough operational risk management. Effective risk-based decision making is a process that includes identifying hazards, assessing risks, implementing controls, and monitoring risk controls for efficacy. Employees are also taught to identify where a transfer of risk could introduce uncertainty to another or pose additional hazards.

It was identified that implementing COVID mitigations reduced the risks of COVID infections but transferred it to risks associated with a lack of exercise, obesity, social isolation, and depression. The students participating in the fire program were shuttled from dorms (in and out of quarantine), to yurts, to fire assignments, to the gym continuously. Living in a gym and sleeping on cots did not allow for proper recovery (see [6 Minutes for Safety on Proper Recovery](#)). While the COVID protocols may not have been directly related to the incidents, they certainly

“The threat of COVID and COVID protocols have had serious impacts. 85 percent of the students I see are having mental health issues.”

JOB CORPS CENTER NURSE

contributed to the overall stress the students were experiencing. During the global pandemic, mask fatigue was real for everyone but since the center is “home” for the students, they rarely got a break from wearing a mask. Everyone, including students and staff, had to wear masks at all times unless they were eating, smoking, or lying-in bed.

Recognizing that the end state is to protect the health of the students, mask wearing while inside and within six feet of others was seen as an effective mitigation against COVID-19. However, once students had quarantined and had not been in contact with others outside of their “module as one” group, there was very limited opportunity for exposure to the COVID-

19 virus. The medical events occurred while the crew was off-center and engaged in arduous activity and were therefore not wearing masks; however, there was an overwhelming concern that the stringent mask wearing protocols when they returned to the center were a transfer of risk to the students’ physical and mental well-beings.

The student who experienced two dehydration episodes was, and is, in great physical shape. He is also noted as having an excellent attitude and loves being on the crew. After his medical incidents, he was quarantined by himself in the dorm. Staff checked on him three times per day and left his meals outside the door at certain times, but otherwise he was completely alone and “it was rough” for him. After the second incident, he spent seventeen days in the dorm by himself.

The student who experienced the epileptic seizure is likewise in top physical condition, loves the AF program, and has a great attitude. His seizures were brought on by stress and smoke as per the attending physician. Smoke obviously has nothing to do with the COVID mitigations, however the overall stressors of living through a global pandemic may have played a role.

However, the students are a resilient group, as the Acting Job Corps Fire Program Coordinator noted: “The tenacity of the students for maintaining the safety standards is incredible. Not many would have endured the challenges they faced this summer. They don’t have to be there; they can quit at any time. It speaks to their commitment to improving their futures. There is a lot on the line for these young people.”

STUDENT FIREFIGHTER MEALS SHOULD MEET FOREST SERVICE RECOMMENDATIONS ON INDIVIDUAL DIETARY NEEDS.

There is a high likelihood the fatigue, electrolyte imbalance, and dehydration suffered by one of the Trapper Creek student firefighters was directly correlated with his diet. The participants learned this summer that there was a discrepancy between the number of calories, fats, and proteins recommended by the Forest Service's National Technology and Development Program (NTDP) for wildland firefighters and the amounts provided to Trapper Creek student firefighters. As discussed in the Conditions Influencing Risk section, NTDP research has shown that inadequate nutrition during arduous activities will lead to fatigue, muscle loss, confusion, and moodiness.⁶ Participants also learned that one of the student firefighters has a severe lactose intolerance, which exacerbated his dietary deficiencies.

How did this come to be a lesson learned? How is it that the students and leaders were unaware of the inadequate nutrition?

SENSEMAKING

LACK OF A NUTRITION STANDARD

For almost two decades, Forest Service researchers have shown the need to quantify the nutritional needs of wildland firefighters and put them into national policy. The agency has been unable to do so for a variety of reasons, including interagency variances and contracting complexities with caterers. In other words, the Forest Service does not have a manual policy on arduous duty wildland firefighter nutrition. Nevertheless, the broad recommendations are transparent and taught to wildland firefighters across the country and across agencies. Resources for determining Wildland Firefighter Nutrition include the ["Wildland Firefighter Nutrition Education Program"](#) Tech Tip, [NWCG Fitness and Work Capacity, PMS 304-2, Ch 10](#), and [6 Minutes for Safety Firefighter Nutrition](#).

In reviewing the Training Achievement Record (TAR) for students enrolled in Forestry Conservation and Firefighting (FC-FF) or Advanced Fire Management – Wildland Firefighting (AF) the two training programs require different competencies. The FC-FF TAR does require that the student complete items such as demonstrating stamina for outdoor work, describe the importance of physical fitness, develop fitness through daily physical training, training hikes, and runs, and the AF TAR has a whole module on physical fitness. However, only one program has a requirement for understanding nutrition: Module 5, Fire Management, of the FC-FF TAR requires competency in nutrition practices that enhance firefighter performance, the signs and symptoms of dehydration, and the importance of rest and recovery to physical and mental fitness.

Not all students entering the Advanced Fire trade are transitioning from FC-FF programs and may not have any of the basic training it provides, including basic knowledge of nutrition or hydration. All students in Trapper Creek's fire program, regardless if in the militia or one of the firefighting trades, did receive a short module of training on nutrition and hydration during Guard School.

⁶ See US Forest Service Technology and Development Program publication 0751-2302P-MTDC, *Wildland Firefighter Nutrition and Education Program*.

CENTER'S FOOD SERVICES WAS FOLLOWING USDA GUIDELINES

The center attempted to follow USDA dietary guidelines, although contracting issues made this a challenge. Many participants just didn't think about the difference between USDA guidelines (which are commonly used) and arduous duty wildland firefighter guidelines (which are not well known outside of the fire community). Although students in the wildland firefighting program received basic training on nutritional needs for arduous duty, the increased nutritional needs for the wildland firefighter students were not immediately apparent to the center's Food Services.

FUNDING

When first approached by fire crew leaders on the need for the center to supply student wildland firefighters with special meals based on wildland fire guidelines, the center realized it did not have the funding to do so. For example, a wildland firefighter lunch is roughly twice the cost of a non-fire lunch. The way the kitchen procedures had been previously funded was through P-codes to provide special wildland firefighter meals for those assigned off-center. With the start of the Advanced Fire Trade, it wasn't immediately recognized that those students would need the specialized meals even when on-center.

"What would I tell a center director who is starting up an Advanced Fire Program? Know this: you need a much bigger food budget!"

JOB CORPS CENTER DIRECTOR

It should be noted that guidance for providing meals or funding for meals when assigned to incidents can be found in the [NWCG Standards for Interagency Incident Business Management](#) and the [Forest Service Handbook 6509.33 3f Federal Travel Regulations Zero Code](#).

SEVERITY OF LACTOSE INTOLERANCE AND AN ELECTROLYTE IMBALANCE

As previously discussed, lactose intolerance can lead to intestinal disorders that vary in severity according to the severity of the intolerance. Seventy-five percent of the population has some level of lactose intolerance so it's easy to think *it's not that big of an issue*. In the case of the Trapper Creek student firefighter, however, small amounts of lactose ingestion would lead to debilitating cramping and diarrhea. Diarrhea in turn leads to dehydration. So then, there is a direct link between the unmitigated risk of lactose intolerance and the dehydration that led to two of the four unintended outcomes this summer.

After the first incident of fatigue, electrolyte imbalance, and dehydration, the center learned of the student's intolerance to lactose but not the severity of this intolerance. Many may have assumed that, indeed, he could just pull off the cheese from his ham and cheese sandwich and be fine; and so, a ham and cheese sandwich would be acceptable in his lunch. The center instituted changes but not strictly lactose-free changes. There were other instances of foods containing lactose that were mistakenly given to the student, such as chocolate chips in a waffle breakfast.

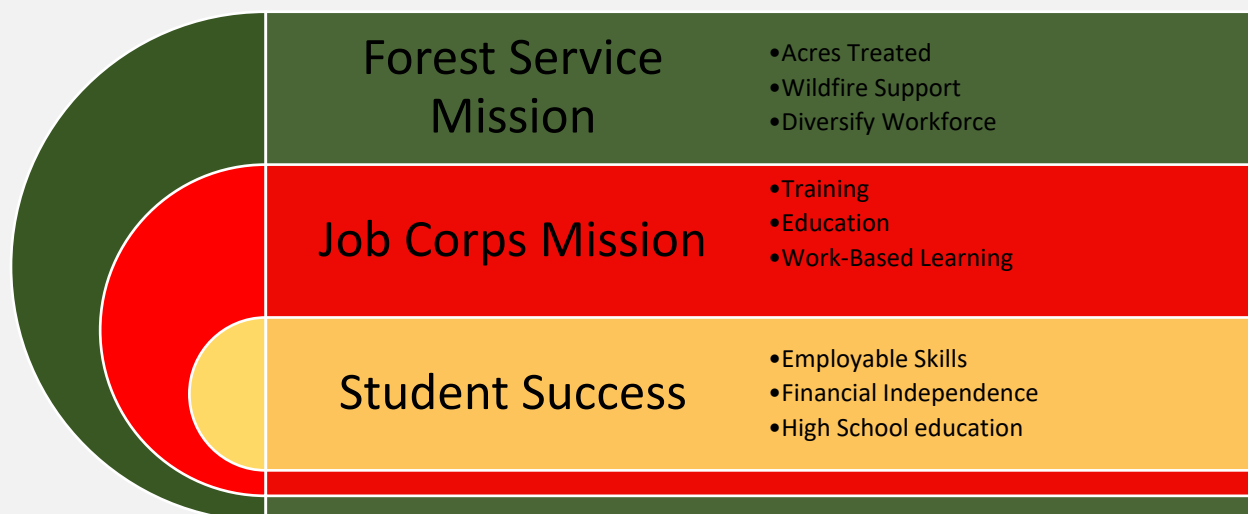
Another factor was that this student did not complain, ever! He didn't want to be a bother or be known as a complainer. After the second incidence of fatigue, electrolyte imbalance, and dehydration, center Food Services instituted policies and training to minimize accidental meal items containing any lactose. A crew leader also bluntly and directly told the student, *"You got to stand up for yourself!"* Thanks to an aggressive learning posture by the Center Leadership Team, the lactose intolerance risk has been mitigated. In this instance, fixing the lactose intolerant

diet spilled over to a fix for other special diet needs as well. The food services staff now has trained in and is supplying special meals beyond just lactose free, specifically gluten-free and vegan diets.

After the second incident, the student was told by the physician that he has an electrolyte imbalance that he will likely have for life. The physician instructed him to consume a 1:1 ratio of water to electrolyte replacement drinks rather than the standard 3:1 ratio. The student has been diligent in following this guidance. The fire crew leaders have made sure he always has at least powdered electrolyte replacement mix with him during fire assignments.

HAVING ONE TEAM WITH TWO MISSIONS REQUIRES A GENUINE PARTNERSHIP.

It was recognized that engagement from both Job Corps and the Forest Service is imperative to fully taking care of the students and the success of both missions. During the AARs and interviews, employees of the center and the forest identified the importance of pre-season communications and a detailed operating plan that includes emergency contact information and processes associated with each student's status. If new employees or detailers are filling key roles, it is essential to keep them informed of the processes and operations plan, and as processes and protocols change. The center has already adopted a process for gathering emergency contact information from the students and identified a secure location to house the information that can be accessed if needed in an emergency.



Employees interviewed also recognized that “integration” should include orientation and cross-training between each entity, so everyone understands their roles. Suggested components of orientation and training include:

- Forest Service policies
- Department of Labor policies
- student mental health training
- student standards and behavior management
- expectations of staff working directly with students
- safety protocols
- OSHA reporting
- e-Safety or ECOMP reporting
- reporting timelines
- shared knowledge of the medical separation process
- critical incident response procedures

The forest has committed eleven positions to the Job Corps Advanced Fire program and values their contributions to incident response. The Forest Fire Management Officer commented that the “Job Corps doesn’t have a land base to produce accomplishments, the students are their land base” and they recognize that student success is their accomplishment. He added, “The program is not about building a hotshot crew or even a Type 2 IA crew, it is about making those students successful.”

Identified lessons learned from the first year of the AF program include:

- Originating centers need to promote only the students who are truly interested in wildland firefighting and students applying to the AF trade need to have prior arduous firefighting experience with the Job Corps militia fire program.
- Thoroughly evaluate student applications to ensure applicants truly have the desire to pursue a career in fire and have the potential to fully meet the qualifications to apply for future fire positions so the investment made by the Forest Service can be realized in future hiring events.
- It is vital to hire the right people for the crew leadership positions and make sure they fully understand the Job Corps programs and embrace the additional skills necessary for student training and mentorship.

One of the take-aways from the medical incidents that occurred this summer was the recognition that which status (e.g., volunteer, AD) the student is in when a medical incident occurs determines which entity will be responsible for the paperwork and follow up.

Lessons Learned include:

- Knowledge of student status (AD, volunteer, or working under a formal agreement) is important! Especially when working with OWCP (see [appendix A](#)).
- Refer to ADs as ADs – don’t delineate between Job Corps student ADs and other AD hires.
- Regardless of who is assigned as a hospital liaison, the entity responsible for the incident and incident reporting doesn’t change.

“The language of student status is really important.”

JOB CORPS CENTER SAFETY
MANAGER

The center and the forest conducted a thorough AAR on the reporting of these medical incidents and have worked together to increase the understanding of reporting needs and responsibilities (see Appendix A – FS Correspondence Critical Response Reporting for Job Corps Students, Sept. 9, 2021).

ACKNOWLEDGEMENTS

The FLA team would like to thank all the participants involved. The historic summer of PL5 activity increased the challenges of interviewing the participants. Thank you to the Job Corps students, fire crew leaders, IMTs, and affected Forest Service entities for making time to accommodate our interviews. Thank you as well to the Trapper Creek Job Corps Center staff for coordinating the necessary COVID mitigations during our visit and for taking time to meet with us on multiple occasions, both in person and virtually, to make sure the lessons learned were captured accurately.

The leaders of the Forest Service Job Corps should be commended for their recognition of the value of pursuing the improvement of our learning culture.

The efforts of the Office of Innovative Organizational Learning are much appreciated. They worked diligently to secure members of the FLA team during the busy summer of 2021 and to identify a contractor to supply a lead facilitator.

FLA Team

Stephaney Kerley – Team Leader

Steve Holdsambeck – Lead Facilitator

Elizabeth (EJ) Bunzendahl – Facilitator and Subject-Matter Expert

Derek Darter – Subject-Matter Expert

Roger Hepburn – Subject-Matter Expert

Patrick Owens – Subject-Matter Expert

Linda Peterson – Union Representative

Belle Craig – Writer-Editor

APPENDIX A – CRITICAL RESPONSE REPORTING FOR JOB CORPS STUDENTS



Forest Service

Job Corps National Office

1617 Cole Boulevard
Lakewood, CO 80401
303-275-5901
Fax: 303-275-5902

File Code: 1850; 6700
Route To: JC-138-21

Date: September 9, 2021

Subject: Critical Response Reporting for Job Corps Students

To: Job Corps Leadership Team

The Forest Service and Job Corps have a rich legacy of blending training and employment opportunities for disadvantaged individuals while simultaneously fulfilling the core mission of land stewardship.

In 1964, a historical shift occurred as President Lyndon B. Johnson envisioned a plan to end the war on poverty through the Economic Opportunity Act. That legislation expanded opportunities of the Civilian Conservation Centers that were established in the 1930s and strengthened the capacity to fulfill the core mission of the Agency.

We are once again experiencing new, expanded and exciting opportunities for Job Corps students to support Agency mission and initiatives. This includes work being accomplished through Public Land Corp (PLC), HistoriCorps and Great American Outdoors Act (GAOA).

As we integrate students into the Forest Service through work as ADs and volunteers, I wanted to provide guidance on critical and emergency reporting coverage for our students in the event of accident, severe illness, injury or death.

General Principles

- Job Corps students performing work on national forests should always fall into one of the following three categories:
 - a. AD employees;
 - b. Volunteers; or
 - c. Under direct supervision of Job Corps staff.
- The volunteer agreement or AD documentation connects the student with the hosting national forest for purposes of safety and emergency reporting.
- When a Job Corps student is injured while serving as an Administratively Determined (AD) employee or as a volunteer, the host unit (national forest or research station) has primary responsibility for emergency response and reporting.
- When a Job Corps student is injured while not serving as an AD employee or volunteer (under direct supervision of a Job Corps instructor), the Job Corps Center has primary responsibility for emergency response and reporting.
- While enrolled at a Forest Service Civilian Conservation Center, Job Corps students also remain students. The Center will communicate all student injuries to the Department of Labor Job Corps program.



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Students Working as AD Employees ("Casual Hires")

If the student is employed as an AD, the employing Forest or Region is responsible for incident management including e-Safety and OSHA reporting. This reporting must identify the Organizational Unit and Home Duty Location as the hiring Forest or Region, not the Center.

The Center will be responsible for DOL notification within the required timelines based on Section 5.4 Significant Incidents in the PRH.

Students Working Under a Volunteer Agreement

Any time a student's work is being directed by a Forest, the student needs to be on a formal volunteer agreement with the Forest.

If the student is working as a volunteer, the Forest is responsible for incident management including e-Safety and OSHA reporting. This reporting must identify the Organizational Unit and Home Duty Location as the hiring Forest or Region, not the Center.

The Center will be responsible for DOL notification within the required timelines based on Section 5.4 Significant Incidents in the PRH.

As we move forward with continued integration of Job Corps students with the Forest Service mission, please be mindful of the need to have detailed, collaborative communication between the Center and the Forest/Region in the event of a critical or emergency event. There are timed reporting requirements to Department of Labor the Center must adhere to.

Example 1: Samantha, a student at the Angell CCC, works 2 days a week as work-based learning at the Cape Perpetua Visitor Center on the Siuslaw National Forest, under the supervision of visitor center staff. Samantha should have a signed volunteer agreement with the Siuslaw NF. An earthquake strikes the Oregon Coast while she is at Cape Perpetua. Samantha injures her back pulling a staff member from under a collapsed display cabinet. The Siuslaw National Forest should report the injury to OSHA, in e-Safety, and to Angell CCC. Samantha's Organizational Unit is the Siuslaw National Forest. Angell CCC communicates the injury to DOL Job Corps.

Example 2: Just down the road in Waldport, a crew from the painting trade, under the supervision of the Angell Job Corps Painting Instructor, is repainting the Waldport Ranger Station as a part of their training. Monique, a student in the painting trade, is hit by a falling paint can during the earthquake. Angell Job Corps reports the injury to OSHA and to DOL Job Corps.



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Director, Job Corps

cc: FS-pdl JC NO Exec
