MINUTES OF THE
SENATE COMMITTEE ON NATURAL RESOURCES

Eightieth Session
February 19, 2019

The Senate Committee on Natural Resources was called to order by Chair Melanie Scheible at 3:59 p.m. on Tuesday, February 19, 2019, in Room 2144 of the Legislative Building, Carson City, Nevada. The meeting was videoconferenced to Room 4412 of the Grant Sawyer State Office Building, 555 East Washington Avenue, Las Vegas, Nevada. Exhibit A is the Agenda. Exhibit B is the Attendance Roster. All exhibits are available and on file in the Research Library of the Legislative Counsel Bureau.

COMMITTEE MEMBERS PRESENT:

Senator Melanie Scheible, Chair
Senator Chris Brooks, Vice Chair
Senator Dallas Harris
Senator Pete Goicoechea
Senator Ira Hansen

STAFF MEMBERS PRESENT:

Alysa Keller, Policy Analyst
Erin Sturdivant, Committee Counsel
Steve Woodbury, Committee Secretary

OTHERS PRESENT:

Tom Clark, Owner, Tom Clark Solutions
Graham Kent, ALERTWildFire Systems
Ken Smith, ALERTWildFire Systems
John Christopherson, Deputy Administrator - Operations, Nevada Division of Forestry

CHAIR SCHEIBLE:
I will accept a motion to dispense with roll call from this point forward and allow the Committee Secretary to take visual attendance of the members.

SENATOR HARRIS MOVED TO DISPENSE WITH ROLL CALL.

SENATOR HANSEN SECONDED THE MOTION.

THE MOTION PASSED UNANIMOUSLY.

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CHAIR SCHEIBLE:
We will have a presentation by ALERTWildFire Systems.

TOM CLARK (ALERTWildFire Systems):
I am here on behalf of ALERTWildFire Systems. I was born in Elko, have lived in Tonopah and Carson City and have explored much of the State. I appreciate the important issues this Committee addresses.

GRAHAM KENT (ALERTWildFire Systems):
We are going to present technology that has already been developed and is being deployed out of the Nevada Seismological Laboratory (NSL) at the University of Nevada, Reno (UNR). The NSL cannot keep up with the increasing demand for this technology in the Western United States, so the technology has been commercialized.

The first slide of the visual presentation (Exhibit C) is of the Holy Fire in Orange County, California, which threatened the communities around Lake Elsinore. ALERTWildFire Systems (ALERT) involves the installation of high definition cameras on mountaintops and similar locations to help firefighters achieve better fire confirmation and situational awareness. This creates a safer environment for firefighters and the public and helps knock down fires more quickly.

Firefighting can be very expensive, but these cameras have resulted in quicker response times and have saved significant money, from $90,000 in the Eldorado National Forest to $1 billion in San Diego, depending on the nature of the fire. One flyby by a spotter plane and a Very Large Air Tanker costs approximately $40,000.

Slide 2 from the presentation shows visual images captured during the first 35 critical minutes of the Camp Fire near Paradise, California. In the current environment, it is critical to contain fires quickly and protect against a gigafire, a fire of over a million acres, whether in the urban interface or in the rural areas.

Slide 3 shows a map of where cameras are currently located in the western states. There are three universities in the ALERTWildfire consortium, UNR; University of California, San Diego; and the University of Oregon. This effort began with ALERTTahoe, but it has grown, in part due to contributions from the U.S. Bureau of Land Management (BLM), which has helped expand the technology into rural Nevada. The utility companies in California have also helped expand deployments in both the southern and northern parts of that state.

By the end of 2018, 100 cameras had been deployed. ALERT now has nearly 200 cameras, so the project is growing rapidly. The BLM is continuing to provide funding in Nevada, Oregon and Idaho, which is helpful. The U.S. Forest Service (USFS) and the California Department of Forestry and Fire Protection (CAL FIRE) also provide funding, as do the utilities.

As indicated on slide 4, the primary reason for the deployment of this technology is to reduce response time to wildfires. Additionally, it helps dispatch personnel to make better, quicker decisions regarding the scaling of resources up or down, potentially saving money and improving efficiency. Tracking fire behavior in real time improves the ability to approach fires correctly and provides firefighters with a safer environment. The public is also able to access real time images, which improves individual situational awareness and decision making. This was evident in the Woodchuck Fire last year. Reno residents were able to access information easily to make important decisions. Residents in the vicinities of the Tubbs Fire, Camp Fire and Woolsey Fire did not have that ability.

Following the containment of a fire, ALERT provides the ability to have the cameras monitor burn areas to reduce the likelihood of reignition. The reignition of the 1991 Tunnel Fire in Oakland resulted in $3 billion in damages and the loss of 21 people.

As shown on slide 5, this technology protects infrastructure assets, such as the microwave towers and the Federal Aviation Administration (FAA) radar dome located on Virginia Peak, which were saved during the Perry Fire with the help of cameras located there. The loss of the FAA radar dome would have adversely impacted airport operations. Wildlife and environmental protection is also important.

Slide 6 represents night images from the Hollywood Fire in Nevada. The cameras have near infrared quality. The camera was pointed in the direction of a lightning strike there, as indicated on the map at the upper right corner of the slide. Not only could residents in the Minden area watch this fire live or time-lapse, but anyone in the world could do the same.

The video on slide 7 shows what the time-lapse video looks like. Three fires were discovered through ALERT and captured simultaneously; Tule, Rock and Seven Lakes. The system successfully resulted in a faster response time. Most fire discoveries, however, come from 911 calls.

Slide 8 is an example from rural Nevada, the Hotpot Fire, which burned at a rate of three acres per second. This demonstrates how quickly fires can spread and how useful this technology is in reducing response time. Sometimes in rural areas ranchers might be the first responders, rather than the BLM or Nevada Division of Forestry (NDF). By the time the Hotpot Fire began approaching Midas, all parties were able to monitor the fire and coordinate efforts from the National Interagency Fire Center in Boise, Idaho. The more fires that can be seen throughout the West, the better our ability to apply appropriate resources and effectively manage them.

On December 7, 2017, after several other fires had burned in the region, conditions were at their worst ever in San Diego. Based on weather modeling, assets were redeployed and ready for use. A Winnebago caught fire on Old Highway 395, near I-15, north of Escondido, and within 35 seconds a 911 call was received. Based on camera imagery, CAL FIRE directed all trucks to the fire, which would not have been done without the cameras. As a result, the Lilac Fire was contained to 4,050 acres. With sustained winds of 40-50 miles per hour (mph), it had the strong potential of running into I-15 and destroying 40,000 to 50,000 acres, but it was contained early. With the camera system, the fire was monitored from four different angles, so as the situation evolved, all parties were able to monitor it from various perspectives and coordinate efforts. Shortly after installation, the San Diego County Fire Authority provided employees with iPads to be able to monitor fires while en route.

As seen in the video on slide 12, several days following the Woolsey Fire was the Woodson Fire, a rural house fire. Winds were blowing at 40 mph, and the electrical grid was already off in this region of San Diego County. Cameras

picked up the fire, and a San Diego Gas and Electric Skycrane helicopter was able to extinguish the fire before the first fire trucks arrived.

The map on slide 13 indicates camera placement in Nevada. The green stars represent current, active fire cameras and the red stars indicate locations to be equipped this summer with funding primarily through the BLM. The ALERTTahoe Network, slide 14, has a longer list of funding organizations, including the USFS, Tahoe Prosperity Center and others. The blue dots on slide 14 represent cameras in the Tahoe Basin; the remaining dots represent planned or potential camera sites. This also illustrates the density of cameras in the wildland-urban interface areas as compared to rural areas. We would recommend placing more cameras in the rural areas.

Slide 15 summarizes the key points for expanding the ALERT platform in Nevada. This technology, developed at UNR, is now being used to battle the new normal, epic fire conditions. Having recently visited Paradise, California, we have similar conditions and the same potential here in Nevada, whether at Mt. Charleston, Spring Creek, Galena Forest or Zephyr Cove. California and Oregon are investing heavily in this platform. The utilities in California are investing approximately $50 million. The University of Oregon is investing approximately $7 million. What the NSL is trying to do is figure out how to balance the research program at UNR with the brick and mortar needs. The system is also being spun out to meet the demands of other western states, including Colorado.

It is a unique time. Fire conditions are poor. We have to do a better job, including more fire cameras. What we are learning from California is that being able to receive information early on and respond quickly can make a significant difference in protecting life and property. Nevada is positioned to take advantage of low-hanging fruit, such as the microwave network with its 88 towers, each of which could host a camera by this summer.

KEN SMITH (ALERTWildFire Systems):
This platform is based on an integrated management system utilizing internet technology and microwave towers. There is a lot going on behind the scenes to manage the data and handle the volume we are currently experiencing; approximately one terabyte per day. Real time and time-lapse video must be posted and firefighters supported. The system was developed by the NSL because of its experience working with large amounts of data and because of

its existing microwave infrastructure, which has now been expanded and linked to a larger system.

MR. CLARK:
As indicated, the system is very robust and not as simple as putting a camera out on a pole. The technology was developed in Nevada and has caught the eye of Nevada's congressional delegation and the federal government. There is no bill before you regarding the system, but it is important for this Committee to be aware of the system, which will continue to be rolled out. It will help meet the objectives of this Committee.

SENATOR HARRIS:
Many people, especially in the rural areas, value their privacy. Have there been any privacy issues raised regarding imagery that may include private individuals?

MR. KENT:
There are a couple of privacy issues. For example, if a fire camera was located on top of Mt. Lincoln, and the ski patrol decided to work near the camera, we would have the ability to put a privacy mask to block their identity. More generally speaking, with camera footage that may include private homes, concerns tend to dissipate once a fire occurs. It is unlikely that someone's face would ever be identifiable, since the cameras are located on top of towers and mountaintops, but we do have the ability to add privacy masks if needed.

MR. CLARK:
This technology could be utilized in many different ways, whether fighting fires or for security purposes, such as responding to an emergency like the October 1, 2018, mass shooting in Las Vegas. Privacy issues are going to continue to be an issue. Cybersecurity and privacy policies are being addressed on a number of different fronts to ensure that if members of the public are being captured there are protections against images being used for nefarious uses. We have to keep this issue in mind.

CHAIR SCHEIBLE:
What is your policy on sharing footage with other State agencies?

MR. SMITH:
The data is public. It is on the website, and anyone has the ability to access the real time and time-lapse footage. We maintain archival imagery, but we have not shared that since everyone has online access.

MR. KENT:
In terms of moving the cameras, the BLM, NDF and local fire protection districts all have that capability. In California, the utilities also have the ability to move them. Approximately 200-300 people are able to move an authorized subset of cameras.

MR. SMITH:
The public is not able to control where the cameras are pointed, only firefighters.

CHAIR SCHEIBLE:
Could the system be used by law enforcement agencies or search and rescue operations?

MR. KENT:
There was a widespread arson outbreak in South Lake Tahoe in 2016. We worked with the Camino Fire Station, CAL FIRE, USFS and the dispatch center in Placerville that monitors the cameras in the Tahoe Basin. We also worked with the South Lake Tahoe Police Department. Fires were being lit, sometimes during the day but mostly at night, and the system was used to try to apprehend the culprit, who was ultimately caught by other means. We do work with other organizations when appropriate. We are currently conducting a pilot project with Care Flight to use the system to improve their services.

SENATOR GOICOECHEA:
Are the cameras capable of capturing a 360 degree panorama, or are they directional, needing to be moved as needed?

MR. SMITH:
Currently, they are directional, although we are now placing two cameras in many locations. One camera changes positions every 20 seconds, and the other can be controlled by a firefighter, as needed.

SENATOR GOICOECHEA:
In rural Nevada, would BLM personnel be primarily responsible for moving the cameras, receiving the data and mobilizing resources?

MR. SMITH:
Yes, BLM has funded the rural cameras, and they have primary access to them. However, the data does come into the larger network and becomes part of the overall system.

SENATOR GOICOECHEA:
In rural locations, such as Prospect Peak near Eureka, would the Eureka Volunteer Fire Department be the first response? How would they access the information and know who to contact?

MR. KENT:
In portions of eastern Nevada, the BLM maintains several dispatch centers, including in Elko and Ely. Typically, an officer at the appropriate dispatch center will move the camera, and based on what is observed, the appropriate State, federal or local firefighting agency is contacted. The first thing that must be determined is if a single fire is burning or multiple fires because of a lightning storm. In at least one case in California, it was thought that there was a single fire, but there were multiple fires, and the ones that were not identified got out of control. In this new environment, all parties are learning to coordinate efforts.

The next step will be utilizing weather super modeling. In San Diego County, fire predictions can be made with a high degree of certainty, because they have a 4,000 core super computer doing daily modeling. They understand the grave consequences of letting a single fire go.

MR. SMITH:
The system is very flexible and is designed to provide access to anybody, anywhere in the world.

MR. CLARK:
In law enforcement, people often ask where the camera was located to catch a criminal. In this circumstance, it is a wildfire. Did we have a camera looking at that fire, and what or who caused it? What effect did it have? After a fire, what can we do to restore the habitat and prevent a future fire?

SENATOR HANSEN:
I remember as a Boy Scout hiking from Camp Fleischmann in Chester, California, to Mt. Harkness and visiting with the forest ranger who was the fire watcher in the tower on the top of the mountain. Two years later we repeated the hike, but the position had been discontinued. The log book was still in the tower, signed by my Boy Scout grandfather in 1938. This system is similar, except that a modern-day camera is being used. I think it is a great idea that we should pursue. Sometimes in Nevada there is friction between ranchers and the BLM. Traditionally, ranchers have been able to go and put out their own fires. I know a rancher in Humboldt County who was threatened with a felony arrest because he was fighting a fire. A bill was passed to remedy that. I am in favor of this technology that is reminiscent of USFS rangers with binoculars on mountain peaks watching for fires.

MR. KENT:
That is correct. This program is a twenty-first century reinvention of the lookout tower. However, this approach is crowdsourced, and that will be an important part of fire discovery, evident in some programs that are underway in Orange County. I have visited some of the old firewatcher towers, and I noticed the chairs have ceramic footings. When there is lightning, people are supposed to jump on the chairs. I would rather have a camera and not be on the chair. The cameras have additional capabilities which firewatchers did not have, including time-lapse and near infrared.

SENATOR HANSEN:
There has been no mention of cost. Some of the fires you highlighted in your presentation, such as the Tully Fire, were in my district. That fire almost burned over the mountain and threatened Sutcliffe. It moved very rapidly, and it would have been good to have been able to respond faster. The mountain is burned and will likely have cheatgrass for decades to come. I support this program.

SENATOR BROOKS:
What is the per unit cost to implement and operate this program?

MR. KENT:
This is a somewhat complicated question. For example, some mountaintops in rural Nevada have no infrastructure, so we would have to spend roughly $60,000 to build a tower. If there is an existing tower, we might have to spend $5,000 to $10,000 to install equipment. Once cameras are up and running, the

cost is roughly $10,000 per camera per year to maintain. This cost is primarily associated with cloud data charges. We have to be prepared for heavy data access demand for large fires. This is cutting edge, large data research, and we want the public involved. The system has to work not just on light usage days, but potentially heavy days as well.

MR. CLARK:
Senator Goicoechea and Assemblywoman Swank will be working on a bipartisan wildland fire working group, and we will bring additional information at that time. Based on the current wet conditions, there will be substantial grass growth, and this coming fire season could be severe. We want to be a tool in the process and to help as much as possible.

SENATOR GOICOECHEA:
Senators Scheible and Hansen are also part of the seven-member wildfire working group.

CHAIR SCHEIBLE:
I will open the hearing on Senate Bill (S.B.) 56.

SENATE BILL 56: Revises provisions relating to natural resources. (BDR 47-359)

JOHN CHRISTOPHERSON (Deputy Administrator - Operations, Nevada Division of Forestry):
I am here to present S.B. 56 and provide testimony in support. This bill revises provisions relating to the enhancement, conservation and protection of Nevada's natural resources contained in *Nevada Revised Statutes* (NRS) 527 and 528. Existing Nevada statute reflects outdated forestry practices no longer supported by the best available science and nationally recognized forestry standards.

This bill updates existing law to reflect current scientific and national forestry industry standards and practices. The bill also clarifies procedures related to State protected plants, updates postharvest stocking standards or tree densities, modifies regulated stream zone definitions, establishes snag retention guidelines which are dead trees having wildlife values, enacts slash disposal or logging debris standards and revises provisions related to logging operations.

Section 1 of the bill revises NRS 527 to provide clarification on conditions that require a permit from the NDF to disturb any plants that have been placed on

the list of fully protected species, pursuant to NRS 527.270. The Division of Forestry is responsible for the protection and disturbance mitigation of State listed plant species in Nevada. Permitting from the State Forester for the disturbance of these species has always been required in this statute. This change provides clarification on applicable jurisdictions which include Nevada State Parks.

Sections 2 through 4 of the bill make various changes to NRS 527 related to controlled fires. These proposed changes reflect, and are consistent with, the National Wildfire Coordinating Group's *Prescribed Fire Planning and Implementation Procedures Guide* (PFPIPG), which the NDF has adopted in policy. Specifically, sections 2 and 3 change the terminology in NRS 527 from "controlled fires" to "prescribed fires."

Section 4 includes a technical proposed amendment, which we are presenting on the record today (Exhibit D), to retain the original language of the statute. The original statute language conforms to recent changes made to the PFPIPG.

Sections 5-25 of this bill revise portions of NRS 528, the State's forest practice rules. This statute regulates the harvest of timber on all nonfederal lands in the State. The statute was written in the early 1970s. The practice of forestry and timber harvesting have both evolved since that time. The revisions reflected in this bill are reflective of that evolution.

Section 16 of the bill contains another technical proposed amendment outlined in Exhibit D that changes the protected buffer zones around streams and other water bodies from 200 feet to 50 feet. This amendment is necessary to maintain consistency with other changes that have been made in section 18 of the bill.

SENATOR GOICOECHEA:
The proposed removal of language in section 1, subsection 1, paragraph (c), appears to expand the statutory permitting requirement to encompass more private property. Does this bill represent an expansion to private property that does not exist now?

MR. CHRISTOPHERSON:
No, the statute has always applied to all lands in the State, in terms of the requirement for a permit to pick, pull, destroy, run over or otherwise damage a

plant that has been on the list of fully protected species. This includes private lands, State lands and local government lands.

SENATOR GOICOECHEA:
My concern is regarding enforcement and oversight, considering all the logging and agricultural operations in the State. How will this be enforced?

MR. CHRISTOPHERSON:
Enforcement is a challenge when we have statewide responsibility for the protection of plants, as well as regulatory authority over forestry and timber harvests. We are the driest state in the nation, so we do not have a significant timber and logging industry here. The majority of it occurs along the Sierra front, mostly associated with salvage operations following wildfires or development operations when forest land is being converted for housing or other commercial use.

In terms of the responsibility for endangered plant protection, most of the plants on our list are there because they have limited populations with exacting requirements as to where they can exist. The degree to which those locations coincide with agricultural operations or other land use activities is small. Conflicts would more likely occur in projects such as utility corridor lines or the expansion of solar panel installations in Clark County.

SENATOR GOICOECHEA:
Are we seeing significant lag time in the permitting process, especially with logging operations? With all the rehabilitation and other requirements, how long does it take to issue a permit?

MR. CHRISTOPHERSON:
The timeframes for turning around permits are defined in statute. The volume is much lower than in states like Oregon, Washington and California where logging is a major industry. We are able to meet our statutory deadlines and have yet to have anyone complain that the NDF is not promptly responding to permit requests.

CHAIR SCHEIBLE:
It appears that the bill changes the term "written permit" to "special permit" throughout the statute. What is the purpose for this change?

MR. CHRISTOPHERSON:
This change is to standardize the language throughout the statute. There is no change in the permitting process.

SENATOR HARRIS:
Can you explain why in section 1, subsection 1, paragraph (c), the statute will apply to any lands, as opposed to any lands owned by or under the control of the State?

MR. CHRISTOPHERSON:
This bill does not represent an expansion of lands this statute addresses. As originally written, paragraph (c) states applicability to any lands other than State Park lands provided for in previous paragraphs under the control of the State, within the State or elsewhere in the United States. All private lands in the State are subject to the State laws regulating plant use and timber harvest, and the NDF is charged with enforcing those laws.

SENATOR HARRIS:
My question is whether there would be any change in meaning if we kept in the words "owned by or under the control of" as opposed to striking that language? If I understand your previous answer, the proposed language does not change the intent of the statute.

MR. CHRISTOPHERSON:
That is correct. This change was developed by the bill drafter with the intent to clean up the language and make it read more fluidly. There is no change in intent and no expansion of authority.

CHAIR SCHEIBLE:
Section 17, subsection 2 of the bill removes a description of the precautions the logging industry must take to prevent fires. Are there other protections in place requiring logging operations to take similar measures?

MR. CHRISTOPHERSON:
Yes, we have not removed any of the forest practice rules contained in NRS 528. This bill brings the statutes up-to-date to match current industry standards. For example, the original statute required all snags, or standing dead trees, on a piece of property to be felled by the loggers. The reason for this was that they were deemed to be fire hazards. Current industry standards prescribe

retaining a portion of these snags, because they provide critical habitat for cavity nesting birds and coarse woody debris for use in many other animal critical habitats. This is particularly important in a dry state like Nevada. These are the kinds of changes that bring our statutes in conformance with existing ecological theory and practice.

CHAIR SCHEIBLE:
Will you please go over the amendment proposed by the NDF, Exhibit D?

MR. CHRISTOPHERSON:
There are two portions of the proposed amendment. The first change, in section 4, subsection 1, proposes that a written plan must be "prepared" rather than "approved" by a person qualified to oversee a "prescribed" rather than "controlled" fire. This is to align our statutes with current language in the PFPIPG.

CHAIR SCHEIBLE:
Was using the word "prepared" in section 4, subsection 1, and "approved" in section 4, subsection 1, paragraph (e) intentional, or should the word "approved" in paragraph (e) be changed to "prepared" for consistency?

MR. CHRISTOPHERSON:
That is possible. We will review and, if necessary, bring another amendment reflecting that change.

The second portion of the proposed amendment is another technical adjustment. We have determined that the current 200 feet stream buffer is overly restrictive, and this bill proposes a 50 feet buffer. This amendment corrects one omitted reference to that change in the original bill.

SENATOR GOICOECHEA:
In a wildland fire presentation last week, we discussed the "lop and drop" activity that was occurring on a project in the Ruby Wash. Is the NDF overseeing that project and writing a plan for it? It is a USFS project on federally controlled land.

MR. CHRISTOPHERSON:
The NDF's forest practice rules found in NRS 528 do not apply to federally owned lands in the State. Chapter 527 of NRS, which contains endangered plants protections, applies to all lands.

CHAIR SCHEIBLE:
Seeing no further testimony, I will close the hearing on S.B. 56. The Committee will consider Bill Draft Request (BDR) R-507.

BILL DRAFT REQUEST R-507: Expresses the support of the Nevada Legislature for the federal Recovering America's Wildlife Act. (Later introduced as Senate Joint Resolution 4.)

The vote on BDR R-507 will not be on the resolution itself, but on whether to introduce it on the Floor of the Senate. I will accept a motion to that effect.

SENATOR GOICOECHEA MOVED TO INTRODUCE BDR R-507.

SENATOR HARRIS SECONDED THE MOTION.

THE MOTION PASSED UNANIMOUSLY.

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CHAIR SCHEIBLE:
Seeing no public comment, I will adjourn the meeting at 4:58 p.m.

RESPECTFULLY SUBMITTED:

_____
Steve Woodbury,
Committee Secretary

APPROVED BY:

_____
Senator Melanie Scheible, Chair

DATE: _____

EXHIBIT SUMMARY				
Bill	**Exhibit / # of pages**		**Witness / Entity**	**Description**
	A	1		Agenda
	B	1		Attendance Roster
	C	15	Tom Clark / ALERTWildFire Systems	Presentation
S.B. 56	D	1	John Christopherson / Nevada Division of Forestry	Proposed Amendment