Utility Arborist Newsline

FOCUS ON CRISIS MANAGEMENT

INSIDE

FOCUS ON CRISIS MANAGEMENT

UAA
UTILITY ARBORIST ASSOCIATION

SIGNIFICANT STORM RESPONSE

By Geoff Kempter, Technical Services Manager, Asplundh

One of the first things utility arborists learn about their jobs is being required to respond during emergencies. This is fundamental to our industry. Utilities provide a vital service that is vulnerable to storms, and the expertise of utility arborists is invaluable when storms strike. Tree failures directly damage utility equipment and interrupt service, costing the economy tens of billions of dollars annually. After a storm, fallen trees block access to stricken areas (**Figure 1**). In these situations, utility arborists have the equipment and knowledge to safely open these areas for first responders, repair crews, and residents.

Storm response can be localized or part of a widespread event that covers entire regions. To those without power, any service interruption might feel like a crisis. From a response standpoint, however, a crisis event affects a large number of customers or has other significant economic impact, such as taking out a major regional employer or other critical infrastructure.

For a localized power outage, such as one caused by an isolated thunderstorm or tornado, it's generally required that local contract crews respond within a prescribed time of being notified. During working hours, this can be as simple as diverting personnel to the affected area. During after hours, personnel are notified, report to their pullout sites, and proceed to the stricken area. Either way, a local response is usually short lived and personnel return to their normal routines once power is restored.

Large-scale responses happen due to major weather events that often cover entire metropolitan areas or regions, events such as hurricanes, winter storms, widespread severe thunderstorms, tornado outbreaks, derechos, and

***Figure 1**. Utility arborists are often among the first to open areas due to major storm damage. (Photo courtesy of Mark Foster.)*

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STORM RESPONSE

ENVIRONMENTAL CONSULTING

COMMUNICATIONS CONSTRUCTION

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Corrections from the Mar.Apr 2021 Newsline:

- *In the "IVM Technology Corner" article, Rob Brewer was listed as an ISA Certified Arborist, but he does not hold this credential.*
- *In the "Gauging Uncertainty" article, the text should be stated that "On a scale of 1–10, 1=highly certain and 10=extremely uncertain."*

wildfires—especially in western North America. Such events can take out power for large portions of utility systems; the economic impact to the region can be significant. Crews may be deployed for days or weeks. Effective response requires systematic planning, preparation, and coordination between utilities, contractors, and government authorities.

The importance of utility service reliability has increased, with interruptions—minimal and short lived. However, climate change has increased both the frequency and intensity of storm events. Additionally, people continue to move to vulnerable areas, further complicating the problem. For example, according to the 2020 U.S. Census Bureau, Florida and Texas were among the fastest-growing states, both subject to increased frequency and severity of adverse weather due to climate change.

DEVELOPING AN EFFECTIVE LARGE-SCALE STORM RESPONSE

Given the importance of rapid restoration following storms, it is critical for organizations to develop protocols for the safe and efficient movement of resources to and from affected areas. The following summarizes some of the important elements needed to mount an effective response.

THE DISASTER MANAGEMENT CYCLE

The Federal Emergency Management Agency (FEMA) and other agencies view disaster response as a continuous, cyclical process with four stages: preparation, response, recovery, and mitigation (**Figure 2**). Preparation and mitigation are planning stages; response and recovery are reactive to a storm event. At any given time, organizations should be working on one or more stages of the cycle.

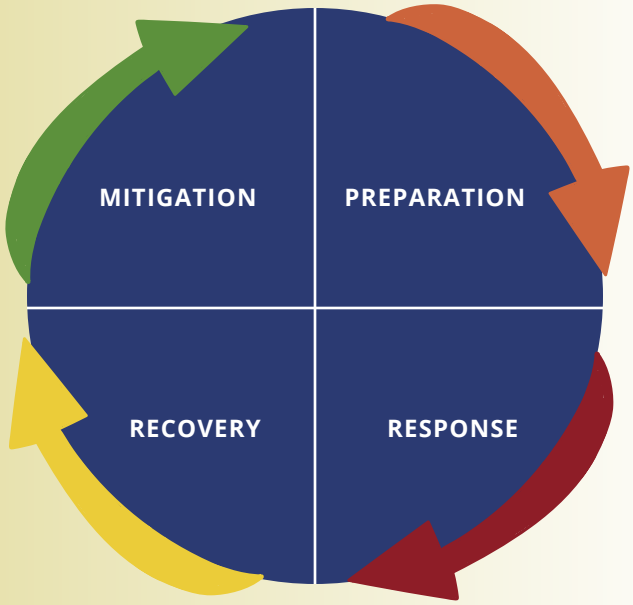

***Figure 2.** The Disaster Management Cycle. (Illustration based on a FEMA diagram.)*

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TREES & UTILITIES

A partnership of the Utility Arborist Association and the Arbor Day Foundation

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PRESIDENT'S MESSAGE

By Paul Hurysz

Greetings fellow UAA Members,

I hope this note finds you well. Certainly, we are all still working in times of change and adjusting to a new normal, and the UAA is changing along with it.

THANK YOU, PHIL

First, I want to thank our retiring Executive Director (ED), Phil Charlton, for the last 10 years of dedicated service to the UAA and more than 40 years in the industry. Phil is going to be missed in so many ways. With his leadership, the UAA has more than doubled its membership, and financially we have never been more stable. Thanks to Phil's leadership, the UAA is recognized as a respected resource in the utility industry.

Personally, I can't thank him enough for being such a great example to me. I will miss working with him and his soft, but highly effective, approach to problem solving. Thank you, Phil. Job well done, and we all wish you a restful, well-earned retirement.

LOOKING AHEAD

As we search to find a suitable replacement, the new ED will be undertaking a staff that's nearly doubling in size. With our annual membership meeting this fall, we will have hired a new marketing/outreach manager and a new technical specialist. Furthermore, we recently partnered with TRG Marketing to help refine our brand, build awareness among key audiences (both internal and external), and identify areas of marketing opportunity within utility vegetation management (UVM).

Another positive step forward was recently announced: the UAA is going to have an in-person meeting this year in Minneapolis, Minnesota, in late October. It will be a hybrid meeting that you can attend in person or virtually. The UAA and the Arbor Day Foundation are committed to getting us back on a path to normalcy by sponsoring this meeting. I hope to see you there!

CHANGES IN GOVERNANCE

There are additional changes to our governance structure that will also benefit the UAA in the years to come. We created an Executive Committee (EC) from within the UAA Board of Directors, made up of the ED and officers of the organization. The board is currently made up of six directors and three officers. This new committee frees the board from having to make day-to-day operational decisions, allowing them to focus on the mission and purpose of the organization. The EC will make operational decisions and report on activities to the board.

UAA leadership is also taking another look at the by-laws of the

organization and allowing the board to create a Nominating Committee that will better define our board and officer nominating process. Additionally, there will be changes to our voting process, doing everything electronically and no longer using paper ballots. You will see some of the changes being implemented this fall.

"We should share what we know with the rest of the tree care industry to help those outside of our professional community avoid hazards and crises."

THE NOUN PROJECT / RAHMAT DWI CAHYO

EMPHASIZING NORTH AMERICA

Another exciting initiative from the board that will help transition and transform the UAA and our industry is to define our organizational focus geographically, focusing our activities and efforts on North America.

This allows our colleagues in Canada and Mexico to participate in discussions as we create and adjust the programs we offer to UAA Members and the industry. We believe there are growth opportunities to the north and south of the U.S. and a need for those members to rely on us as their chosen resource while advancing their UVM careers.

A CLOSING SAFETY MESSAGE

Some members may be surprised to learn that utility line clearance arboriculture makes up only 10.8% of the tree care industry, according to NIP Group. Yet, we have a lot of knowledge and understanding about working around electricity, mitigating hazards, and managing crises. We should share what we know with the rest of the tree care industry to help those outside of our professional community avoid hazards and crises.

The Safety Committee and their collaboration subcommittee have started work on a series of public service announcements (PSAs) that highlight some of the well-known hazards that we encounter and successfully mitigate daily, including working near small cell sites, chipper safety, and electrical hazards. We believe that there shouldn't be any proprietary barriers around safety. Feel free to share these efforts with others in or orbiting the tree care industry.

As always, if you would like to take a more active role in the UAA, please reach out to any board member, committee member, officer, or staff, and we will get you established on a team where you can make a difference. Wishing you all the best. Take care and stay well! ■

(Continued from page 3.)

1 PREPARATION

Proper preparation prevents poor performance. If you fail to plan, then you plan to fail. These are among many adages that reiterate my point: success in any endeavor requires forethought and planning; storm response is no exception. However, we know that every storm is different with unique challenges. Scottish poet Robert Burns wrote, "The best laid plans of mice and men often go awry." In preparing for storm response, managers should have plans in place, but be ready to adapt as the response unfolds.

Establish key contacts and a chain of command. There should be no question of who is in charge of a response within organizations. Organizations should have processes in place ahead of time to avoid confusion during an actual response.

Potential scenarios should be created, and procedures should be rehearsed internally with cooperating organizations. The structure of the response should be able to fit into established protocols, such as FEMA's Incident Command System.

Secure staging areas and arrange for incoming personnel. Large-scale responses will require large-scale facilities to feed and house incoming personnel. Hotel rooms are often in short supply when damage and outages are widespread. Staging areas must be large enough to accommodate equipment and the tents, trailers, and support facilities that will be required **(Figure 3)**.

Arrange supply chain contingencies. Have purchasing agreements in place with suppliers of tools, spare parts, clothing, and other necessary gear rather than scrambling to find vital supplies during a response.

Ensure that contractual obligations are communicated and understood. Associations, such as the Southeastern Electric Exchange, may require member utilities and their contractors to provide storm support to one another. Utilities should ensure that their contractors are aware of these agreements and any obligations that could affect contractor operations.

2 RESPONSE

Focus on safety. A storm response breaks the workforce's routine, which may lead to lapses in safety awareness. Storm cleanup itself brings unique safety challenges. To mitigate risk, strive to continue routines as much as possible during a response. Crews should always be moved as a unit with their usual supervision. Unfamiliar conditions, including different tree species and unusual working conditions, should be addressed during job briefings. Standdowns should occur in response to incidents or near misses.

> "While moving large numbers of crews can be expensive and disruptive to utility operations, the costs are dwarfed by the benefits of having crews' onsite restoring efforts quickly, shaving days off restoration times."

Move responding personnel and equipment before storms strike. Weather forecast models have improved steadily. If a strike is likely, there may be time to move personnel and equipment into staging areas ahead of the storm. This is especially true with hurricanes and winter storms since forecasts are available days prior. While moving large numbers of crews can be expensive and disruptive to utility operations, the costs are dwarfed by the benefits of having crews' onsite restoring efforts quickly, shaving days off restoration times.

However, we can't predict the exact severity and path of some storms—thunderstorms and, particularly, tornados—until hours or even minutes before. Recently, some hurricanes have unexpectedly and rapidly intensified, leaving no time to stage crews beforehand. In 2018, Hurricane Michael went from a tropical depression on October 7 to a category five hurricane on October 10 when it struck the Florida Panhandle. To thwart this, managers should closely monitor weather forecasts and local conditions, keeping potential responders aware of developing conditions.

Take good care of incoming personnel. The effectiveness of a storm response depends on the readiness of the personnel. Responding crews must have a comfortable and secure place to sleep and have access to nutritious foods. Employees who are not rested and fed will not perform as well and may experience more safety incidents.

Figure 3. *A major storm staging area requires enough land to park equipment and erect temporary facilities to house and feed personnel. (Photo courtesy of Asplundh Tree Expert, LLC.)*

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Ensure responding personnel are equipped for expected conditions. Crews must be fully equipped and prepared for the expected working conditions (e.g., winter storms require equipment, tools, and clothing for winter weather). Equipment should be in good, working order and prepared for long drives (**Figure 4**).

Maintain good media relations. Storms and widespread power outages attract attention from news media surrounding the affected area. Communications plans should include frequent progress updates, information about the risk of downed powerlines, and safety messages, such as the need to wait for professionals to handle downed trees and branches. Only designated personnel should be authorized to speak on behalf of restoration efforts. Crew personnel should be advised not to talk to the media beyond a few basic talking points.

Storm coordinators should ensure that incoming crews are assigned work and dispatched to jobsites quickly. It does not look good when there are widespread power outages and crews are filmed standing idle.

Monitor morale of responding personnel. Storm response puts personnel in unfamiliar routines, often far from home. During extended responses, management should ensure that employees are focused on their work, not distracted by events at home. Employees who need to return to their home regions can be rotated out and replaced with fresh workers. Likewise, employees who are disruptive should be immediately rotated out.

Maintain communications. A large-scale storm may involve thousands of personnel from multiple utilities and contractors. An effective response requires ongoing communication between the various organizations to ensure that safety concerns are communicated, available resources are being utilized effectively, and adjustments are made when needed.

Figure 4. *Responding employees must be prepared and equipped to work extended hours in extreme conditions. (Photo courtesy of Scott Harmon.)*

(Continued on page 16.)

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By Phil Charlton

GREETINGS UAA MEMBERS,

I have worked in the utility vegetation management (UVM) industry more than 40 years, proudly serving as the UAA Executive Director for the last decade. In January, I announced my planned retirement, asking the UAA Executive Board to begin searching for a successor capable of guiding the UAA to a future of growth and prosperity. This message is my final *Newsline* contribution as the administrative shepherd of our beloved organization.

FRIENDSHIPS GAINED

When I first accepted the position in 2011, I anticipated being with the UAA for no more than three to five years. I have stayed on much longer simply because I enjoy our industry—but more specifically, because I enjoy the people who make it so great.

The UAA has allowed me to maintain my long-time friendships while gaining new ones. I have enjoyed learning from the many leaders who served on the UAA Board in the last 10 years, seeing them not just as colleagues but as friends, and not forgetting the hundreds of passionate volunteers who want to make a meaningful difference.

THE UAA HAS ALLOWED ME TO MAINTAIN MY LONG-TIME FRIENDSHIPS WHILE GAINING NEW ONES.

About five years ago, after the UAA separated from the ISA in hopes to expand, we hired our first ever employee, Diona Neeser. She came to us at a time of great transition and uncertainty, bringing order to chaos. Three years ago, Renée Phillips joined our team and helped accelerate our growth. The UAA now has two to three times more members (5,000+) and financial resources from when we began. Because of everyone's hard work, the UAA is now appropriately positioned to move from a part-time executive director with two staff members to a full-time with more than four staff. I anticipate the administrative staff doubling again in a few years.

HISTORICAL PERSPECTIVE AND FUTURE OPPORTUNITIES

Unlike when I entered the industry in 1978, the industry today is increasingly committed to our core value of safety. With more resources and support staff, just imagine what the UAA and Safety Committee will accomplish! Also at that time, environmental sustainability was a hot topic among rights-of-way (ROW) managers, with most arguing that our industry's work wasn't harmful. Since then, the industry has adopted integrated vegetation management (IVM) as the standard. The bar has been raised by the Right-of-Way Stewardship Accreditation (ROWSC) Program, ANSI A300 Part 7, and the UAA/ISA Best Management Practices. The UAA will continue its significant role in our industry's evolution.

Today, we aspire to leave things better than we found them. Utility vegetation managers will be expected to actively steward our natural resources, raising the demand for education, training, green contracts, and new tools. Environmental stewardship will continue to play a critical role moving forward. The UAA Stewardship of ROWs Committee's expertise will benefit from additional staffing and resources to help meet evolving industry needs.

There is a growing demand for training and networking with numerous national conferences (e.g., Trees & Utilities, the Environmental Concerns in Rights-of-Way Management Symposia, ISA) and various methods of delivery.

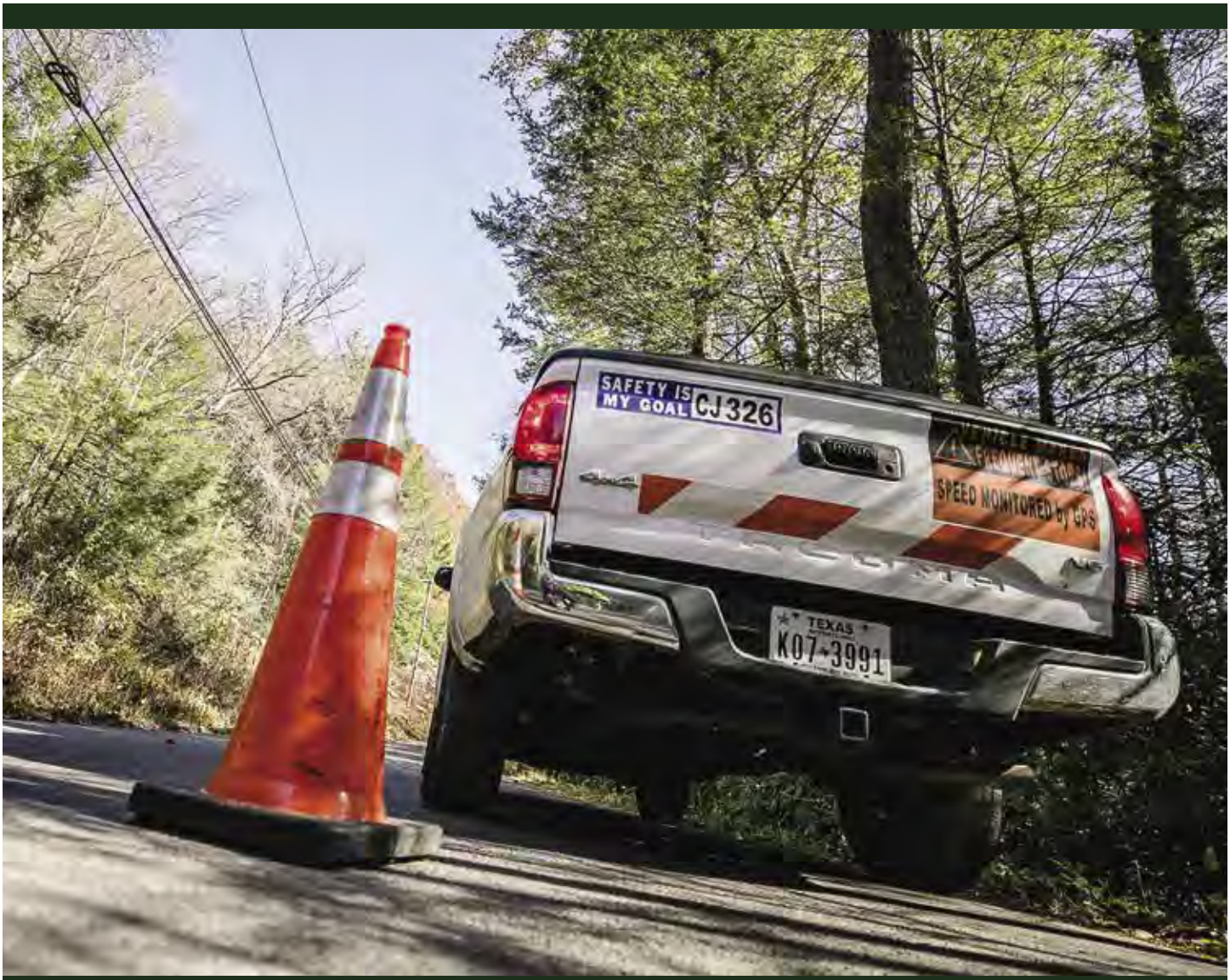
Safety, environmental stewardship, and education are three key areas where new staff resources will make a tremendous impact. Expanding industry education programs (i.e., UVM Professional Development and Line Clearance Worker Training), meeting the needs of workers with limited English proficiency, and promoting our industry to potential workers and the public may all require additional staffing in the future.

NEW BEGINNINGS

I am also excited for my own future, now having time to pursue my other passions. In the last decade, I've managed a small non-profit that provides scholarships for kids and builds homes, chicken coops, tire gardens, and microbusinesses in a rural area of Belize. In the next year, we hope to provide 125 scholarships, 66 computers, 660 desks, and 150 whiteboards while painting and doing light repairs on 27 village school buildings.

Although I'm cutting back, I am not going away completely. I have watched Nelsen Money, Bill Rees, Larry Abernathy, and others retire who continued to give back to the industry. I look forward to staying engaged with the industry through my consulting practice and by volunteering with the UAA. So, with that, five grandkids, and a new flyrod, I expect to keep busy.

Thank you all for being a part of this wonderful journey. I cannot wait to see what awaits us in the years ahead. ■



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HOW IT ALL STARTED

One hundred years ago, Davey signed their first line clearance contract with Northern Ohio Power & Light, now known as Ohio Edison. Despite the line clearance practices of the time not aligning with Founder John Davey's tree care methods, Paul H. Davey, Sr.—John's son—saw an opportunity for innovation. Paul convinced Northern Ohio Power & Light's officials that Davey Tree could use its scientific tree care methods to prune trees while preserving tree health while still making space for the new poles and lines. This science-based approach to VM remains fundamental to the training and work practices that Davey's experts use to this day.

A WALK DOWN MEMORY LANE

Davey Tree's utility teams have achieved many milestones since its first contract. In 1928, Wellington Davey, one of John's sons, expanded Davey's services to the West Coast by establishing the Davey Tree Surgery Co. In 1969, more than 40 years later, the Davey Tree Surgery Co. joined forces with the Davey family to provide services coast-to-coast.

While line clearance was the primary solution during that time, Davey recognized that they could help utilities with other aspects of their operations. In 1970, the company introduced new cutting-edge equipment to its toolbox: infrared inspection vehicles. These vehicles contained infrared scanning equipment coupled with a camera that scanned a utility's infrastructure for signs of failure. Utilizing technology for clients' assets has grown to include GIS map development, facility inspections, and pole engineering and construction, all which continue to be a vital part of Davey's utility service offerings today.

As Davey's utility services continued to grow, company leadership began to identify geographies where our current teams were not working. Davey acquired High Tree Services in Nanaimo, British Columbia, in 1986. At the time, High Tree Services was the largest and most reputable line-clearing contractor in Western Canada, operating in British Columbia and Alberta. This acquisition paved the way for Davey to become an international utility services provider.

In 1995, Davey Resource Group (DRG) was formed to offer consulting services to utility clients. DRG's first project was a contract with Pacific Gas & Electric (PG&E) in California to develop an inventory database of all trees and poles subject to newly adopted California Public Resource Codes. This was a landmark project that introduced the need for technology to assist utilities in managing large-scale asset and tree populations. DRG's pre-inspection solutions and ROWKeeper software developments, combined with DRG's environmental consulting services, have helped advance safety and reliability in the utility vegetation management (UVM) market ever since.

In 2008, Davey acquired Wolf Tree, Inc., which was working in 13 states at the time of the acquisition. Wolf Tree continues to be a significant part of Davey's utility workforce in the Southeast U.S. to this day.

Utility companies are constantly being challenged to meet high demands and to innovate and modernize the grid, and Davey is grateful for the opportunities we've had in the last century to help our clients achieve their goals. What started as line clearance for electric companies has evolved to a full-service solution provider to electric utilities, gas pipelines, telecommunication companies, railroads, and other utility service providers. We look forward to a bright future together developing solutions that will contribute to safety, reliability, and efficiency during the next hundred years. ■

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HOW TREE CONTRACTORS RESPOND TO THE COVID-19 PANDEMIC

By Gregory Pegg, Corporate Organizational Coordinator, Mowbray's Tree Service

Like most companies, Mowbray's Tree Service (MTS) had its share of issues and challenges created by the COVID-19 pandemic. These challenges were exacerbated by the fact that the public couldn't understand why a bunch of "tree people" were hard at work when most others were stuck at home—many without a job.

The following are some of the challenges that MTS faced as it pushed through one of the most challenging years in the history of our country.

MARCH 2020

As it became apparent that the pandemic was upon us, MTS management made the difficult decision to have most of their staff—including upper management—work from home. When this first happened, few of us had experience with virtual meetings. But after one week, *everyone* had! Initially, Zoom was used, but after trial and error, Microsoft Teams quickly became the preferred platform. So much so that the meetings became more productive than if they had been conducted in person.

FIELD PERSONNEL

Here are the rules and regulations that MTS implemented during the pandemic regarding its field personnel, along with some of the unforeseen challenges:

- Facial coverings were a requirement during the workday, no matter what job was being performed.
- Company vehicles were limited to a maximum of two employees.
- Every employee was required to have daily temperature checks.
- All employees had to follow the Centers for Disease Control and Prevention (CDC) guideline of maintaining a 6-foot distance from one another and the public.
- Employees were tested for COVID-19 on a weekly basis, like during our Creek Fire wildfire project. During this project, a basecamp was established with trailers for our employees, with a maximum of six employees per trailer for social distancing.
- More handwashing stations were installed at all of our maintenance yards, and hand sanitizer became an essential item.
- If an employee tested positive for COVID-19, they were sequestered per CDC guidelines and their vehicle was sanitized.
- To help minimize employee-to-employee exposure, employees had to stay within their assigned utility projects.
- As training was impacted, MTS Safety created training videos and electronic documentation. This change has now become the standard for most of our training.

As the pandemic's impact took hold of our society, MTS workers began getting pushback and even verbal harassment from the public. This situation forced our utility clients to draft documents stating that we were essential workers; each employee had to keep this document with them at all times.

During all of this, MTS was in the process of purchasing an office building for its new headquarters. When the purchase was completed, and during the renovation, it was decided to upgrade the HVAC filtration system by having plasma generators installed on all of the air conditioning units. It was also decided that cubicles would be best for most of our staff, enabling us to maintain the required social distancing.

The last 16 months were incredibly challenging but also enlightening. MTS learned a lot about how to run a more efficient operation. Our safety department lead the way by streamlining our training and educational processes along with embracing technology that has enabled our field personnel to become more efficient, especially with submitting documentation. Due to the need for better communication, our various internal departments also improved by embracing current technology, such as JotForm.

THE LAST 16 MONTHS WERE INCREDIBLY CHALLENGING BUT ALSO ENLIGHTENING. MTS LEARNED A LOT ABOUT HOW TO RUN A MORE EFFICIENT OPERATION.

Overall, Mowbray's Tree Service feels blessed that we made it through this crisis. It made us stronger and smarter, equipping us with tools that we will take into a very promising future. ■

Finance Committee Update

By Jim Neeser, Resource Developer, Davey Resource Group, Inc. and UAA Treasurer

The UAA Finance Committee is responsible for recommending the UAA annual budget, maintaining appropriate insurance coverage, overseeing financial audits, managing the operating policies, and maintaining a strong financial position. As the organization continues to expand, more revenue is required to provide our members value. This increase in budget comes during a challenging time frame when our largest revenue source comes from meetings, which have looked different over the last 18 months. The Finance Committee has successfully kept the UAA in a strong financial position despite the loss of this revenue.

One of the areas that the UAA acquired additional revenue during this difficult time was from the scholarship program. The UAA agreed to manage a substantial scholarship program to improve the educational opportunities for our membership. Instead of utilizing another organization to manage the funds for the scholarships, UAA has successfully taken on the duties. The initial investment towards the scholarship program was $500,000. Of that, $100,000 was included into the general fund of the UAA for managing the program and helping to develop additional educational programs. This increase in revenue was critical for the UAA to continue providing exceptional service to our members without cutting large budget items.

The Finance Committee has built budgets that accommodate our organization's anticipated growth. The most recent addition is budgeting to hire additional staff for the UAA as well as additional marketing resources. Throughout the past seven years, our organization has grown to having a full-time executive director, a staff of four or five people, and a couple of contracted roles in the next budget year. This expansion is necessary to continually provide exceptional service to our nearly 6,000 members.

The Finance Committee is made up of the UAA Executive Director, Treasurer, and several volunteers from the membership. The current members are: Executive Director Phil Charlton, Treasurer Jim Neeser (Davey Resource Group, Inc.), Ray Henning (GeoSpatial Innovations), Wendy Eckhart (Wright Service Corp.), J.M. Sparkman (ECI), and Brad Schroeder (ACRT).

This dedicated group of volunteers is responsible for maintaining the financial health of the organization and ensuring funds are available to continue providing benefits to our membership. The UAA is always looking for energetic volunteers to improve our organization and the Finance Committee would welcome additional members. Please reach out if you are interested in joining the team that provides financial stability to our organization. ■

(Continued from page 8.)

3 RECOVERY

Once the power is restored and crews have returned home, there is still more work to do for both line and vegetation crews. Powerlines should be patrolled to identify and mitigate damaged or weakened trees that may pose excessive risk. Lines that have been temporarily repaired may be rebuilt, and vegetation work may need to be scheduled around those efforts. The overall objective in recovery is to reduce risk and improve system readiness for the next storm.

4 MITIGATION

This is the "lessons learned" part of the process. All aspects of the response and recovery should be objectively examined, then its problems addressed, areas of risk identified, and processes put in place to improve the effectiveness of the next response. This includes a strategy of funding strategic tree pruning and removal programs focused on reducing risk to utility infrastructure.

WILDFIRES

While wildfires are not weather events, they are weather related and many storm response protocols apply when responding to wildfires. In recent years, the incidence and severity of wildfire across western North America, and even the east, has increased. Wildfires leave fallen trees as well as standing dead and dying timber which must be assessed and mitigated or removed before lines can be reconstructed. In 2020, more than 10 million acres of forest were burned in the U.S.—an area larger than the state of Maryland.

Damage from wildfire can be extreme and widespread. Utilities often need assistance for prolonged periods—months, or in some cases, years. This changes the dynamics of a response in two ways. First, the time commitment for responding employees can result in relocation. And second, while all levels of skill are required, there is an ongoing need for employees with specialized skills and expertise (such as work planning and tree risk assessment, along with credentials such as Tree Risk Assessment Qualification [TRAQ] and ISA Certified Arborist). The demand for qualified personnel in regions affected by wildfire is rippling beyond those areas, affecting labor markets elsewhere.

CONCLUSION

Storm response is an excellent opportunity for our industry to demonstrate its value. At the same time, there is risk to the reputation of utilities, contractors, and our industry when storm responses are not managed well.

Successful storm response requires planning, preparation, and expertise. Part of the preparation should include a well-run and fully funded vegetation management (VM) program that emphasizes a risk-reduction approach when specifying work (e.g., target trees and vegetation likely to fail in storms), along with other utility efforts to harden infrastructure against the effects of storms.

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WILDFIRES LEAVE FALLEN TREES AS WELL AS STANDING DEAD AND DYING TIMBER WHICH MUST BE ASSESSED AND MITIGATED OR REMOVED BEFORE LINES CAN BE RECONSTRUCTED.

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Demand for our industry's valuable services increases due to more storms and wildfires. The industry should recognize the importance of professional arborist and forester expertise and credentialing programs that provide additional specialized training, with compensation packages as an incentive for employees. Our industry must not only value these specialized skills but attract and retain additional talent so we can be effective in storm preparation and response to meet the public's ever-increasing demand for safe and reliable utility services.

About the Author: *Geoff Kempter is Manager of Technical Services for Asplundh, with more than 30 years of experience in utility arboriculture. He is the incoming president of the UAA. Kempter was a member of the Asplundh Storm Team for eight years and has written and presented widely on storm response.* ■

MITIGATING FIRE RISKS

By Bob Urban, Senior Manager, ACRT Services

Wildland and prairie fires are not just a West Coast phenomenon. These fires pose a risk that not only impact the traditionally viewed West Coast landscapes but landscapes from coast-to-coast. If the right conditions exist—from weather, humidity, and wind speeds to fuel load and ignition points—fire-related events can occur in any part of the country.

Looking back at the past five years, wildland and prairie fires were a real phenomenon everywhere, not just in California but in places like Alaska, Oklahoma, and Florida. In 2016, the largest fire-related event in the U.S. took place in Oklahoma, affecting more than 360,000 acres.

Most of the large fires that occurred in 2018 were located in Northern California, Southern Oregon, Northern Washington, and Northern Montana. But what's interesting is that several significant events occurred in 2018 between Virginia and Kentucky that didn't make the Top 20 chart.

In terms of fire-related events, 2019 wasn't as severe as 2018. We saw many of the typical culprits and places, but many events further east. Texas experienced several events, Oklahoma had a smattering throughout the state, Florida and the Kentucky–West Virginia border ranked on the list again, and so did Mississippi and Alabama.

So how do you prevent these widespread fires from occurring? Communication is the most powerful tool. The following are important, proactive measures that you can take:

- See something, say something. Be aware of your surroundings.
- Know who to contact and in the proper order. Call 911 first.
- Personal safety is your first responsibility. Make sure you're in a safe space before starting a communication chain.
- Know your fire plan. These are similar to post-storm work plans and are often seen in fire-prone areas.
- Follow instructions.
- Check in and check out. Make sure someone knows your whereabouts before and after any possible dangers.

PREPARE A FIRE PLAN AND PROCESS

Fire plans and processes are usually similar to storm or hurricane plans. These documents address common hazards associated with each type of event and provide specific instructions regarding tasks and roles during those events. A fire plan is a living document—it should be reviewed yearly and employees should be regularly trained on its information.

You may notice that fire plans and processes emphasize safety. Why? It's all about personal safety, crew safety, public safety, and the safety of the assets being worked around. Employees from entry-level to management positions should be trained on each organization's fire plan, including fire prevention, emergency reaction, wildland fire safety basics, and equipment.

We must talk about how to safely navigate a high-fire risk environment by understanding how vehicles, our actions, our equipment, and the relationship between the vegetation and powerlines can all be potential ignition points for wildland fires. It is important to understand and remember that our job is not to fight the fires; our job is to prevent fires from starting in the first place.

KEEP PREVENTATIVE TOOLS HANDY

In fire-prone areas, most field crews will have basic preventative fire tools in their vehicle, such as a water pump/can, a shovel, various axes, and a fire extinguisher. If anyone is working in the wildland landscape, I highly encourage them to have at least 20 pounds worth of fire extinguisher readily available. That could be the difference between stopping an

INCREASE SAFETY WITH GEOSPATIAL ANALYTICS

ACRT Services and Satelytics have partnered to help utilities identify system issues while reducing safety incidents and mitigating costs.

Utilities have thousands or even tens of thousands of line miles to manage. Identifying encroachments and other issues requires people to assess them one mile at a time — not only requiring significant time and resources but also putting field workers at risk. That's why ACRT Services and Satelytics have partnered to offer geospatial analytics to the utility industry. As the first UVM organization to provide this solution, our family of companies is able to take our safety efforts further for you than ever before while reducing program costs, prioritizing work planning, and providing in-depth system data.

Get a new perspective.

Satelytics uses multispectral and hyperspectral images and data from satellites to analyze your service area.

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With precise areas of interest pinpointed, people spend their time more efficiently in the field, you reduce injuries and other safety incidents.

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Rapidly identify areas at greater risk and dispatch people to address them, saving time and money.

See the whole picture.

Problem magnitude, location, and other qualitative information are provided with each image.

Validate faster and easier.

Using satellite images after work completion allows for faster verification that issues have been resolved.

Access historical data.

Past satellite imagery is available, allowing us to compare performance and system details over time.

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Improve safety performance while streamlining VM processes with Satelytics from ACRT.

Contact us to learn more about our partnership and how it can help you.

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IF THE FIRE IS SMALL AND CONDITIONS HINDER ITS SPREAD, SWIFT ACTION WITH A FIRE EXTINGUISHER IS APPROPRIATE. ULTIMATELY, OUR JOB IS PREVENTION, PREVENTION, PREVENTION.

event the moment it starts and a fire turning into an event that burns thousands of acres, including homes.

These tools aren't free, but certainly a wise investment to consider. Most of these tools are marked as multipurpose, to be used for other tasks on the job, if available. The idea for using these preventative tools is to rob the fire of one of its key elements: fuel.

REMAIN VIGILANT

Understanding potential ignition points is incredibly important and should be part of every employee's training, including highway vehicle, power tool, and powerline fire safety. Think of the "One Less Spark–One Less Wildfire" campaign.

A lot of wildland fires start on highways (e.g., cars and medians catching on fire) and they can spread quickly. The most common ignition points are hot materials coming out of exhaust pipes or tow chains dragging on the road (or similar pieces of metal hanging off a vehicle that create sparks). We should make a conscious effort to ensure that chains are secured properly on vehicles and avoid grass when pulling off to the side of the road.

IT IS IMPORTANT TO UNDERSTAND AND REMEMBER THAT OUR JOB IS NOT TO FIGHT THE FIRES; OUR JOB IS TO PREVENT FIRES FROM STARTING IN THE FIRST PLACE.

When it comes to power tool fire safety, chainsaws have spark arrestors for a reason. They are designed to keep hot material from exiting the exhaust port on the saws and, ideally, divert the hot material from making its way to combustible vegetation.

Powerline fire safety should also be taken into consideration. It is important not to allow trees to grow into the lines and to make sure that there isn't incidental contact while working. Contact with the lines can ignite vegetation. Ignition can occur in numerous forms: a powerline, someone throwing a cigarette out of a moving car, or an escaped campfire. Regardless of a fire's origins, we must remain vigilant.

Know your capacity. Again, our job is not to fight wildland fires; our job is to prevent them from happening. Our industry shouldn't have to carry out a direct attack on a wildland fire. If the fire is small and conditions hinder its spread, swift action with a fire extinguisher is appropriate. Ultimately, our job is prevention, prevention, prevention.

Be safe, be aware, and remember: prevention is our job.

About the Author: *Bob Urban, ACRT Services Senior Manager, has more than 20 years of experience in the utility services industry. He has built a wealth of expertise on everything from operations and sales to training and negotiation. He is an ISA-Certified Utility Arborist and attended Paul Smith's College in New York.* ■

Danielle Phillipson: Calm, Cool, and Collected During Crisis

At ACRT Pacific and its sister companies under ACRT Services, our employees pride themselves on maintaining best safety practices and rising to the occasion when our community is in need.

On the road, our employees occasionally come across a roadside traffic incident. One such incident occurred in July of 2020. On that hot July afternoon, Danielle Phillipson, ACRT Pacific Consulting Utility Forester (CUF), had finished a special assignment and was traveling back to the office when she encountered the aftermath of a serious accident.

As Phillipson grew closer to the scene, she could tell this was a single-rider motorcycle accident that had occurred moments before her arrival. As no emergency services were on the scene, Phillipson—who has previous experience as a first responder—quickly grabbed medical gloves from her vehicle and ran to the injured victim.

While waiting for emergency medical services, Phillipson instructed others who had also stopped to help to hold a blanket over the victim for shade while she held the victim's head steady.

Phillipson tended to the victim until emergency services could arrive. She quickly filled in the emergency medical technicians (EMTs) with her observations and the status of the victim as she continued to keep his head steady.

The EMTs determined that an air ambulance medical evacuation was necessary to transport the victim. Phillipson remained with the victim and EMTs, helping to move and secure him to the backboard until he was loaded into the helicopter and transported to a local hospital.

Safety is our top priority, and we are proud of Phillipson's actions on that July afternoon. She was awarded an organizational G.E.M. (Going the Extra Mile) Award for serving as the first responder when arriving at the scene.

Learn more about ACRT Pacific and our safety philosophy at *pacific.acrt.com*. ■


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NARROWING THE GAP:

Boosting Employee Retention through Inclusivity

By Josiane Bonneau, Chief Operating Officer, Wildlife Habitat Council

The benefits of a gender-balanced workforce are no longer a topic of debate—the advantages have been proven repeatedly. However, inclusivity does not happen overnight. In previous issues of the *Newsline*, I've explored best practices for attracting and recruiting top-level, diverse talent through concerted effort and dedication.

The work, however, isn't over once a new employee has signed her offer letter. Company culture is a key factor in retaining female employees. Given the struggle companies have retaining women and the expense of onboarding new staff, it is critical that the vegetation management (VM) sector continues its inclusivity efforts beyond recruitment and hiring.

BUILDING BACK BETTER

Retention is a timely topic, given the disproportionate impact that the global pandemic has had on working women. Women have lost a net 5.4 million jobs since the pandemic began, signaling a 33-year low in female participation in the workforce. The global pandemic has challenged many employees' support systems, particularly for caregivers. In the past year, one-third of women found themselves considering a downshifting or even leaving their careers.

While many roles within the VM sector could be done remotely, the percentage was lower than in industries less dependent on site-based work. Even those working from home could find themselves over-taxed with their myriad of responsibilities.

This challenging year has provided us with a rare opportunity to reset and take inventory of challenges that disproportionately impact working women. There exists a suite of innovative practices to retain female employees. As we get closer to a "new normal," companies have a prime opportunity to embrace the following practices:

WOMEN HAVE LOST A NET 5.4 MILLION JOBS SINCE THE PANDEMIC BEGAN, SIGNALING A 33-YEAR LOW IN FEMALE PARTICIPATION IN THE WORKFORCE.

REMOTE OPTIONS

With so much still in flux, some employees may need to work remotely in the months to come. Offering this option ensures they don't resort to leaving their roles due to health concerns or family obligations.

MINDFUL SCHEDULING

Consolidating internal meetings so they occur between 10 a.m. and 3 p.m. provides parental flexibility during the beginning and end of school days.

RESULTS-BASED EVALUATIONS

Many employees' work habits have changed this year because of the sheer realities of the pandemic, not lack of commitment. Consider basing this year's evaluations not on the quantity of hours worked, but on the overall quality of employees' output.

FLEXIBLE BENEFITS

Allowing workers whose caretaking duties have increased to go part-time temporarily—while retaining their benefits—helps them balance their many duties, while allowing companies to keep loyal employees and boost employee well-being.

TASK SWAPPING

Some employees may currently be in a better position to travel than others, be it to the office or across the country. Workplaces should allow staff to exchange responsibilities as needed during this challenging time.

INCREASING PAID LEAVE

The pandemic has brought workers greater family obligations and concerns about long-term illness. Providing employees with more paid leave, or establishing a leave pool, will bring them some peace of mind.

As a company's response to the pandemic can significantly alter employee perception, the decisions that employers make now will influence gender equality for years to come. Years from now, your young employees may excel because their parents were able to help with homework in 2021!

NOT JUST A PANDEMIC MATTER

While the pandemic has exacerbated the gender gap in employee retention, the issue is not new. Retention of diverse talent has been a goal for decades, yielding the following credible, effective recommendations:

GOAL SETTING

Setting targets for gender-based retention—with

well-defined, key performance indicators—provides focus from leadership, allowing them to conceptualize retention similar to recruitment goals. Retention targets should be strongly considered in every organization. For smaller companies, losing a single employee may mean the loss of a certain skill set, a decrease in morale among remaining employees, and limited resources for rehiring (and for redistributing work in the meantime).

CULTURAL ASSESSMENT

Inclusivity is admittedly a broad concept, but an important one. An exclusionary work culture is atop the list of reasons why women leave their jobs. To assess your company culture, start by asking the following questions:

- Have you eliminated the pay gap between men and women?
- Do you showcase the women in your business and their accomplishments?
- Are there opportunities to network during the workday or only during happy hour?
- Does your culture recognize the wide range of effective communication styles?
- How are the leadership abilities of women leveraged?
- Do senior leaders display values of inclusion? How many of your senior leaders *are* women?

FLEXIBILITY

There is a correlation between the work-life balance a company fosters and its retention rates. The pandemic has highlighted the benefits of flexibility. From a Mercer survey, 56 percent stated that they would seek new employers if their workplaces didn't retain some degree of flexibility after the pandemic.

RECOMMENDATIONS

My recommendations should come as no surprise:

1. Offer flexible working hours and opportunities to work from home.
2. Train managers to value remote and on-site work equally and adapt to a hybrid workforce.
3. Update parental leave policies.

While there is a proven model for jobs that can readily be done remotely, there remains room for innovation when it comes to inherently site-based work. The VM sector can become a leader in this regard, discovering opportunities to support employees in such roles.

OPENING LINES OF COMMUNICATION

While the suggestions offered above are critical to retaining women in the workforce, maximum impact requires one more recommendation: regularly check in with your employees regarding their needs and wishes, especially in these uncertain times. With no way of truly knowing what employees may need in the near future—as culture is constantly evolving—soliciting employee input should become standard practice, in times of crisis and not. ■

USING INCIDENT COMMAND STRUCTURES FOR EFFICIENT DISASTER RECOVERY

By Bret Marchese, Director of Distribution Maintenance, Salt River Project

DISASTER STRIKES PUERTO RICO

From mid-September to early October of 2017, Hurricane Maria brought extensive devastation and loss to Puerto Rico, Dominica, Saint Croix, and many other islands in the southeast and mid-Atlantic U.S. With 175 mph winds, Maria caused more than $91 billion in damage and more than 3,000 fatalities, making it the worst storm in history for the islands affected and, at the time, the deadliest Atlantic hurricane in nearly 20 years.

Just two weeks prior, Hurricane Irma—another category five hurricane—had passed north of Puerto Rico, causing extensive damage and outages. As Maria approached, approximately 80,000 Puerto Rico Electric Power Authority (PREPA) customers were still without power. When Maria made landfall on September 20, the PREPA power grid was destroyed.

The island's power grid was demolished, leaving 3.4 million residents without electricity. Government officials estimated that it would take months to restore power and rebuild other infrastructure. On September 22, the entirety of Puerto Rico was declared a Federal Disaster Zone, initiating various emergency response efforts. Throughout the next few months, progress was being made toward restoring power, yet hundreds of thousands of people were still without power.

This is a photo of the aftermath of Hurricane Maria in Carolina, Puerto Rico

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SETTING UP THE INCIDENT COMMAND STRUCTURE

While PREPA worked to get power restored, the American Public Power Association (APPA) and Edison Electric Institute (EEI) began reaching out to utilities within its network to support the restoration effort. PREPA, the Federal Emergency Management Agency (FEMA), and the U.S. Army Corps of Engineers were underway with relief efforts. Still, the sheer size of the power restoration effort warranted involvement from utilities trained in disaster response and mutual assistance. As a member of APPA, Salt River Project (SRP) was contacted to provide support.

Puerto Rico is divided into seven regions, with utilities assigned to each area. By the time initial relief arrived, contractors on the ground had been working for more than 100 days. The situation was less than ideal due to a lack of a centralized command structure, and as a result, contractors were working separately without a unified direction. APPA and EEI worked together to establish a country-wide, unified incident command (IC) structure responsible for communications, overseeing logistics, material coordination, planning, and power-related disaster recovery efforts.

With the need to restore power efficiently and safely, and recognizing that the task was greater than could be handled by a single IC entity, regional ICs were established across the island.

THE ISLAND'S POWER GRID WAS DEMOLISHED, LEAVING 3.4 MILLION RESIDENTS WITHOUT ELECTRICITY.

Each IC team covered the following skill areas: planning, logistics, operations, safety, and communications. SRP was tasked with running the IC from the Carolina region east of the capital city, San Juan. While SRP did not have line workers on the ground in Puerto Rico, the team members who traveled there served in leadership roles, providing guidance for PREPA and other utilities. SRP's leaders lead regional communications, damage assessments, material-needs assessments, and established restoration priorities. The leaders took responsibility for communicating with and educating teams how to work safely and efficiently to restore power as quickly as possible.

As one of these team members, I was called down to Puerto Rico for a 30-day shift as our Regional Incident Commander. Alongside other SRP team members and professionals from other participating utilities, we worked

to ensure the regional team operated efficiently and provided the best guidance and coordination possible for the people executing restoration work every day.

PRIORITIZING RESTORATION EFFORTS AND SAFETY

As materials for power restoration were being delivered by barge to the island, it was essential that orders for material and communications were correctly managed from the start. As SRP was an IC leader along with the other six regional IC teams, we would meet with the unified IC team daily to review progress and discuss safety issues, the number of crews working, critical circuit restoration completion, and estimated time to restoration (ETR).

A pivotal part of these meetings was coordinating the overall work effort to ensure that crews knew where they were supposed to be, what work needed to be done, and what materials were necessary to complete the work. Prior to establishing ICs, crews were working under limited guidance and, as a result, experienced overlap in their work areas that slowed down relief efforts and put workers in unsafe situations. Thanks to the IC approach, workers were able to focus on their assigned areas without overlap, helping to accelerate restoration while ensuring the safety of the workers from the utilities, contractors, and host utility.

WITH THE NEED TO RESTORE POWER EFFICIENTLY AND SAFELY, AND RECOGNIZING THAT THE TASK WAS GREATER THAN COULD BE HANDLED BY A SINGLE IC ENTITY, REGIONAL INCIDENT COMMAND STRUCTURES WERE ESTABLISHED ACROSS THE ISLAND.

Additionally, the SRP team was able to communicate the daily safety briefings and incidents to crews, which helped prevent safety incidents throughout their assigned region. Due to the widespread lack of power, crews could not continue working after dark since streetlights were either destroyed or unable to be powered. Driving safety was also a priority, as there were no working stoplights in major intersections. The SRP team, along with other safety representatives, would meet to discuss safety issues and communicate guidance to crews working across the region.

A VARIETY OF TRADITIONAL ROLES WERE DEPLOYED TO SUPPORT RESTORATION IN PUERTO RICO

APPLYING LESSONS LEARNED FOR THE FUTURE

Through the experience working in the IC structure, our team had learned the importance of separating traditional roles from an IC structure's responsibilities. When disaster strikes, it's essential for everyone involved to work together toward remediation. A variety of traditional roles were deployed to support restoration in Puerto Rico, including:

- Line crew supervisors who served as both sectional operations and logistics chiefs
- Line crew supervisors who oversaw daily work performed by utility crews and provided damage assessments and attention to overall worker safety
- Engineers who served as planning chiefs and also prioritized restoration
- Designers who assisted with damage assessments, mapping, switching requests, materials coordination, and new pole-planning work
- Warehouse managers who served as material leads

Puerto Rico Electric Power Authority (PREPA or AEE) power plant in the north coast of Puerto Rico.

An effective IC structure must be defined and established early. Those that will be involved must be trained on ICS principles, roles, and responsibilities, given the disaster or emergency. IC structures should endeavor to have an early detection and implementation system in place to ensure that work is carried out in the most efficient, safe, and expedient way possible. Finally, an IC should be scalable, as not all who are part of the IC structure may be needed. In some instances, only a few team members may be required. Structures should be built to allow for rapid deployment with the right amount of team members for the incident at hand.

While complete power restoration extended until August of 2018, APPA members' hard work contributed to a more expedient effort. Following its experiences in Puerto Rico, SRP has given considerable focus to establishing an IC structure within its own organization. Utilities across the country and beyond are encouraged to consider a similar approach—if they have not already—because when disaster strikes, efforts and investments in a structure that is ready to tackle the responsibility of rapid and efficient response are undoubtedly worthwhile.

About the Author: *Bret Marchese joined Salt River Project in 1998. In his current role as Director of Distribution Maintenance, Marchese leverages more than 20 years of experience in maintenance, construction, technology, transmission, and distribution to ensure SRP's distribution systems continue to provide reliable power for more than two million people in central Arizona. He holds a Bachelor of Business Administration degree from Dana College.* ■

DRG'S RAPID RESPONSE TEAM BRINGS EMERGENCY RELIEF

By Jenna Paul, Technical Writer, Davey Resource Group, Inc.

Recent wildfires and storms have taught the utility vegetation management (UVM) industry that preparedness and flexibility are key. In such cases, an influx of aid is necessary, but for only a limited amount of time. This has the dual disadvantage of potentially displacing workers on other projects and creating the necessity of reassigning them afterwards. The solution for Davey Resource Group, Inc. (DRG) was to recruit a team of arborists ready to be mobilized at a moment's notice for a variety of emergencies.

DRG's team of flexible, interdisciplinary experts—the Rapid Response Team—was cultivated to support clients' short-term projects. Storm and wildfire response were the primary concern when creating this team, and those on it have extensive experience in those area. With DRG's suite of proprietary software, the team can provide a comprehensive work process for any project. Though this initiative is quite new, clients are already finding the immense value in being able to call upon the Rapid Response Team when they need extra hands.

For clients, getting this aid is as simple as filling out a request form on DRG's website. When there are no crises to handle, they can utilize the Rapid Response Team for any tight deadline. The team's extensive, required credentials backed by in-house technology for any project means that clients can rely on the team regardless of need. This is perfect for when clients only require a burst of help on an existing project or want to bring on a temporary team for something new.

Employees also benefit from what the Rapid Response Team can offer. The variety of locations and ways to apply their skills make the work exciting for the team. While tasks and hours are generally more grueling, many people cite the purposeful nature of the jobs as motivational, providing great work satisfaction. For those who enjoy travel, the change of scenery is an added bonus.

The UVM landscape is always changing and adapting to new technologies and client needs. A Rapid Response Team is just one of the ways that DRG is seeking to fill gaps in qualified individuals for emergency scenarios and providing added value to clients. It is already proving to be mutually beneficial, and we hope to expand the program. ■

SPOTLIGHT ON THE ENVIRONMENT: ADAPTING TO A CHANGING CLIMATE

By Leslie Brandt, Climate Change Specialist, Northern Institute of Applied Climate Science–USDA Forest Service and Annamarie Rutledge, Research Scientist/Climate Outreach Specialist, Northern Institute of Applied Climate Science and Michigan Technological University

Climate change is contributing to more frequent and severe weather events across the U.S. Projected climate impacts such as an increase in temperatures and drought, storm frequency and intensity, and risk of pests and diseases are expected to stress trees, leading to tree damage and breakage. Adapting to these changes is critical to ensuring the benefits that trees provide to communities in both urban and rural areas. There are adaptation actions we can implement today to help reduce risks to trees around powerlines and ensure the safe and reliable distribution of energy.

Tools developed by the USDA Climate Hubs, USDA Forest Service, and the Northern Institute of Applied Climate Science (NIACS)[1] can help utility arborists assess risks and identify strategies to adapt to change. These tools include vulnerability assessments for urban forests and natural areas in addition to adaptation tools and initiatives such as the Climate and Health Action Guide[2] and Adaptive Silviculture for Climate Change (ASCC).[3]

ASSESSING RISKS

Ecoregional[4] and urban[5] vulnerability assessments help natural resource managers understand the potential impacts of a changing climate in order to take steps to sustain healthy forests. Using local expertise in each region, the assessments synthesize relevant climate research, present scientific projections of future changes in climate, and evaluate the vulnerability, adaptability, and habitat suitability of trees[6] in natural and developed landscapes in a range of future climates.

The assessments also document projected shifts in heat and hardiness zones[7] to understand how non-native species and cultivars may tolerate future conditions. Assessments for some urban areas are available (e.g., Chicago,[8] Austin,[9] and Detroit[10]) that can be used to inform future management. Additional resources are available on the Climate Change Resource Center[11] website.

ADAPTATION ON THE GROUND

Adaptation demonstrations provide real-world examples of how landowners and managers have integrated climate change considerations into management planning and activities. In the Superior National Forest,[12] the mixture of fire-dependent forest types, railroad networks, powerline corridors, and human development has resulted in more fires in the project area. Land managers are altering the forest structure or composition to reduce the severity and risk of wildfires by removing balsam fir *(Abies balsamea)* and ladder fuels to prevent stand-replacing fires.

Meanwhile, in Fairfax County, Virginia,[13] urban forest managers are dealing with expansive development in a suburban community that is becoming increasingly more urbanized, and one of the primary goals is to protect and improve tree canopy. A few adaptation actions from this project include selecting species and cultivars less susceptible to pests and pathogens and supporting conservation, open space easements, and reforestation to reduce forest fragmentation to expand natural corridors. By considering the implications of climate change on a particular project area, natural resource professionals can develop their own adaptation plans by selecting approaches and tactics relevant to their goals and objectives.

ADAPTATION TOOLS AND RESOURCES

The Climate and Health Action Guide focuses on strategies for adapting urban forests to climate change while also providing human health and climate mitigation benefits. It includes five main steps, reflecting the structure

of the Adaptation Workbook,[14] and features a variety of research on the connection between urban forests and public health as well as resources to support adaptation actions. The Urban Forest Climate and Health Menu, incorporated into the guide, offers strategies and approaches that can be used to guide planning, research, education and outreach, or changes in policy or infrastructure within communities.

A recent adaptation demonstration project in Providence, Rhode Island,[15] provides an example of the guide in action. Burdened by the urban heat island effect, localized street flooding, and poor air quality, South Providence aims to address the impacts of climate change and improve environmental justice in two low-canopy, low-income neighborhoods. By working through the new Climate and Health Menu, land managers selected a series of approaches and tactics to meet their goals and objectives while keeping climate change challenges and opportunities in mind. For example, land managers planned to reduce risk of damage from extreme storms and wind by maintaining regular pruning cycles, conducting tree risk assessments to remove hazardous trees, treating trees that could become a hazard, and considering windbreaks that help other trees survive and reduce drying.

Additional adaptation tools and resources, such as urban tree species vulnerability lists, are available on the Forest Adaptation[16] website.

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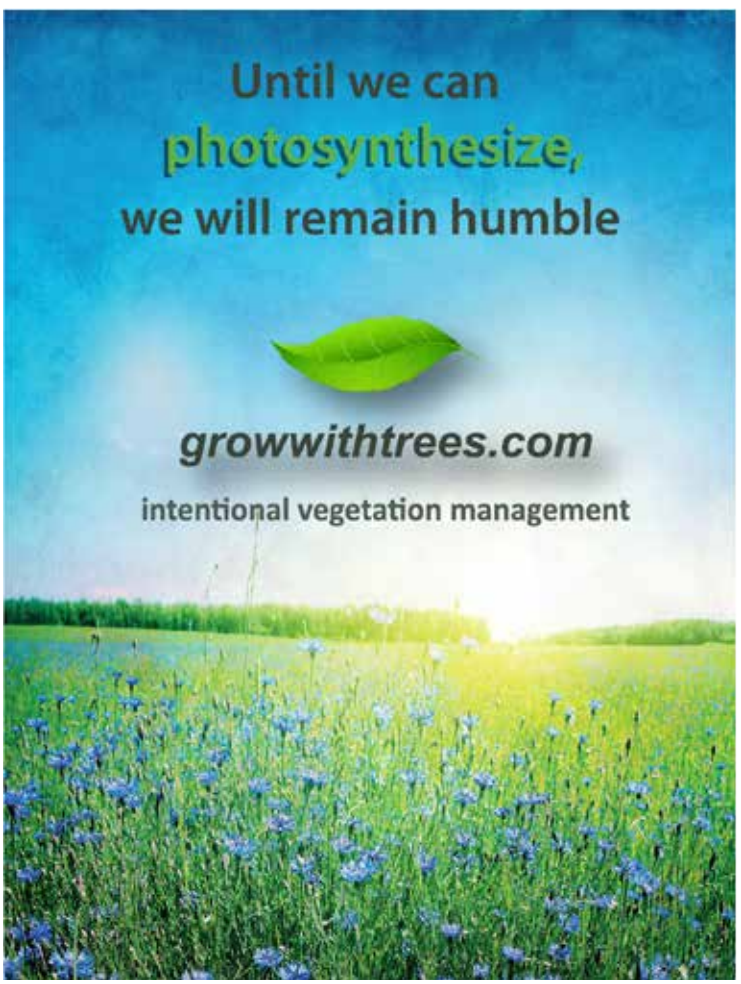
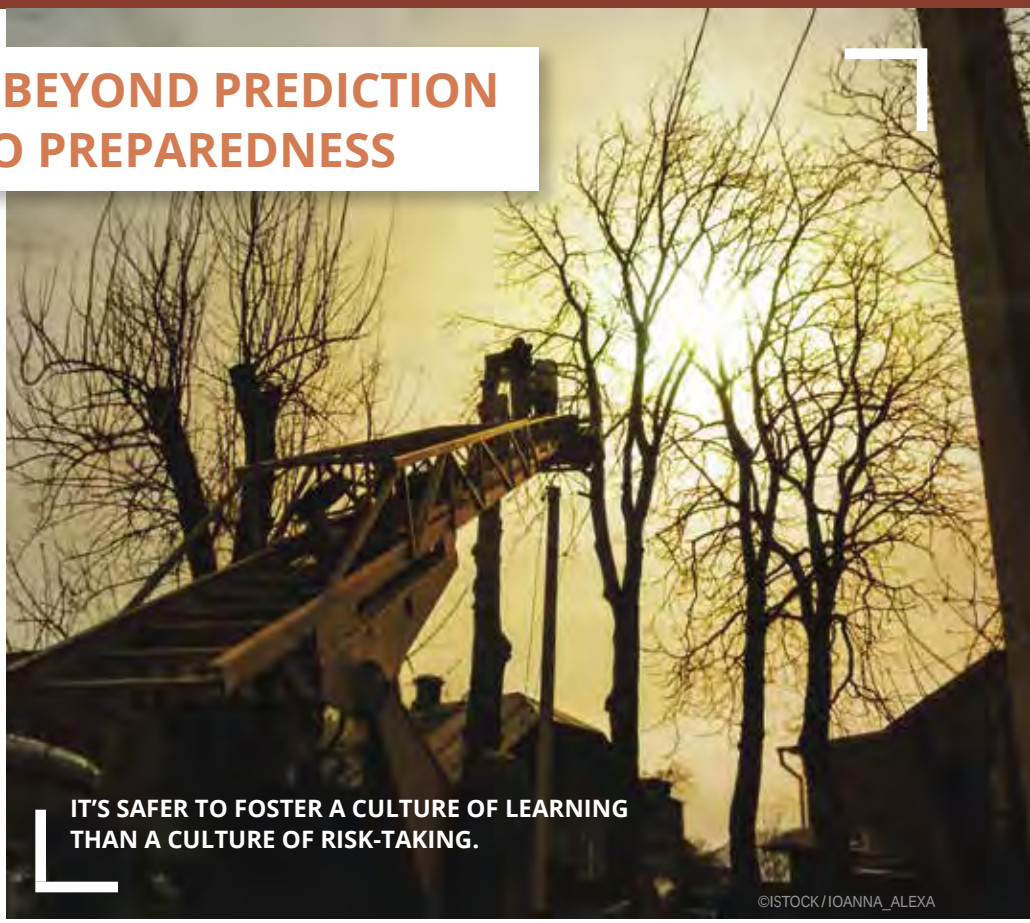


EXPANDING SAFETY BEYOND PREDICTION AND PREVENTION TO PREPAREDNESS

Beth Lay, Director of Safety and Human Performance, Lewis Tree Service



IT'S SAFER TO FOSTER A CULTURE OF LEARNING THAN A CULTURE OF RISK-TAKING.

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In late 2012, Anders Eugensson, the head of government affairs for Volvo Car Corporation, made the bold claim that Volvo would have zero deaths or injuries in its new cars as of 2020, thanks to smart functions in its vehicles.[1] In other words, Volvo was recognizing that accidents will continue to happen due to driver error, severe weather, poor road conditions, etc. But Volvo was dedicated to managing risk through better design.

This is a perfect example of the shift from a singular focus on preventing bad things from happening to investing in capabilities to adapt when bad things inevitably occur (e.g., hurricanes, cyber breaches, equipment failure, workplace incidents, etc.).

Where would we be now if automobile manufacturers had put all their money and efforts toward preventing crashes instead of accepting that people in autos will crash and protecting us during those events?

Like Volvo, we must look beyond asking "How do we prevent this from happening again?" to "How well will we respond when this does happen?"

Surprise is inescapable. Surprise is a normal part of work.

A RESILIENT ORGANIZATION ADAPTS EFFECTIVELY TO SURPRISE

At Lewis Tree Service, we spent a significant amount of time and resources throughout 2019 creating a crisis preparedness plan, without ever expecting a global pandemic. When COVID-19 hit, we had already built flexibility into our system that enabled us to shift to home offices without skipping a beat.

Similarly, every company in this industry knows that hurricane season arrives annually. Performing daily "After Action Reviews" throughout the storm season enables us to create lessons and best practices into our storm playbook, and most importantly, helps us know where to design extra capacity into our system. This provides a stronger response to our utility partners year over year. We are preparing to respond more effectively to storms (i.e., our new norm).

The same line of thinking holds true for incident preparedness. Traditional safety tends to put the most weight on predicting and preventing incidents with a focus on control—or minimizing the variance associated with humans doing work. Traditional safety often claims that all injuries are preventable.

ARE ALL INJURIES TRULY PREVENTABLE?

In early 2009, Captain "Sully" Sullenberger piloted a U.S. Airways flight to a crash landing on the Hudson River after a bird strike caused the plane to lose power in both engines. When describing his heroic response, the renowned aeronautics safety expert stated, "One way of looking at this might be that for 42 years, I've been making small, regular deposits in this bank of experience, education, and training. And on January 15, the balance was sufficient so that I could make a very large withdrawal."[2]

This aviation lesson can be directly applied to utility line clearance. We need to balance effectively preventing incidents with preparing to respond when surprises occur. We all know of incidents where our highly skilled workers did everything correctly and an unforeseeable failure of tree or line resulted in an injury. Industry wide, we need to embrace the fact that variability is inevitable and surprise will happen.

THE SHAPE OF SURPRISE

Resilience engineers anticipate general surprise. We don't know exactly what will happen, but we do know that in fast-paced, high-risk situations, something is likely to happen. A limb will fall unexpectedly. Objects will be hidden in our brush. A motorist will veer toward our work zone. When rebalancing our approach to safety—to embrace variability and accept surprise—we must first recognize that safety is *actively accomplished* as part of everyday work. This includes:

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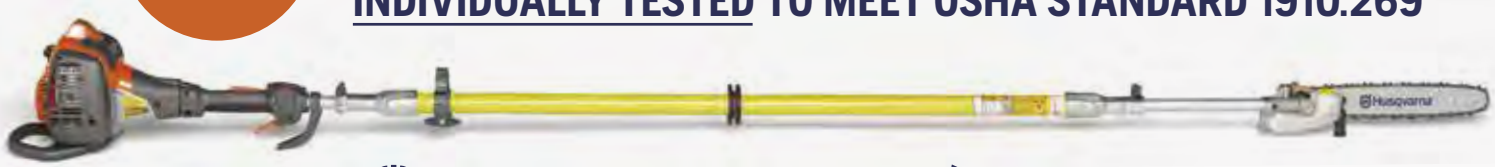

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- Training our craftworkers to notice signs of increasing uncertainty, emerging risk, or coming trouble.
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- Putting structure in place to manage work differently.
  - » **In action:** Encourage team members—who are new to a position or situation—to reach out for help when they have doubts or concerns.

When something doesn't seem right, we feel it in our gut. The good news is that we can train our team members to recognize the cues and uncover when they're facing potentially risky trade-off decisions. By monitoring for certain words, expressions, gestures, and emotions, we can actively notice the immediate, often changing situation, pause, reflect, and ask for help.

THE SHAPE OF PREPAREDNESS

The best defense for surprise is to be prepared to respond to emergent risk and uncertainty. Last year, during storm restoration in Jamaica, New York, a Lewis crew member arrived at a jobsite where a large sycamore tree *(Platanus occidentalis)* had fallen on the powerlines. It was detained by the secondary and communication lines and the wood was under tension. In this situation, the crew recognized that a form of surprise was present in potential, or stored, energy. In addition, the crew noticed that the houses still had power because the lights were on and they could hear loud music. Based on their situational awareness, the general foreman paused, reached out to the coordinator, and had the lines grounded before continuing.

Successfully preparing for this type of surprise goes beyond reminding crews about stored energy—although that's a good start. Engaging teams in personal conversations and asking them to share stories about times when they were surprised by silent generators, wires, or wood under tension can go a long way to make risk real.

Other examples of preparedness include:

- Using fall protection, which assumes that workers will fall but in a controlled fashion (i.e., fail safely)
- Preparing the public to save lives if people nearby are severely bleeding[3]
- Wearing the army's new integrated head protection system, a lightweight helmet that can withstand the blunt force impact of a bullet[4]

All of these are excellent measures to manage surprise; however, they're just the tip of the iceberg. We must learn how to be resilient and, together, bring innovations from other industries that will help our crews succeed under varying conditions. Like Captain Sullenberger, we will succeed by intentionally diversifying our experiences to enable us to successfully adapt.

SOMETIMES SURPRISE IS SUDDEN, SOMETIMES SURPRISE CREEPS UP

In a prime utility arborist example, when a lift boom fails, there can be little warning, and possibly no second chance. While this may appear to be a sudden surprise at the time, the booms on our bucket trucks are extremely resilient to failure. Surprise creeps up if we abuse our booms over time, putting them through stresses they are not designed for, and possibly causing fractures in the fiberglass.

If a boom is struck by an object, strikes another object like an underpass, or is pressed too hard against something and gives way (e.g., violently rocking a foot or more), those are immediate indicators to ensure the boom is checked by an authorized mechanic in order to:

- Prevent damage that we cannot see, only using the boom for what it is designed for and nothing else.
- Notice potential boom failure, strengthening our situational awareness by noticing both strong and weak signals (e.g., hearing the fiber glass creak or pop, feeling resistance in the controls, or the boom moving slightly in an unexpected way).

THE BEST DEFENSE FOR SURPRISE IS TO BE PREPARED TO RESPOND TO EMERGENT RISK AND UNCERTAINTY.

- Prepare for boom failure by planning and practicing our response for being stuck aloft.

Instead of ignoring any weak signals, leaders encourage team members to trust their instincts and press pause whenever needed to call an expert, get another pair of eyes, or come together as a team to determine the safest path forward. It's safer to foster a culture of learning than a culture of risk-taking.

IN SUMMARY

While incident reduction through good practices remains critical (e.g., never enter an active drop zone or never operate a chainsaw with one hand), we have an opportunity to put greater efforts toward preparedness.

With shifting weather patterns, wires under tension, and dead or dying trees, our work conditions are complex and hazardous. No two jobsites are the same. There are 100 different ways to take down a tree. Given the serious risks and high degree of variability inherent in our industry, we collectively need to challenge the belief that all injuries are preventable and begin focusing on failing safely, increasing flexibility, and adding adaptive capacity.

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BUSINESS CONTINUITY MANAGEMENT:

Lessons Learned from an Unusual Year

Business Continuity Management (BCM) is a process that identifies potential threats to a company, providing a framework for resiliency. The goal is to create an effective response plan that safeguards the interests of employees, key stakeholders, and the reputation of the organization. A BCM plan also includes recovery and continuity management in the event of a business disruption. It requires regular training, testing, and reviews to ensure the plan remains in accordance with regulatory requirements.

FirstEnergy had already taken steps to prepare before BCM plans became a necessity during the COVID-19 pandemic. The company's Pandemic Health Emergency Response Plan, a subset of the Corporate Business Continuity Management Plan, was originally created to ensure continued operations in the event of a workforce reduction due to large-scale illness.

While the COVID-19 pandemic posed new challenges for FirstEnergy's vegetation management (VM) department, the existing corporate plan helped ensure success. Despite the rapidly evolving environment, the team used planning and preparation to successfully transition to working from home. Employees remained effective working remotely and had a productive, if unconventional, 2020.

Having learned much from the rapid transition from in-person to remote work, FirstEnergy will be incorporating the following to strengthen the BCM plan for VM:

1. **Provide additional training on pandemic recovery response.** Use functional exercises which physically move employees from a primary work location to an alternate space.
2. **Include remote work options and backup office space, when possible.** This creates more flexibility for staff who may not be able to travel to a brick-and-mortar location.
3. **Include alternate communication options in the BCM plan recovery strategies.** Options such as up-to-date distribution lists, email, and teleconferencing programs to convey information quickly and accurately. Tip: get to know your IT support personnel before you need them.
4. **Focus on preparation for future off-site work.** The VM team began shifting from paper to electronic files before the pandemic, but this process became even more important when staff started working from home.
5. **Schedule frequent check-ins with employees and management.** Video calls and remote social events enhance team interaction and can help promote collaboration and improve well-being. ■

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AN INSIDER LOOK AT CRISIS MANAGEMENT

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By Maegan Mullinax, Business Development Manager, ACRT Services

Successful organizations plan for the unexpected when it comes to managing crises. Anticipating what lies ahead is often the most challenging aspect of crisis management. Organizations create detailed strategies, doing their best to prepare for any type of event. Identifying and correcting weaknesses within their process is a vital step in comprehensive crisis management. Including various teams and cross-departmental coordination is key to successful teamwork during high-stress events. What many accredit to being the most crucial when managing crisis is often communication. Without it, people are unorganized, steps are missed, and plans crumble. Even when plans are followed, the risk for harm is always there. After catastrophic events, it is important for the teams to come together and analyze what worked and improve the areas that didn't work.

In this second part of our two-series article, you will hear about managing crises within utilities from Talquin Electric Cooperative (TEC), Sacramento Municipal Utility District (SMUD), Dickson Electric System (Dickson), San Miguel Power Association (SMPA), Florida Keys Electric Cooperative (FKEC), and Dyersburg Electric System (DES).

ORGANIZATIONS CREATE DETAILED STRATEGIES, DOING THEIR BEST TO PREPARE FOR ANY TYPE OF EVENT.

MANAGING CRISIS WITHIN THE ORGANIZATION

Being adaptable, learning from each other, and teamwork were common themes when asked about how to manage a crisis.

Elizabeth Kuhns, assistant to the general manager, and Doyle Totty, Safety Director at Dickson, shared, "In general, we work well in a crisis situation, typically being storm-conditioned, and we have an 'all-hands-on-deck' mentality when it relates to emergencies. This COVID-19 crisis, however, has presented entirely new and truly unprecedented challenges that none of us expected. We relied heavily on our networks and friends at other electric utilities as we shared information about how we may best protect our employees from the coronavirus."

Chad Locke, Vegetation Manager at TEC, stated, "We manage crisis by studying the issues and learning the facts as to what the crisis is. From there, we try and educate ourselves on how to proceed safely and efficiently."

For Jake Weatherly, an electrical engineer from DES, a written plan is in place to follow. He said, "Of course, with the current crisis, management made adjustments and operational changes according to federal,

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state, and local orders to keep employees and the public safe."

Darrell Daniel, Supervisor of Vegetation Management–Grid Assets at SMUD, shared, "During these times of crises, it's even more important to get out into the field, reassuring and supporting your teams. With fears and uncertainty that accompany crises, people need to know we have their back." Similarly, FKEC Utility Forester Jason Richards said that "pre-planning and a team approach to response" was the key.

POST-PANDEMIC CONCERNS

Putting the pandemic aside and thinking about the future leaves us with the need to plan for other crises and challenges. The same issues we were faced with haven't been solved. Extreme weather events, labor shortages, and creating a new normal are paramount as we continue to navigate the final stages of the pandemic.

While Richards said FKEC is concerned with "the increasing probability of extreme weather," Daniel from SMUD said, "The next big crisis is one that is still ongoing since prior to the pandemic. The workforce pool is very limited, and from employee to employee, the training varies wildly." On a similar note, Locke (TEC) stated, "I believe the next big crisis in our industry is a shortage of skilled labor and wages."

The representatives from Dickson said, "I think it may be fair to say that the next crisis may be not returning to in-person communication after being forced to be virtual for so long during this pandemic. In-person communication, whether it be safety classes or conferences, gives us the opportunity to network, share information, and establish a communication network with our peers across the country. The value of such a network simply cannot be measured."

COMMUNICATION

Crisis management plans are for reference, not an exact blueprint. Things change rapidly and teams need to be able to adjust and adapt quickly. For the process to remain efficient and mitigate risk, teams must have solid communication.

In terms of effective communication, Daniel (SMUD) said, "For us, transparency is key when communicating to both internal and external stakeholders." Echoing SMUD's sentiments, Richards (FKEC) said, "Working for a cooperative, our members are our stakeholders. And we utilize all means of communication from social media to our website to keep our members and the community up to date during a time of crises." Weatherly of DES also said that they utilize all avenues of communication media to get information out about changes to the utility.

Safety and Regulatory Compliance Coordinator Paul Enstrom (SMPA) stated, "Communications must be ramped up to all involved. We must work harder to communicate through personal interactions, emails, video conferencing, social media, printed word, etc. We need to assure everyone that we will continue to operate, continue to provide service, and ensure that everyone knows they can count on us to be there, as we always have been."

Kuhns (Dickson) sums it up best, offering advice on crafting best practices for communication when managing crisis plans. "As our world has gotten more and more connected through technology, social media, and our access to information, the ability to communicate accurate, timely information to your staff or customer base is more critical than ever. Crafting and controlling your messaging—especially in relation to crisis management—can make or break you as far as morale, trust, and reputation as a company or employer."

A few of my personal (and Dickson's) must-dos when it comes to handling internal or external crisis management and communications are:

1 GET OUT IN FRONT OF IT

Employees and customers need to hear it from YOU. Don't wait until you have more information or all the details of a situation before you put something out to your employees or customers. Even if you can only give them a broad, general summary, let it come from you. This can build mutual trust and create transparency.

2 REACH EVERYONE

No one likes to be left out. Whether you think this doesn't affect them or you simply don't have access to communicate with them, be sure that your message goes out across every department, every manager, every branch, every community, every class, and every customer.

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3 MANAGE EXPECTATIONS AND BE REALISTIC

When can they expect to receive more information? How will this affect them and their job or their home, family, or business? Is it really that serious? Don't overcommit about what happens next, and don't minimize how serious the given incident or crisis may actually be.

4 INFORMATION > SILENCE

The worst possible thing that you as the manager of a crisis or change event can do is to suggest that the employees or your customers have been forgotten, are being ignored or avoided, or are not worthy or valuable enough to be included in the conversation or "in the know." As humans, we long to belong and understand; give consistent, concise information continuously throughout the days/weeks/months of the crisis conditions or effects from a crisis incident.

5 LISTEN

Some people just need to be heard and feel like they've been given a voice or vote. Even if it won't get you anywhere, allow and encourage feedback—good and bad—from those who are affected. This will help tremendously to rebuild goodwill and reestablish trust moving forward.

SOME PEOPLE JUST NEED TO BE HEARD AND FEEL LIKE THEY'VE BEEN GIVEN A VOICE OR VOTE.

6 RECOGNIZE WHAT WENT WRONG

Even though it may feel counterintuitive, try to acknowledge mishandlings or missteps, apologize when appropriate, and commit to learning from this and doing better the next time. Swallow your pride and acknowledge a decision or oversight by the leadership team or individuals (if it applies), but be sure to emphasize the lessons learned by this experience. People are much more willing to forgive or accept error if they feel like they've been given an authentic, genuine explanation and, if needed, an apology.

7 ANTICIPATE PUSHBACK

When crisis hits and emotions run high, the only thing you can know for sure is to expect the unexpected. Misinformed rumors, assumptions, and accusations will undoubtedly come up. During the communication efforts amidst a storm event with extended outages, high bill season from extreme weather events, or following a controversial or highly publicized decision by a board or management, we can anticipate the common backlash and be prepared to address the concerns.

IN CONCLUSION

It is important to have a plan for when things go wrong. From small to large events, having your team regularly work with other departments is key to working together smoothly when it counts the most. When disaster strikes, be sure to learn from them. If you are not sure how strong your plan is, don't be hesitant to reach out to others, networking to incorporate best practices and industry experience. Maintain consistency and be transparent with your employees. Open the lines of communication to improve and adapt to changing environments. Be sure to have a post analysis of how your process worked and improve it for the next crisis, no matter how small or large it is.

How have you been handling your safety and crisis management? I'd love to hear from you! Reach out to me anytime to share your experience. ■

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THE 2020 MIDWEST DERECHO

By Randall H. Miller, Director of Research and Development, CNUC

2020 was a year of calamities, rightfully headlined by COVID-19. However, it also included hurricanes, earthquakes, civil unrest, and the costliest derecho on record. A derecho is a complex of thunderstorms with winds greater than 58 mph (95 kph), with windspeeds commonly over 100 mph (160 kph), traveling more than 240 miles (385 km), although distances of over 700 miles (1,125 km) are not unusual. Derecho winds are straight line, although they can generate tornadoes (Miller and Kempter 2018).

The 2020 Midwestern derecho began near the state lines of Nebraska, South Dakota, and Iowa on August 10th. In 14 hours, it traveled nearly 775 miles (1,245 km) to Indiana at an average speed of 55 mph (90 kph) (Wikipedia 2021). The National Weather Service (NWS) determined that damage was consistent with intermittent straight-line winds between 100 and 130 mph (160 and 209 kph) and concluded that maximum wind gusts exceeded 140 mph (225 kph), although the highest measured gust was 120 mph (193 kph).

Damage was exacerbated by high winds that lasted between 30 and 60 minutes, which is an unusually long period for a derecho (NWS 2020). The NWS confirmed 20 tornadoes associated with the storm. More than 8,200 homes were destroyed in Iowa alone (Office of the Governor of Iowa 2020), and Cedar Rapids, Iowa, lost half of its tree canopy (Jordan 2020). The total damage across the affected region exceeded $11.2 billion, making it the costliest thunderstorm in U.S. history (NWS 2020).

Utilities in Iowa, Wisconsin, Illinois, and Indiana were affected, with more than 1.4 million people left without power—770,000 ComEd customers, 200,000 Alliant Energy customers, and 290,000 MidAmerican customers, among other utilities.

Response for some utilities was compromised by crews providing mutual assistance in the northeastern U.S. in response to Hurricane Isaias. Those crews had to return to the Midwest for derecho recovery. In addition, utilities received mutual aid from entities throughout the region. For example, MidAmerican Energy received assistance from 24 states, some from as far away as Oregon (Ewers 2021). Many customers were without power for weeks.

Recovery from the tree canopy loss is still underway. The Wright Foundation for Sustainability and Innovation is awarding up to $100,000 in grants for tree canopy improvement in the Midwest, including to replant for derecho recovery. It was one of many initiatives in response to the storm.

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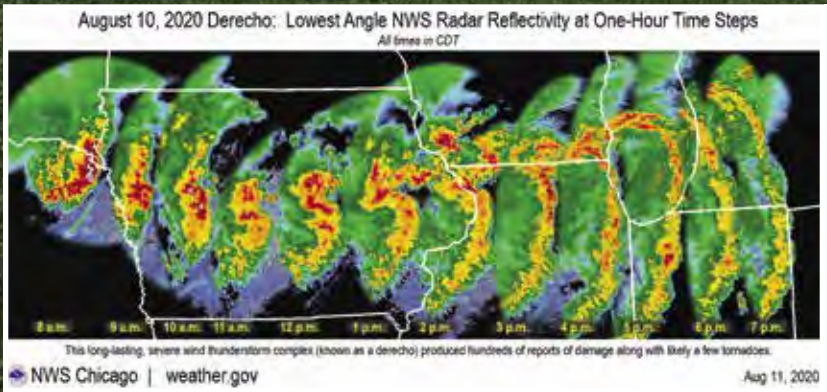

Radar showing the extent and travel of the August 10, 2020 Midwest derecho. (Photo courtesy of the National Weather Service Chicago.)

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UW-Stevens Point and CNUC UVM Survey Communications Section

By Richard Hauer, Professor of Urban and Community Forestry, University of Wisconsin-Stevens Point, and Randall H. Miller, Director of Research and Development, CNUC

CNUC and the University of Wisconsin–Stevens Point recently partnered on an industry utility vegetation management (UVM) survey involving 71 responding utilities (Hauer & Miller 2021). This article covers the results of the communications section.

COMMUNICATIONS

Respondents ranked the importance of outside groups and communication types.

Utilities communicate with customers before work occurs in a variety of ways. Most (71.4%) use two or more methods. Utilities may use contract (55.7%) or in-house (57.1%) utility foresters or arborists to communicate with customers prior to work occurring. The most commonly used method (82.9%) involves a person communicating with customers either in-person or by providing materials. This method was mixed with approximately one-third using contract, in-house, or both to do so. Tree crews were an important frontline communication approach, used by 50% of utilities.

Other self-reported (35.7%) methods used include indirect contact, such as direct mail (14.3%), phone message (14.3%), or door hangers (8.6%). These percentages are reflective of the total response.

Customer satisfaction surveys provide information to reflect how well operations are occurring and if changes are needed. Over half (54.3%) of respondents said they use customer satisfaction surveys. Phone calls (43.2%) and website directed surveys (40.5%) were most common. Door hangers (27.0%) or follow-up visits (8.1%) were less commonly used.

External groups can also provide communication messages about utility operations. Residential customers (4.48), property owners (4.42) and UVM contractors (4.41) were ranked as the three most important groups. They are most closely tied to where work occurs, so their importance is not surprising. Interestingly, the media (3.77) was considered of intermediate importance.

Respondents were asked to rank the importance of five communication types. Using a scale of 1 (least important) to 5 (most important), town hall meetings (2.30) and email messages/blasts (2.51) were considered least important for UVM communication. Brochures (3.57) and social media (3.45) were ranked highest and press releases (2.86) of intermediate importance. A take-home message is that a variety of approaches are used, some rank higher than others, but in general, communication plans are highly individual—what works best for some operations might not work best for another utility.

STORM RESPONSE

Communication is critical in storm response. It needs to involve communications departments to provide timely and appropriate messages to customers (Miller & Kempter 2018). Press releases on the extent of outages (77.4%) and communicating estimated time of restoration (71%) were most common. 59.7% said media relations control 100% of storm messaging, 37.1% place restrictions on frontline employee communications, and 30.6% use a pre-approved message for tree crews (e.g., "We are working hard to get things back to normal"). Respondents were mixed with the importance of a pre-approved message with a mean 2.86 (0.15 SE) index score.

CONCLUSION

The communications section results of the UVM industry survey indicate that the overwhelming majority of utilities use at least two methods to communicate with stakeholders and half of responding utilities relied on tree crew members to perform that function. Over half of responding utilities also used customer satisfaction surveys. Most utilities used press releases to communicate about storm restoration, and the majority left that responsibility to a media relations department. Full survey results are available by visiting *www.wearecnuc.com/uvm-survey*.

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"Neither of us were ready to turn back but we were running out of time and options. The weather had become nearly impossible ..."

CRISIS MANAGEMENT: A PRIMER

By Todd Walker, Regional Supervisor, CNUC

A CRISIS DEFINED

We started the hike early on a beautiful, crisp spring day in Southern California, but clouds had been slowly building throughout the morning. By noon, a gray haze had engulfed the trail on our ascent to the Mt. San Antonio summit, as if curtains had been drawn over the sun. The temperature had dropped significantly. Things were taking a turn for the worse as I donned my cold weather gear. Our visibility dropped to 30 feet. A nasty, freezing wind howled as we continued up the exposed ridge.

Soon, I realized that we were in the midst of a crisis. The wind had become so fierce that the only way I could communicate to my hiking partner, Jeremy, was by yelling. On a quiet day, a whisper would have sufficed; this was no such day. Neither of us were ready to turn back but we were running out of time and options. The weather had become nearly impossible. Not wanting to become a statistic on the morning news, I yelled directly into Jeremy's ear, "I THINK IT'S TIME TO HEAD DOWN!" He agreed and we turned south to descend—crisis averted.

HOPE WILL NOT PREPARE YOU FOR A CRISIS. BUT EFFECTIVE, CONSTRUCTIVE PLANNING WILL.

This was neither the first nor last crisis I would face. Merriam-Webster defines a crisis as, "An unstable or crucial time or state of affairs in which a decisive change is impending. *Especially*: one with the distinct possibility of a highly undesirable outcome." This being the case, there will likely be several variables, unknowns, and a need for good decision-making when a crisis arrives.

My hope is to share some practical insights on how to manage crises. I say *practical* because I want to stay clear of the theoretical. Theories will not help you manage a crisis; planning ahead with clearheaded thinking, decisive decision-making during the crisis, and intelligent post-crisis analysis *will*.

CRISIS PLANNING: THE CALM BEFORE THE STORM

Take the time to identify the crises your organization may encounter in the field of utility arboriculture. A pre-inspector lost out in the field without cell service? A line strike during pruning operations from a removal gone awry? A bulk transmission circuit outage from an unknown cause? Now is the time to ask the difficult questions and get answers on how to handle these situations, as well as contingencies that could arise in the process. Crises often strike unexpectedly and without mercy. It is much better to plan and prepare when conditions are not so stressful and pressurized and are much more stable—in other words, when time is on your side.

The military trains and performs exercises over and over. The goal is to be prepared ahead of time for

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any number of contingencies that may arise. In Marine combat training, for example, Marines become fully proficient in operation, disassembly, and reassembly of multiple weapons, to the point where it's second nature. This cross-training on multiple weapons not only produces a high level of proficiency in each Marine, thereby maximizing overall tactical efficiency, but minimizes time and effort needed to address malfunctions that can occur during critical operations—where there will likely be a high level of stress and confusion. Learning how to operate a weapon or address an associated malfunction under enemy fire is the *wrong* time to learn. The very same principles apply to crisis management in our industry.

Imagine one of your climbers has a medical emergency while roped in at 60 feet up in a deodar *(Cedrus deodara)*. With little to no warning, they become incapacitated. What do you do? Better yet, does the rest of your on-site climb crew know what to do? Are they trained for emergency aerial rescue or first aid? Is there a preestablished crisis communication plan? Have they trained for this type of event so they avoid compounding the crisis by becoming a casualty? The answers to these questions could mean the difference between life and death. Planning here will not eliminate unknowns and variables altogether, but it is a good start to minimizing them so that when such a crisis strikes, there will be less guesswork involved in how to respond.

Your first line of defense is to plan, prepare, and get ready *before* crises reach your shores. The next time someone reminds you to hope for the best and expect the worst,

remind them (as my colleague, Wright Tree Service Safety Manager Wes Tregilgas, did some years ago), that hope is not a plan. Hope will not prepare you for a crisis. But effective, constructive planning will.

CRISIS RESPONSE: IN THE MIDDLE OF THE STORM

Once you find yourself in the midst of a crisis, the first thing to remember is focus. Focus on the crisis at hand and leave behind questions about how it happened or what could have been done better. There will be time for honest introspection once the smoke clears. Now is the time for decisive action, predicated on good decision-making.

On that note, avoid decision-making characterized as paralysis by analysis, which is really a failure to make any decision at all. Overthinking will be of no advantage. Likewise, avoid snap decisions that can result from a panicked mind. Take time to use your reason. Evaluate what you do know in light of unknowns and variables and make the best decision possible. Immediately assemble your crisis management team or be ready when called to assemble as a fellow member of the team.

Review and execute your crisis management plan. Remember the following:

1. Gather all available intel and base your decisions on the facts as they stand. Keep speculation to a minimum.
2. Act quickly but not rashly. If you can critically look ahead, spot the warning signs, and act quickly enough, you may be able to divert the crisis altogether—or at least blunt the impact.
3. Get ahead of the spin and control your messaging. Manage the crisis—do not let it manage you. Be proactive to avoid an unnecessarily protracted crisis.
4. Do not compound the crisis by avoidance or dishonesty. Both may be tempting in the heat of the moment, but they are poor long-term solutions. Both involve subterfuge; the first is a lie to oneself (denying the gravity of the situation or crisis) and the second is a lie to others (covering over the crisis to save face).
5. Be flexible and ready to think outside the box. Crises are often fluid situations characterized by uncertainty. Your crisis management team should be both flexible and resilient. Both are worth their weight in gold, especially in an extended crisis that requires endurance.

CRISIS ANALYSIS: LESSONS LEARNED

Once the crisis passes, it is imperative to reassemble your team and evaluate final outcomes. Open and honest introspection is a must. Many questions will need answering: what are the fundamental take-aways? Could better foresight or management have helped to avert the crisis? Was the crisis management plan sufficient to the task and executed well? How exactly did the crisis occur and who, if anyone, needs to be held accountable? This applies to the good as well as the bad. Those who performed exceptionally well in crisis management should be recognized and praised for their efforts. Likewise, those who were involved in

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"[The crew leaders] had access to data that they've never had before and no longer needed the big stacks of map books. They saw that someone can update information in the system, and they would receive that information automatically within seconds. They were surprised how fast and easy data flowed within the software," said Regional Forester Dan Siewert, WEC Energy Group.

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wrongdoing that contributed negatively to the crisis need to be held accountable. The future of your organization may depend on it.

Finally, inventory the crisis-induced damage and begin rebuilding. The damage may not be tangible in many cases. No one can see your damaged reputation, but it may still be a very real problem that needs redress. If the crisis was overwhelmingly stressful, those who were directly or even indirectly involved may be under psychological trauma yet to manifest.

Everyone copes with stress and trauma differently, so knowing your people and proactively engaging them may be critical in helping them cope or by getting them the help they need to process their experiences from a trained mental health professional. An employee or coworker struggling with crisis-induced stress or trauma will likely not be able to focus and think clearly. Anxiety, panic attacks, and a host of other symptoms can interfere with everyday tasks. If you notice substandard work or other irregularities from an otherwise upstanding employee, say something. You may avoid another crisis by doing so.

Once you find yourself in the midst of a crisis, the first thing to remember is **FOCUS.**

CONCLUDING THOUGHTS

In the movie, *The Edge*, Sir Anthony Hopkins' character said, "We're all put to the test, but it never comes in the form or at the point we would prefer, does it?" (Tamahoru 1997). You may not be able to stop your next crisis, but you can make ready and learn from the aftermath or, better yet, learn from crises others have gone through. Take a moment and examine similar scenarios that others have faced and learn from them.

Finally, remember that crises can actually have a positive outcome. Personal and professional growth, heroism, and new opportunities previously hidden may present themselves if you can steel yourself for a moment enough to recognize the possibility of such opportunities.

About the Author: *Todd Walker supports operations in Northern California, working with utility management and our project managers to ensure quality work. He has over a decade of experience in arboriculture, including operating his own private tree company before being hired on with CNUC in 2015. He is a Board-Certified Master Arborist, ISA Certified Utility Specialist, and has an ISA Tree Risk Assessment Qualification.* ■

RICHARD HENDLER: Laying the Foundation for the Future of IVM

Rich Hendler, ACRT's Integrated Vegetation Management (IVM) Specialist, has more than 40 years of experience in the industry. Hendler has extensive rights-of-way (ROW) knowledge and IVM expertise, along with his deep industry involvement and leadership. He continues to bring new opportunities and successes to utilities throughout the country.

When the vegetation management (VM) industry blossomed during the late '70s, Hendler—from Texas—landed in Philadelphia and recalls his counterparts being interested in seeing the "little Texan who showed up and wore cowboy boots."

After spending nearly eight years in Philadelphia, Hendler returned to his home state of Texas. Hendler recognized the need for training, so he teamed up with the Texas Department of Agriculture to form the Texas Vegetation Management Association—an organization in which he would serve as the inaugural president and later receive its Lifetime Achievement Award.

"Teamwork and maximizing contributions to pursue a common goal usually means better success and better wins," said Hendler. "That's where good examples of leadership and people in our industry are taking us, have taken us, and will continue to take us."

Throughout the years, Hendler has also served as the UAA Past President, as well as Past President of the Oklahoma and Louisiana Vegetation Management Associations.

As Hendler continues to work towards the betterment of our industry, he never shies away from an opportunity to share his expertise. You have probably seen him deliver a presentation, read one of his articles, or even served with him on *numerous* industry committees.

He was honored with the UAA President's Award in the summer of 2016. This award is presented by the outgoing president to recognize individuals who they felt had assisted them or the industry in extraordinary ways before, during, and after their term of office.

At ACRT, our success is rooted in our people. Rich Hendler has set an example for not only our organization, but industry wide.

Learn more at *acrt.com*. ■

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APS FIRE MITIGATION: THE 2020 BUSH FIRE

By Brian Kelley, Fire Mitigation Specialist, Arizona Public Service

Last year was a record-setting year for many reasons, and wildfires in western Arizona were no exception. With more than 2,500 fires burning approximately one million acres within Arizona, Arizona Public Service's (APS) Fire Mitigation Program found themselves needing to respond to an increasing number of wildfires near their utility infrastructure. APS has transmission and distribution lines spanning the entire state, creating a high exposure to wildfire risk. The APS Fire Mitigation Team monitors and responds to fires near the utility's corridors to provide for firefighter and public safety along with restoration efforts in alignment with APS's Comprehensive Fire Mitigation Plan (CFMP).

Along with the significant year for wildfires, all stakeholders—including APS—found themselves having to combat the ever-changing environment that the pandemic brought amongst the protocols put in place for public safety. What had previously been managed as a single crisis event (i.e., a wildfire) was now a dual crisis—combining wildfire *and* COVID-19 into one. One of the larger fires of 2020, the Bush Fire, is a prime example of how APS's CFMP guided their Fire Mitigation Team in responding to wildfire. The CFMP consists of three pillars: prevention, mitigation, and response.

Summer readiness meetings prepared APS for the challenges associated with both COVID-19 and an elevated wildfire season. The summer preparedness meetings consisted of a tabletop drill and developing roles and responsibilities across multiple business units. One of the key components was to allow personnel who don't normally work together to become accustomed with one another, as they may work side-by-side in an emergent situation.

INITIAL RESPONSE

The Bush Fire ignited on Saturday, June 13, 2020, and grew rapidly in dry fuels. In accordance with the APS CFMP, fire mitigation specialists began monitoring the incident and anticipating future impacts. Based on topography, fuels, and fire conditions, it was anticipated that this fire could become large and have an impact even with the far proximity from utility infrastructure. While the point of origin of the Bush Fire was more than 10 miles from the closest APS infrastructure, the APS Fire Mitigation Team mapped the fire on the APS Wildfire Awareness Dashboard—an internal GIS-based map identifying wildland fires in relation to utility infrastructure. The team tracked any wildfire within 10 miles of APS infrastructure, including transmission, distribution, and communications infrastructure. It also displays externally based data (e.g., active wildfires, satellite infrared wildfire detection, weather stations, and weather radar including lightning information) to build situational awareness amongst operations.

Firefighters moving to begin a back burn along distribution powerlines during the Bush fire.

The APS Fire Mitigation Team consists of forestry staff who have a background in wildland fire management, and their role specifically focuses on incident prevention, mitigation, and response. A major part of the Fire Mitigation Specialist (FMS) role is the identification and tracking of incidents in relation to utility infrastructure. This role is known as the Duty Officer, whose responsibilities include identifying emerging incidents, mapping them, and disseminating the information between the responding resources and the current duty officer. By the end of June 13, the Bush Fire had grown to more than 13,000 acres.

By the next day, June 14, the Bush Fire had grown an additional 23,000 acres, amounting to a total of 36,718 acres. At this point, with an incident management team en route to the site, the APS Fire Mitigation Team continued to remain remotely engaged. The Bush Fire incident management team examined the fire path and weighed options as to where they could potentially stop the head of the fire by lighting a fire of their own. The only place to safely box in the existing fire was determined to be State Route 188, which meant potential impacts to APS. With the progression of the fire and a large indirect fire suppression tactic, increased potential impact to critical infrastructure was evident. Infrastructure in the area included a 345 kV transmission powerline corridor, a distribution network supplying the communities of Jakes Corner and Punkin Center, as well as supplying a radio communications site on the top of Mount Ord. Another concern was a recently installed battery site in Tonto Basin, aimed at supplementing the load demand during peak periods in the basin.

June 15 brought an additional 27,000 acres of growth, bringing the total to

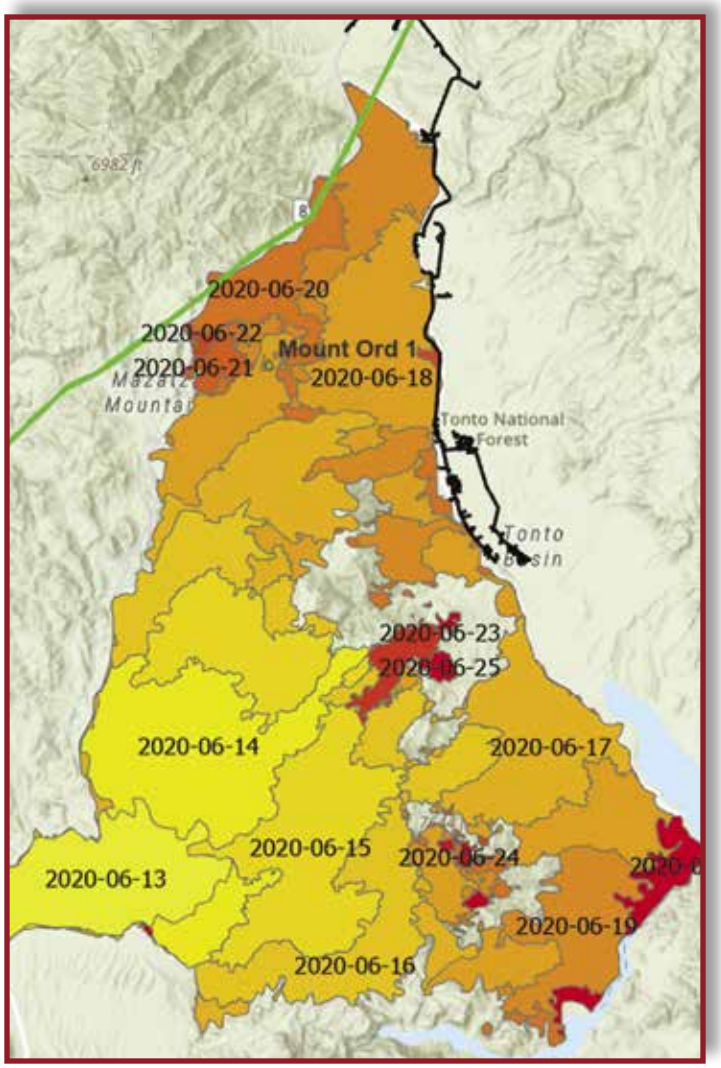
more than 63,000 acres. At this point, APS FMS assumed the role of Fire Liaison and arrived at the Incident Command Post to continue coordinating with the liaison and incident management team, as well as assess the infrastructure and assets. With COVID-19 precautions, in-person briefings were instead transpired over radios. The APS and fire response agencies fostered a smooth transition without the loss of collaboration.

Within APS, Incident Command briefings were held virtually twice a day with operations, public outreach, forestry, and other stakeholders to ensure alignment. Incident Command is structured similarly to NIMS (National Incident Management System), in which plans were developed to ensure 24-hour on-site support to fire resources along with the potential for de-energization.

PREVENTION AND MITIGATION

Through collaboration, critical values at risk were identified, including the distribution feeder and the communications site. Firefighting resources were then tasked with creating defensible space around the distribution utility poles and around the communications site. Part of APS's fire mitigation strategy is to conduct vegetation clearing around utility poles housing equipment, so many of the poles in the wildland urban interface had already been treated with a 10-foot radius around the bases of each pole. An application of herbicide was applied to extend the life of the treatment. This proactive strategy, labeled DSAP (Defensible Space Around Poles), has played a critical role in protecting infrastructure during wildland fire events and preventing ignition of wildfires from utility equipment. The APS DSAP program conducts vegetation management (VM) and mitigates more than 20,000 utility poles annually across the wildland urban interface.

Historically, APS corridors have proven to be useful fire breaks to help in suppression. This is in result of APS's right-of-way (ROW) management approach utilizing integrated vegetation management (IVM), a combination of manual, mechanical, and chemical treatments. Since 2000, there have been more than 50 large fires in which APS's ROW have provided for some level of suppression of wildfires.



Fire progression map of the Bush Fire with transmission infrastructure, distribution infrastructure, and communications site withing the fire footprint.

EXTENDED RESPONSE

By June 17 and 18, firefighting resources had begun a critical backburn to secure the road system as a fire break, securing the communities of Punkin Center and Tonto Basin. At this point, APS Incident Command was well engaged due to the variety of values at risk and their criticality during peak load in the Sonoran Desert during summer. An APS fire mitigation liaison was in close communication with the operations department and was able to coordinate the outage of distribution lines to limit the impact to customers while maintaining firefighter safety. This proactive de-energization was to provide for firefighter safety while working around the infrastructure in the wildland urban interface. This event occurred at precisely the right time when fire operations began backburning, yet not too early to have a significant impact to customers and the communications services. This outage also affected the communications site atop Mount Ord, which was stressed as critical to be returned to service.

What had previously been managed as a single crisis event (i.e., a wildfire) was now a dual crisis—combining wildfire and COVID-19 into one.

Grid hardening and improved sectionalizing of distribution lines allowed APS to limit the impact to customers by limiting the size of the outage. Grid hardening is a critical component of the APS CFMP and is a resiliency strategy for maintaining service during incidents.

As the burnout progressed, it was evident that there would also be firing operations along the transmission corridor. It was determined that late in the evening, with load demand slightly lessened, an outage could be taken on the transmission line to allow for a firefighter to conduct a burn through the ROW—a critical piece of the perimeter. The use of the incident

Vegetation clearing around poles prior to ignition of backburn. Clearing was completed in accordance with defensible space around poles (DSAP) treatment in which vegetation is removed within a 10-foot radius of the pole.

command structure within APS and the onsite liaison created for a smooth and clear line of communication between the operations department and the FMS to seamlessly conduct the outages.

Early on June 19, a troubleman in close communication with the APS fire liaison was authorized to patrol the distribution and transmission infrastructure. Soon after, both lines were reenergized with some damage to the distribution poles. While several poles required replacement later, the infrastructure was sound enough to restore service to residents in the community, including the communications site. Restoration occurred rather quickly due to the early stand-up of Incident Command and the preplanning that took place.

Continued engagement with the incident management team was necessary as further operations occurred along the transmission corridor, as well as post-fire rehabilitation. Removal of fire-weakened trees along the ROW, in alignment with APS's Hazard Tree Program, was a priority during this restoration phase. It targeted areas statewide that have experienced insect or disease outbreak associated with droughts and potential tree mortality associated with fire. The Bush Fire burned for more than three weeks before it was fully contained, and it consumed more than 193,000 acres—becoming one of Arizona's top five largest fires.

SUMMARY

The relationships developed through collaboration with the incident management team proved beneficial for the remainder of the summer as the Arizona desert continued to experience above-normal fire conditions and continuing COVID-19 protocols. The APS Fire Incident Management Team tracked more than 900 fires in relation to utility infrastructure during 2020. ■

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MOVING TOWARDS CRISIS PREPAREDNESS

By Chris Kelly, CEO, Clearion

To quote a famous proverb: "The best time to plant a tree was 20 years ago. The second best time is now."

This adage holds true for crisis preparedness. The best time to plan is now so let's think ahead to our next crisis.

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ESTIMATE THE LIKELIHOOD OF OCCURRENCE VERSUS THE SEVERITY OF IMPACT TO DETERMINE WHERE TO PRIORITIZE RESOURCES.

Due to the coronavirus, every company worldwide has gained real-world experience with a crisis. We all know firsthand how we fared in crisis-response mode, from coordinating messaging to preparing for emergent risks. Chances are good that we've now had an opportunity to step back and determine what we did effectively and where opportunities for improvement remain.

Yet, we all know that many more risks loom on the horizon, ranging from cyberattacks to wildfires. As we start to get back to our new normal, how do we collectively prepare for future crises without overwhelming our teams? As another saying goes, "The only way to eat an elephant is one bite at a time."

It may be helpful for us to start by listing all of the significant threats to our operations that could have negative consequences if not handled properly. Examples may range from compliance failures (e.g., what happens if there's a grow-in on a regulated line?) to technical failure (e.g., what situations could cause a disruption to a critical information system?). As we outline each threat, we should estimate the likelihood of occurrence versus the severity of impact to determine where to prioritize our resources.

Through this exercise, a pattern will begin to emerge. We will note that some crises are inevitable and we must plan our response (e.g., storm season), whereas other crises are preventable and we must protect ourselves and minimize exposure (e.g., spraying protected habitats).

By asking "what if" questions across myriad scenarios, we will gain clarity on where to focus our efforts and what types of teams to establish in order to address the risks. For example, at Clearion, we ask ourselves and our customers the following "what if" risk scenarios:

- Hackers seek to disrupt grid operations. Are our systems secure? Where could a gap or breach occur?
- A major storm hits a customer's geographic footprint unexpectedly. How do we rapidly onboard new users? Can we quickly provide password-protected access to thousands of independent devices?
- Our customer has high-turnover contractors. Can we isolate their work management software to cloud servers and keep them segregated from critical management systems and secure corporate networks?
- There's a prolonged outage event. Are our customers' software systems prepared to run when networks are degraded for days or weeks?
- External regulators need documentation on a customer's tree trimming practices. Are our maps and data easy to access and up to date?
- The pandemic worsens or another hits. Have our customers' processes been adequately digitized? Can they communicate electronically? Have we eliminated all in-person touchpoints? Are all team members trained and fluent?
- Public perception turns negative due to viral videos and social media. Can we help protect our customers' reputations?

There are many reasons to expand our notion of a crisis within our industry. From human error to natural disasters, when we ask the right questions, we can design and implement the right processes and systems to shine in a crisis. Let's work together and be prepared.

About the Author: *Chris Kelly co-founded Clearion with Mano Sadeh in 2007; however, he had been working in utility field operations, geospatial technology, and solutions development since 1995. His roles have spanned from crew leader to business leader and include account management, sales, marketing, strategic partnerships, implementation, and product strategy. He has a bachelor's and a master's degree in International Affairs from Georgia Institute of Technology.*

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