

Utility Arborist Newslines

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President's Message

By Eric Brown

The State of the UVM Industry

Are we ready to meet the constantly arising expectations and potential new T&D regulatory requirements?

On August 14, 2003, the U.S. and Canada experienced the single largest tree-related blackout in our industry's history. The blackout received front-page media coverage, billions of dollars in lost productivity, accidents, fatalities, and more than 50 million people left in the dark. In addition to the subsequent utility industry self-scrutiny of this event, that incident captured the focused attention of almost every industry manager and elected official who had any type of involvement or authority over utility company maintenance and operations. Simply put, everyone, from the U.S. president and the Prime Minister of Canada to all the Federal and State/Provincial energy regulatory bodies, wanted to take tangible steps to prevent this from happening again in the future.

It has been 16 years since the industry-changing event, and the utility vegetation

management (UVM) industry has made exceptional advances across North America. From the strictest (zero tolerance) regulatory requirements, to integrating cutting-edge technology, to exceptional continuous improvement in our industry's best management practices (BMPs), there have been many regulatory and industry enhancements to eliminate reoccurrence. Utility vegetation managers, industry experts, highly qualified and tremendously experienced contractors and consultants across North America have fundamentally transformed the UVM programs and all but eliminated UVM conflicts on our electric transmission systems.

Of course, the Northeast Blackout was principally related to transmission voltage, but distribution UVM operations have long been a focus in each utility program and have never been exempt from resulting requirements and/or increased customer expectations and regulatory scrutiny. I would argue that utilities have historically done a much better job than the National Electric Safety Code (NESC Rule 218) requires. As we all know, tree and powerline conflicts are not limited to transmission lines. In fact, vegetation has always represented the single greatest threat to electric service reliability on the majority of distribution systems in North America. This fact, coupled with the notoriety of the Northeast Blackout and the numerous recent (2018 and 2019) distribution-level events have led several states—namely California, Oregon, Arizona, Colorado, and Texas—to also take a hard look at distribution UVM operations within their own jurisdiction. In many

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The State of the UVM Industry *(Continued from page 1)*

regions, there are local regulations (state) and long-established internal utility targets/metrics developed to greatly drive improvements in public safety and electric reliability across the industry. We should fully expect that the bar will continue to rise higher. Some utilities in the west (e.g., California currently, January 2018-2019) are in fact required to adhere to new and stricter UVM requirements than they have seen in the past, along with a greater level of regulatory scrutiny. Certainly these new requirements and oversight will call for utilities to sharpen their focus and devote increased resources to the important task of keeping vegetation from conflicting with both transmission and distribution (T&D) voltage energized lines.

While the concept sounds relatively straightforward (keep the trees from conflicting with all T&D lines), utility vegetation managers and the greater industry face ongoing challenges that continue to be exacerbated with the current booming economy and evolving workforce interests. The UVM industry is challenged with resource constraints, some but not limited to qualified/experienced tree workers, qualified/experienced inspection consultants, and specialized industry experts that hold advanced licenses such as Qualified Applicators

Licenses (QAL), Registered Professional Foresters (RPFs), not to mention the age-old UVM budget challenges that nearly all programs face. Even if you have developed successful business cases that have navigated the exceptionally challenging executive and senior leaders of your organization, the “human body/personnel” constraint is still prevalent and ever increasing across North America.

What can we expect going forward?

A Vision of Tomorrow

Across North America in our industry, we will continue to face resource challenges and likely—if not already present—the ability to **Attract**, **Train**, and **Retain** employees may far outweigh the traditional challenges of budget/financial constraints. While mergers and acquisitions, financial earnings, and regulatory pressures will continue within the industry, the use of forward-thinking, progressive strategies within UVM programs will ensure the long-term viability of the delivery system. Organizations must overcome fear of the unknown, learn to embrace change (namely technology advancements), and realize that being uncomfortable means that you are pushing your organization toward

higher performance. The top quartile UVM performers of tomorrow will have strategic sourcing, strong well-crafted (not overly complex) business processes and procedures, and program/project management firmly rooted within their organizations. They will realize the significant benefits that are derived from progressive strategy implementation. The journey is filled with challenges, doubt, and resistance. However, solutions-oriented UVM leadership will drive these transformations and define the path to success through detailed planning, targeted implementation, and an unwavering continuous improvement focus.

The vision for tomorrow is a fundamental paradigm shift from a limiting traditional perspective to a strategic and best practice progressive perspective. This will result in revolutionizing the UVM industry. Never be satisfied with the status quo performance levels. Recognize that the management of trees and vegetation revolves around a living system that is always growing and dynamic. As you begin your journey toward program improvement, remember that the UAA and dozens of colleagues are just a call or click away to supporting the next steps in your programs evolutionary journey.



Executive Director Comments

By Phil Charlton

The theme of this *Newsline* is “the State of the Industry.” I expect those of us that have been around for 30 or 40 years will find the articles that follow particularly interesting as we think about where we were just a few years ago.

It would be easy to go on about all the ways we have seen how we do utility vegetation management (UVM) change with time. Instead, I have chosen to mention just three of the items that I think distinguish the industry of today from that of yesterday and give us confidence in the industry of tomorrow. These three things (in no particular order) are more about our culture and values—*why* we do what we do.

First, let me mention the industry’s attitude toward safety. At the forefront of every conversation in our industry today is safety. Where a few years ago, I heard about the importance of safe practices everywhere I went, today I can see it. I cannot remember the last time I visited a company where the meeting did not start with a level-one conversation reminding everyone about safety. Safety is where our meetings start and where each crew’s day begins. A company and an industry that places safety first is a great place to work. Without a safety-first attitude, we may not be here to talk about the state of the industry tomorrow.

Similarly, our industry’s evolving attitude about the environment is undoubtedly improving everyone’s future.

Yesterday, the industry strived for low cost and minimal compliance. Today, most utilities are giving considerable attention to sustainability. More and more vegetation managers are making sure they understand the impacts their practices have on the environment and adapting their programs. Our members are increasingly anxious to move beyond mere compliance. How fortunate we are that doing so is consistent with the goals of lower cost and regulatory compliance! Without a commitment to environmental sustainability, our industry may not have a future we want to see.

My third observation about the state of the industry is that we are becoming a rather eclectic group. I cannot help but note that while the attitudes of the industry have been changing, so have the demographics. It wasn’t long ago that most in our industry had a forestry or other natural resource background. Today’s UAA membership includes foresters, environmental specialists, engineers, lawyers, accountants, and more, all actively engaged in UVM. And, of course, professional background is not the only way we have become more diverse. We have more women and more minorities than ever before. This broader range of backgrounds, beliefs, ideas, and experiences is great for the industry. It will help ensure that today’s state of the industry is not tomorrow’s state of industry. UVM is going to continue to evolve.

Today is just a starting point. It’s exciting to consider how far we have come and I am looking forward to seeing where the industry is going.



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Industry News



ACRT Services Announces Changes in Leadership Throughout Organization

The ACRT Services family of companies offer expert, independent consulting solutions to utilities and associated organizations throughout the U.S., including vegetation management (VM) consultation and training, customized safety courses, technology solutions, and utility metering services. An employee-owned organization that focuses on empowering employees, customers, and the communities they serve is proud to announce promotions throughout the entire family of companies, which consists of ACRT, ACRT Pacific, and Bermex.

Troy Ross has been named the new executive vice president of operations at ACRT Services. Ross began his career in 1999 as a contract utility forester (CUF) and was most recently president of ACRT. In his new role overseeing all ACRT Services companies, he will be responsible for maintaining a great working culture for employees and customers. As ACRT Services strives to become a larger and better organization, Ross looks to continue providing the organization with exceptional leadership and innovative thinking while creating new opportunities for talented individuals within the organization. Ross holds a Bachelor of Science degree from Union University in Organizational Leadership and is pursuing his Masters of Business Administration from Ashland University.

Creating a new department of ACRT Services as the executive vice president of revenue, John Wasmer will oversee the business development management group and the marketing and communications department. Wasmer began his career with ACRT in 2003 on the Nashville Electric Service contract as a CUF and most recently became the first president of the newly formed ACRT Pacific. He will focus on growth and diversification of revenue and strengthening communications throughout the organization. Wasmer attended West Virginia University where he obtained a Bachelor of Science degree in Forest Resources Management.

In addition to these promotions, three individuals who previously served as directors have moved up to become presidents of the three ACRT Services subsidiaries.

Kevin Puls, the newly named ACRT president, began his career as a CUF in 1997. Throughout the past 22 years, he has demonstrated his ability to be flexible

and adapt while growing within the company, priming him for this position. He attended Mount Union College where he earned a Bachelor of Science degree in Biology. In his new role, Puls looks forward to the opportunity to lead ACRT through the rapidly changing environment of the utility VM (UVM) industry.

With more than 20 years' experience working on the largest utility in California, Brian Joiner has been named the new president of ACRT Pacific. Joiner will head our California team as they focus on growth and excellent customer service. Joiner holds a Bachelor of Science degree in Parks and Natural Resource Management from California State University, Chico. Joiner is looking forward to providing ACRT Pacific customers with new lines of service and working to further the personal and professional development of his employees.

Kenny Murphy has been named the president of Bermex. Murphy came to our organization as a CUF back in 2005, after previously running a utility division in Texas. Murphy holds a Bachelor of Science degree from Stephen F. Austin State University in Forest Management. Assuming his new role, Murphy is excited to lead Bermex as they look to bring added innovation and technologies to their customers while continuing to grow the organizational footprint nationwide.

"The individuals promoted within our organization have demonstrated tremendous dedication and hard work during our growth over the years," said Mike Weidner, CEO of ACRT Services. "We are looking forward to seeing how they can impact our organization, as well as see what those who will take over their previous positions can do to propel us forward."



ACRT Services Has Named Keith Pancake and Jeremiah Danielson as New Safety Managers

ACRT Services is proud to announce that Keith Pancake and Jeremiah Danielson have been named safety managers.

Prior to joining ACRT, Pancake worked as a professional arborist for various companies, including his own. He was with ACRT from 2000-2002 and returned in December 2014. Pancake has served ACRT in a variety of roles, including as CUF and most recently operations manager. He also served on the Ready Force team—a group of specialized employees that support utilities and other organizations with disaster response, emergency projects, and more.

(Continued ►)



Keith Pancake

As the newly promoted safety manager, Pancake will be responsible for promoting and developing a world-class culture of safety across the ACRT Services enterprise. He will be the designated safety manager for ACRT and Bermex.

“The potential to save lives and drive changes to make our industry a safer one is something I’m passionate about,”

Pancake said. “ACRT Services has always been a safety-focused organization, and I look forward to continuing that tradition while adding new innovation and safety measures to further reduce incidents and protect our people, our clients, and the customers they serve.”

Pancake is an ISA-Certified Arborist and Utility Specialist, National Safety Council Defensive Driving

Instructor, New Hampshire Certified Arborist, Licensed Pesticide Applicator, New Hampshire Arborist Association member, and UAA member. He serves the New Hampshire Arborist Association as a board member and sits on the UAA Safety Committee. In 2018, Pancake was recognized by the UAA with their Silver Shield Award for his ongoing efforts to influence and promote a safety culture at every turn. Pancake holds a Bachelor of Science degree in Wildlife and Fisheries Science from Tennessee Technological University and a Bachelor of Arts degree in Geography from Keene State College.

“We’re excited to promote Keith to safety manager after having shown for years the drive for finding better solutions in our industry. We look forward to seeing how his passion for safety will have an impact on making our organization safer than ever,” said Troy Ross, executive vice president of operations at ACRT Services.

In addition to Pancake, Jeremiah Danielson has joined ACRT Pacific—a division of ACRT Services focusing exclusively on California utilities—as the new safety manager.

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Danielson brings 16 years of experience as a health and safety professional to ACRT Pacific. His experience in safety management has included work with the U.S. government, municipalities, and large corporations. Having served in the U.S. Navy for seven years, Danielson had the honor of serving as a casket bearer and cordon during former President Nixon's funeral and was designated to numerous assignments at the White House, Pentagon, Capitol Building, and Arlington National Cemetery, including ceremonies for President Clinton and visitors to the U.S.



Jeremiah Danielson

"Safety has always been a priority to me, and leadership is something I know I will bring to ACRT Pacific in this role," Danielson said. "With my long track record including high leverage work and situations in health and safety with the U.S. military, I am looking forward to this new challenge."

Danielson holds a Bachelor of Science degree in Occupational Safety and Health Technology from the University of Akron and a Master of Science in Environmental Policy and Management from American Military University.

"We are thrilled to add Jeremiah as safety manager for ACRT Pacific. His professional experience will be instrumental in furthering our safety efforts. We are glad to have him join our team and are excited for the contributions he will bring," said Brian Joiner, president of ACRT Pacific.



Sustainability, the Environment, and pollinators continue to be at the forefront of the public's mind.

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Public perception of the utility industry still tends to stray toward the image of billowing black clouds of smoke at the local power plant. The industry needs to continue to work together to show our commitment to continuous improvements, technological innovation, and sustainability.

To help move the industry forward in that direction while improving dialogue and sharing ideas among industry partners, FirstEnergy partnered with Corteva Agriscience earlier this year to host the inaugural ROW Sustainability Summit at State College, Pennsylvania. Highlights of the event included the Pennsylvania State Game Lands (SGL) 33 research and demonstration project field tour, information exchange among various stakeholder groups, and sustainability-related discussions. The other contributors to the project, Asplundh, PECO, and the Pennsylvania State University, shared the history and results of the longest continuous study of its kind.

Several other organizations – including gas and electric utility companies, universities, industry partners, EPRI, and the UAA— participated in the event to learn more about ongoing research and to hear from industry experts about advancements in integrated vegetation management (IVM) practices and inclusion of IVM to enhance companies' Environmental Sustainability Goals.

There was no better place to feature IVM advancements than SGL 33. The SGL 33 project measures the effects of herbicides and mechanical VM practices within an IVM program on plant diversity, wildlife habitat, and wildlife use within a transmission line right-of-way (ROW). The study shows that ROWs managed using IVM do not harm wildlife and insects and actually enhance the habitat that birds, plants, small mammals, reptiles and amphibians, deer, and pollinator species need. This information has become increasingly beneficial with the recent declines in pollinators.

There are plans with the partners to make this a recurring event.



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Editorial Committee Update

By Renee Bissett (Chair)

The Editorial Committee was started nearly 15 years ago, spearheaded by Nelsen Money. He had the vision to create a group whose sole mission was to curate the best editorials, proactively creating a surplus of content to be used for future issues. Some of you may be wondering how it was done previously. The executive director then, Derek Vannice, did a lot of “arm-twisting” and wrote a lot of the articles himself. Back then, the publication only came out quarterly. Once Money became involved, the diversity of authors, the amount of content, and the publications all increased to what we have come to count on today.

What Money was able to accomplish wasn't easy, though. I can remember being at one of my first Trees & Utilities conferences circa 2006-2007, watching him go booth to booth, attendee to attendee, asking for volunteers to join the committee. Most people didn't seem to be interested. But, if you know Money, you know he doesn't settle for “no” often. He eventually built his team of fearless contributors and this committee was born. We produce six issues annually, each with a theme and many columns.

We also craft an annual vegetation management (VM) supplement that takes all year to create and is a joint effort mailed to both UAA members and T&D World subscribers every summer. According to Vannice, “Nelsen built a great relationship with Rick Bush, previously the T&D World editor. He was very instrumental in getting the supplement launched in cooperation with T&D World.” It is one of our most popular and widely distributed issues each year.

The year 2020 promises to be a stellar one for content. Themes include the State of the Industry (this issue), Workforce Retention (March/April), Technology (May/June), Safety (July/August), Environmental Stewardship (September/October), and Utility VM (UVM) Research (November/December). Each issue covers topics trending in our industry.



Going forward, we are committed to greater diversity and inclusion within each issue. If you attended the Women in VM event at the Trees & Utilities conference in Cincinnati this past year, this might ring a bell. Josiane Bonneau guided the room in an exercise to identify examples of diversity showcased visually (namely photos) and authors within this publication, the *Newsline*. Sitting there as someone that has been on the editorial committee for more than a decade and more recently as chair, I sunk into my seat. I suspected, due to the dramatic presentation, that the results were not going to be favorable. What I didn't expect is that there was not one single representation of any minority race or woman.

Every single page had a picture of a Caucasian man, close-ups of technology resting in a man's hand, and illustrations of men. Every single advertisement showcased men. Later in the week, a few of us visited the UAA booth to look through other issues to see if the issue examined was just a fluke. It wasn't.

Since then, we've been focused on representing more images and articles indicative of our whole industry. Lewis Tree wasted no time with a shout-out to women in a recent advertisement. We need more of this and we can't do it alone. We need all of us to be mindful, contributing quality content from all areas of our industry. With a shortage of qualified workers nationwide, it is more important than ever to showcase diversity, providing a career path open to everyone. Will you help us? Send us your story ideas anytime. We look forward to continuing Money's vision to build a world-class publication for our expanding industry and we thank him for all his guidance throughout his time leading this team.



Thank you to each of our hard-working committee members. Without them, this publication would not be possible. Reach out to any member to submit story ideas or for additional information about the editorial committee.

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Nelsen Money, pictured center holding up his Lifetime Achievement award during the 2017 Trees and Utilities Conference, is surrounded by many of his supporters who he tasked throughout the years to help build up the editorial committee to what it is today.

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SPOTLIGHT on the Environment



Ohio DOT Transitions to IRVM Conservation Practices to Help Pollinator Populations

By Joel Hunt, Pollinator Habitat Program Administrator, ODOT

Vegetation plays an important role in the safety and aesthetics of Ohio's roadsides. The Ohio Department of Transportation (ODOT) manages vegetation along 19,000 miles of roadsides comprising approximately 260,000 acres. Vegetation management (VM) of this scale requires ODOT to employ a variety and combination of methods to achieve effective vegetation control.

Ohio is a geographically and ecologically diverse state. Two-thirds of the eastern and southern portions of Ohio exist in the Ohio River Valley. More than 300 miles of northern Ohio is bordered by the Lake Erie shoreline. Southeastern Ohio sits in the forested foothills of the Appalachian Mountains, and western Ohio—mostly agrarian—contains remnant prairies. Until recently, ODOT took a one-size-fits-all approach to VM, including four full-width mowbacks per year and herbicidal spraying beginning in early spring and lasting through mid-summer. Beginning in May 2018, ODOT began incorporating integrated roadside VM (IRVM) conservation practices on its roadsides in preparation for the department's enrollment into the Candidate Conservation Agreement with Assurances (CCAA) for the Monarch Butterfly.

The goal of IRVM is to encourage low-maintenance vegetation cover that, when established, prevents undesirable weeds and woody vegetation from dominating the roadside landscape. IRVM conservation activities focus on controlling the reproduction and spread of noxious weeds and incompatible vegetation while encouraging native, pollinator-friendly vegetation to thrive.





Ohio Department of Natural Resources, and Pheasants Forever established ODOT’s first high-value roadside pollinator habitat in western Ohio. The project was a success and ODOT began establishing additional pollinator habitats around the state through partnerships with conservation groups, other state and federal agencies, and volunteers. There was much skepticism to growing ODOT’s pollinator habitat program for fear that it would be a repeat of the department’s wildflower program of the 1990s. However, realizing the cost savings of converting idle land into low-maintenance and sustainable habitat, along with the awareness ODOT highway technicians could spend more time focusing on the integrity of the roadway instead of roadside VM, ODOT created its standalone Highway Beautification and Pollinator Habitat Program in 2017 to better manage the department’s habitat restoration efforts.



ODOT was one of the first departments of transportation in the nation to join the CCAA by both financially supporting its development and by serving on the CCAA Advisory Team. As part of the CCAA, ODOT has agreed to reduce mowing back from four times per year to once per year and to use targeted herbicide applications to control noxious and invasive weeds. This meant ODOT had to change its decades-old mowing and herbicide application practices. The change effort required a communications strategy focused on individual messages and communication tactics for executive leadership, front-line managers, highway technicians, contractors, the media, landowners, and the public. ODOT spent one year writing policy, delivering in-field IRVM trainings, providing weed identification classes, developing posters and other communication tools, talking with the media, speaking at public meetings, and retrofitting equipment to meet the needs of IRVM.

As the name “integrated” suggests, there is no single defined method suitable for this goal of VM. Therefore, a purposeful, thorough approach to VM using several control methods is implemented at various times of the year based on the season and target plant life cycle, followed by management and proper maintenance of desired vegetation.

As ODOT enters its third year of full-scale IRVM conservation practices and habitat restoration efforts, the department has realized a 500 percent return on investment, opened 80,000 acres of potential habitat, received favorable public relations from local, statewide, and national media outlets, and formed more than 80 new partnerships through its affiliation with the Ohio Pollinator Habitat Initiative.

IRVM conservation practices are widely accepted and have been adopted by departments of transportation (DOT) across the U.S. for nearly 20 years. The result of a successful IRVM conservation program produces these and other benefits: roadside enhancement, improved motorist safety and aesthetics, benefits for pollinators and other wildlife populations, and reduction to ODOT’s costs and workload.

ODOT has been actively establishing and restoring pollinator habitat on its roadsides since 2017, following the petition to list the Monarch butterfly as an endangered species under the Endangered Species Act. To date, ODOT has established 120 high-value pollinator habitats totaling more than 1,200 acres. With projects in 57 of Ohio’s 88 counties, ODOT plans to have at least one project in each county by 2022. In addition, ODOT has committed to establish 125 acres of new habitat each year going forward. While the agency’s workforce has embraced ODOT’s “Conservation Movement,” the road to success included challenges.

ODOT planted wildflowers across the state in the 1990s for the purpose of aesthetics. While the colorful blooms appealed to the public, ODOT underestimated the cost and time commitment required to maintain the plantings, so they quickly abandoned the program. In 2011, amid increasing concerns regarding the declines in pollinator populations and the negative impacts the declines have on the agricultural industry and Ohio’s economy, ODOT, the

January–February 2020



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Research Corner

The UAA Research Committee meets every six weeks to focus on keeping UAA members current with new and existing technology and informing the public of relevant research for our industry. Next issue, the *Newsline* will debut a new section to the issue: the Research Corner.

The Research Corner will make it easier for our readers to search and summarize industry articles and white papers. Some of these articles can be quite lengthy and may not necessarily apply to standards you need in the field. Occasionally, after you've read a long paper, you'll discover that it wasn't what you were looking for at all.

Our Research Committee aims to break these articles and white papers down and summarize them, provide keywords, present a conclusion, and give some next steps for moving forward. Items relevant to industry standards and best management practices (BMPs) will be highlighted with key concepts and new innovations clearly identified. An example of what you can expect in each issue is presented here. Where possible, we will provide the origin of each article and provide a link.

One of the goals of the Research Committee is to help UAA members grow technologically and keep our membership informed. Let us know how we're doing and what you think of our new feature!

RESEARCH STUDIES: TECHNICAL REVIEW

Issue One

Evaluation of Ash Tree Symptoms Associated with Emerald Ash Borer Infestation in Urban Forests

This technical summary is based on a peer-reviewed article published in *Arboriculture & Urban Forestry* 2015, 41(2): 103-109, Anand B. Persad and Patrick C. Tobin.

Keywords:

Agilus planipennis; Arboriculture; Ash; Branch Fracture; Early Detection; Emerald Ash Borer; Fraxinus; Invasive Species; Scaffold Crack; Urban Forestry.

Challenge:

Emerald Ash Borer (EAB) is a beetle native to Asia which was discovered in North America in 2002. Its negative effects are projected to cost the U.S. \$10 billion USD and EAB threatens to virtually eliminate ash trees from North American forests.

Main Objectives:

While management tactics range from 'no action' to 'aggressive management', a barrier to active management remains in that EAB can go undetected for years, often until the damage is already done. The objective of this study, therefore, was to see which factors were present in trees recently infested with EAB which could aid in earlier detection.

Process:

Each year from 2009 to 2012, researchers in Northern Ohio conducted a survey to determine symptoms associated with EAB. None of the 719 trees inspected over the four years had previously been treated for EAB. These were also categorized into three groupings by their assumed history of EAB infestations. Researchers noted the characteristics of the trees involved, and then statistical analysis was employed to determine which previously identified factors had a high probability of indicating EAB.

Conclusion:

Such factors as bark loss, scaffold cracks, branch fractures only within the upper one-third of the canopy, fractures near the union with the stem, and >30% canopy loss was significantly associated with trees positively identified with EAB.

Utilities Moving Forward:

Early detection measures can help urban foresters and municipal arborists treat trees successfully before the need for removal. Also, removing these trees can prove dangerous, especially given that EAB infested trees can have unexpected branch failures.



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Written by Jenna Paul, Technical Writer, Davey Resource Group, Inc. (DRG) with technical review by [insert]

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The California Utility Line Clearance Arborist Training Update

By Phil Charlton, Executive Director, UAA and Larry Abernathy, CEO, Abernathy VM Services, LLC

As reported in September, California utilities are challenged with finding qualified line clearance arborists to meet new fire mitigation plans to harden their systems against wildfires. In July of 2019, Pacific Gas & Electric (PG&E) reached out to the UAA seeking information about training and education programs that could attract, train, and retain an additional 3,000+ utility arborists as quickly as possible. With PG&E’s support, the UAA joined forces with Butte College in Chico, California to begin the develop of a state-wide training program, known as the “Utility Line Clearance Arborist Training.”



Steering Committee

In August, a steering committee was formed that included PG&E, Sacramento Municipal Utility District (SMUD), Mountain Enterprises, Wright Tree, ACRT, Butte College, IBEW1245, and UAA members Eric Brown, Phil Charlton, Craig Kelly, and Larry

Abernathy. The first meeting was held at Butte College on August 29 to share the background and vision for this new venture to identify the key stakeholders, to discuss the training pathway towards becoming a Qualified Line Clearance Arborist, and to share the college’s developing-a-curriculum (DACUM) process.



DACUM

On October 16, expert workers from Arborworks, Davey Tree, Mountain Enterprises, Mowbray’s Tree, and Wright Tree began the curriculum process by identifying job duties (a cluster of related tasks) and tasks (specific meaningful units of work).

SB-247 Wildland Fire Prevention: Vegetation Management

A new state law, “SB247,” was signed by Governor Newsom on October 2, 2019 and will become law on January 1, 2020. According to IBEW Local 1245, the law requires “a line clearance tree trimmer training and certification program” and “ensures that line clearance tree trimmers are paid fairly, with wages comparable to that of a first-step

apprentice lineman. Starting January 1, 2020, wages will increase more than \$10 per hour, amounting to raises upwards of 40 percent for most of our tree trimmer members.”

Stakeholder Update

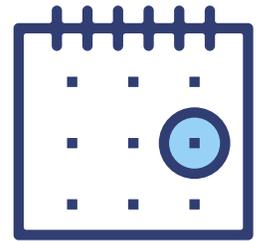
On October 30, a conference call was attended by nearly 50 stakeholders—including PG&E, SMUD, San Diego Gas & Electric (SDG&E), and Southern California Edison (SCE). This update meeting shared:

- The expanded key stakeholders
- An update on the curriculum DACUM workshop
- The course vision
- The number of utility arborists needed in California by county—*more than 3,000 are needed today!*
- The state-wide community colleges identified to participate in training
- The training curriculum development timeline
- Positive feedback from stakeholders about the direction and progress we have established. The consensus was, “This is long overdue.”



Next Steps

Stakeholder workshops on November 14 and December 6 will collect existing training content and map it to the DACUM. The workshops will also review existing training content, identify equipment and material needs, assess gaps and resources to bridge gaps, create design teams, and develop a design plan.



There is still a lot of work to be done, but it is anticipated that the first class will “go live” in the first quarter of 2020.

Professional Development Program Update

In the last year or two, there have been many opportunities to learn about the utility vegetation management (UVM) Professional Development Program (PDP). It is a two-year program with six college-level courses delivered on-line. It is designed for entrants into the management ranks, providing them the opportunity to learn in two years what it would likely take five or six years to learn through on-the-job training.



PDP Moves to the University of Wisconsin, Stevens Point

Development of the program was initiated by the UVMA in Alberta with UAA support. It has been offered through the

Southern Alberta Institute of Technology (SAIT) for four years. The students and employers that have already taken advantage of the program have nothing but great things to say.

The program is currently migrating (by UAA and UVMA) from SAIT to the University of Wisconsin, Stevens Point (UWSP). Upon completion of each of the six courses, UWSP will provide certificates of completion. Those completing all courses may apply for the industry’s professional certification. Whether entering the industry as a tree worker or from a university, those completing the courses will gain a comprehensive understanding of utility vegetation program management. The industry’s professional credential should provide experienced tree workers, even though they may not have a degree, a pathway into management, which has not been previously available to most.

Industry Leadership

The PDP is being led by a Board of Governors, which consists of UAA and UVMA members. The current board includes Sara Sankowich (Chair), Randy Miller, Steve Kerr, Ed Anderson, Eric Brown, Jesus



Vetencourt, Justin Kephart, Larry Abernathy, Terry Malmas, and Jim Barry.

Next Steps

UAA has contracted with Cindy Winkler of Positive Choices Training and Development to lead the transitioning of the program from SAIT to the university. Winkler is also helping the board with the following:



- Creating one- and five-year strategic plans
- Finalizing policy and procedures for the Certified UAA Professional Credential
- Establishing a process for working with UWSP to maintain and update the curriculum
- Developing a plan for financial support of the program

This work will be completed by the end of 2019. It is expected that the first course will be offered by UWSP on or before April 1, 2020. Those having completed all six courses and having successfully applied for recognition will receive the Certified UAA Professional Credential before this summer’s Trees & Utilities conference.

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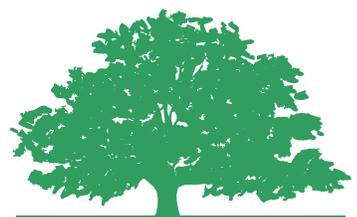
UTILITY ARBORIST RESEARCH FUND

The Utility Arborist Research Fund (UARF) was established in 2010 to finance work of importance and benefit to utility tree care professionals. With support from many partner companies and individual donors, the UARF is now providing at least \$50,000 per year in perpetuity for new grants. We are grateful to the utility community for your ongoing support of this important program. Visit treefund.org to learn more.

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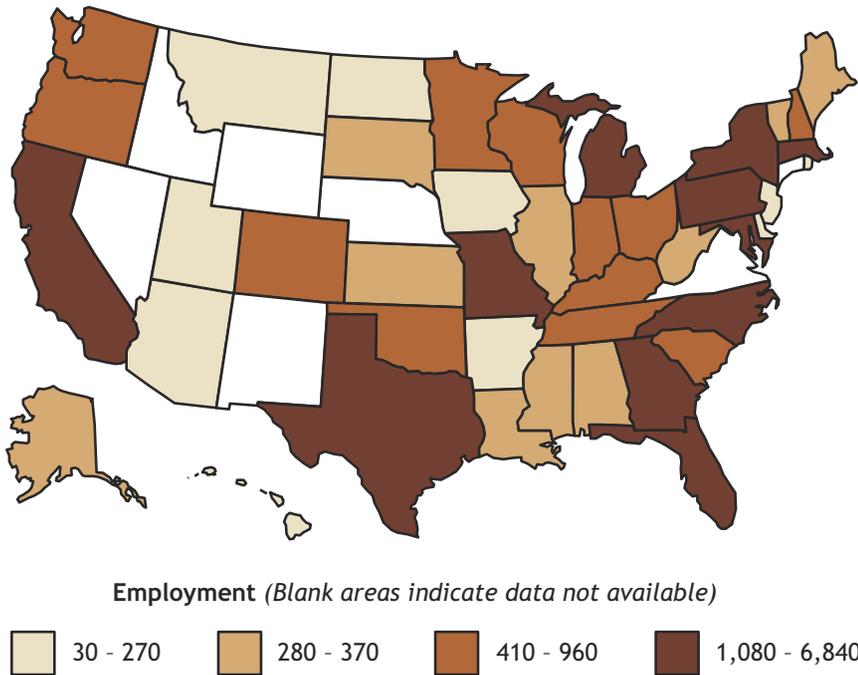


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Employment of Tree Trimmers and Pruners by State, May 2018



Labor Shortage Highest Among the Areas Most in Need



By Brian Joiner, President, ACRT Pacific

The need for more qualified utility arborists is a conversation our industry has been having for a long time. With increased nationwide occurrences of hurricanes, floods, wildfires, and other disasters, the demand is greater than ever. The U.S. National Oceanic and Atmospheric Administration (NOAA), which tracks U.S. weather and climate events that have great economic and so-

cial impacts, estimates these disasters added up to about \$91 billion dollars in damages in 2018 alone. Our need to keep rights-of way (ROW) clear and to protect utility facilities from falling vegetation today, in the midst of these emergencies, has added to the demand for available skilled labor.

The utility forestry profession is a small part of the arborist industry nationwide and requires special training to work around powerlines and to respond to emergencies. The industry’s recruiting efforts have not yet been enough to meet the need for more workers. In many cases, the utility industry is competing for the same applicants as the environmental, biological, and emerging safety sector and the construction industry. With this opportunity comes more businesses looking to cash in on the industry and poaching has become an issue within some markets. While we have been trying to keep up with the demand, the need only increases with each new fire in the west or hurricane in the south and east. This is why, when the UAA created a recruiting taskforce, nearly 90 people volunteered to pitch in to help tackle this problem. It is felt industry-wide, no matter what part of the business you’re in.

Coastal areas employ the largest percentage of our arborists. The U.S. Department of Labor designates coastal areas among the highest number of regions employing workers related to tree care. These states have also seen the

State	Employment	Employment per Thousand Jobs	Location Quotient	Hourly Mean Wage	Annual Mean Wage
California	6,840	0.40	1.37	\$23.08	\$48,010
Texas	3,150	0.26	0.89	\$15.69	\$32,630
Pennsylvania	3,030	0.52	1.77	\$17.08	\$35,530
Florida	2,810	0.33	1.11	\$14.50	\$30,150
New York	2,030	0.22	0.74	\$25.08	\$52,170

Source: U.S. Department of Labor, Bureau of Labor Statistics, <https://www.bls.gov/oes/current/oes373013.htm>

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Learning from Stories

"I'll never forget that day as long as I live. It was winter and fresh snow was heavy on the tree limbs as we began piecing down a 50-foot pine. We were wearing layers of clothing and could see our breath when we pulled our face masks down to talk."



At Lewis Tree Service, we are dedicating considerable time and resources to learning from our stories. We've started proactively seeking stories of close calls—in particular, those with serious injury potential (SIP). We're collecting these stories in our safety app, sharing them on our safety calls, and utilizing them in our weekly tactical tailgates. And we're finding that it's surprisingly easy to get our craftworkers to engage in storytelling when we ask questions like:

- What experience do you always share with a new teammate?
- Tell us about a time when you almost got hurt to the point where it scared you.
- Tell us about a time when you noticed something was "off" and you were able to prevent something bad from happening.
- Where do you believe our next accident will happen?

When designing our tactical tailgates for craftworkers around a particular story (e.g., struck-by, drop zone, friendly fire, working aloft), we're ensuring that we put the audience in the workers' shoes so they can fully imagine being in the same situation. We're building questions into the tailgates like, "What about this situation might make a problem more likely?" and "What do you think happened next?" After the event is revealed, we discuss what surprised us, what lessons we learned, and our own similar experiences.

We're taking control of our stories **to make risk real** in order to transform our safety culture.

"Everybody has a story to tell, we just need to provide an opportunity to tell it."

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biggest demand for tree work because of weather and fire-related emergencies. Trends show that young, middle-class workers are moving away from large coastal cities to more affordable inland cities in Texas, Arizona, Nevada, and Tennessee. This can only contribute to the shortage of labor in these hard-hit areas in need.

Millennials are moving inland. People often think growing environmental concerns along the coasts are the reason this age group is moving, but even though it factors into the trend, the main reason is the cost of living.

Millennials are moving to cities in the south and west with strong job markets, taxes as much as three times less, lower costs of living and housing costs, and that have trendy, youth-oriented amenities.

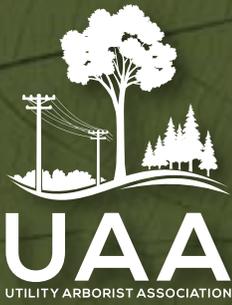
According to the U.S. Census, millennials are the generation most on the move. It is often a difficult decision for them because they may be leaving families who came to these areas of sun and opportunity just a few decades ago. Once they move though, they might not be coming back because by age 35, they are settled in a new community, have bought a home, and have children established in schools.

This migration of millennials—who are not pursuing tech jobs—is a real concern because our industry relies on young, strong workers who may not yet be earning the higher wages that will provide them a comfortable standard of living in areas with high housing costs.

Many improvements need to be made in order to keep and build a skilled workforce in the areas that need it most along our coasts. Many are not within our direct control. However, our industry can make a continued effort to recruit workers, provide training, keep safety as a top priority, and create a work culture where our employees can grow in their careers. It is meaningful and important work to help keep our communities safe and in power.

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FAC-003-4 Revisited

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

In the summer of 1996, western North America experienced dual power outages, and in August of 2003, eastern North America had its turn. These catastrophic outages occurred during region-wide heatwaves, generating unusually high electrical demand across broad areas of the country, as well as instability in transmission grids. The outages were disasters. Commerce ceased, grocery stores lost produce and frozen goods in the heat, industry ground to a halt, traffic snarled as traffic lights no longer functioned, hospitals and first responders were undermined, and domestic life was left dysfunctional. People lost their lives. Now, more than 16 and 23 years later, these blackouts that motivated development of the North American Electric Reliability Corporation's (NERC) Transmission Vegetation Management (VM) Standard (FAC-003) are fading into memory.

At the time, many transmission lines across entire regions were operating at or near their rating. The combination of heavy loads of electricity and high ambient temperatures caused some transmission lines to be knocked out of service when they sagged into trees. Their electrical loads were instantaneously transferred to other lines already operating at capacity, and the additional electricity put them out of service. Their current shifted to other strained lines, causing them to shut down in turn. Soon the control centers across regions were overwhelmed by

unmanageable runaway outages in a phenomenon known as cascading, leaving millions in the dark.

A confluence of factors contributed to the catastrophic outages. First is the nature of the electrical grid. Electricity is the only commodity that is produced, transported, delivered, and consumed in the same instant. Our electric system is an engineering marvel, containing coordinating control centers that work to overcome daunting logistical challenges. In specific regions of North America, many transmission lines are intertied, so the electricity that passes throughout one utility's system is shared with other utilities. The resulting interconnection provides efficiencies; electrical demand is rarely simultaneously high across broad geographic regions. Power delivery can be directed instantaneously to areas of greatest demand, optimizing generating capacity and avoiding the need to unnecessarily build expensive powerplants that are only used during periods of localized peak demand. Transmission lines that are part of each interconnect are those designated as part of the interconnection reliability operating limit (IROL) or the western interconnect as designated by the Western Electricity Coordinating Council (WECC). While the interconnectivity maximizes efficiency with existing resources, it potentially leaves the grid exposed to the type of cascading outages that occurred in 1996 and 2003 (Miller and Kempter 2008).

A second contributing factor to those outages was that the utility industry inadequately protected the bulk transmission system from vegetation during that period. Many rights-of-way (ROW) were overgrown and outages on bulk transmission lines were not uncommon. It was only a matter of time before catastrophic outages occurred, which they inevitably did in 1996 and 2003.

FAC-003-4 Development

The aftermath of the 2003 eastern blackout was a desperate time in utility VM (UVM). Three catastrophic outages initiated by trees in seven years exposed gaping deficiencies in UVM that had to be remedied quickly. Steve Cieslewicz and Bob Novembri, then of CN Utility Consulting (CNUC), were commissioned by the Federal Energy Regulatory Commission (FERC) to investigate the 2003 incident (Cieslewicz and Novembri 2004). Cieslewicz and Novembri determined that the utilities' VM programs whose lines triggered the northeastern blackout occurred were consistent with standard practice of the era, and that standard practice was clearly inadequate.

Out of that, and other investigations, came FAC-003. The first Transmission System VM Standard's Drafting Team was convened in 2004 and the initial version (FAC-003-1) became mandatory in July 2007. The standard was revised, and FAC-003-2 became enforceable in July 2014. It has since undergone two revisions. One revision's only change was to extend enforcement to generation owners who operated applicable transmission segments, and the current revision, FAC-003-4, adjusted calculated mandatory clearance limits to comport with flash distances determined by research conducted by the Electric Power Research Institute (EPRI). The mandatory clearance limit is referred to as the minimum vegetation clearance distance (MVCD), which is the maximum flash-over distance between trees and powerlines of various voltages as determined by EPRI. They are presented in FAC-003-4.

FAC-003-4 has seven requirements:

- Requirements 1 and 2 are intended to prevent vegetation encroachment inside the MVCD of lines that are part of an IROL or Major WECC Transfer Path and all others energized at 200 kiloVolt (kV) and above, respectively.
- Requirement 3 mandates documented maintenance specifications, strategies, procedures, and processes to prevent flash-over. The documentation must consider engineered sag and sway of the conductor, as well as the interdependence of vegetation growth rates, treatment methods, and the frequency of inspection.
- Requirement 4 directs transmission and generation owners to have an imminent threat procedure whereby the applicable control center is notified of vegetation conditions that could cause an outage at any moment.
- Requirement 5 compels transmission and generation owners to guarantee work that constrains, such as legal injunctions to not result in violations of the MVCD.
- Requirement 6 orders annual inspection of applicable lines.
- Requirement 7 ensures applicable transmission and generation owners complete the annual work plan needed to prevent violation of the MVCD.

These requirements fall into three categories:

- Performance-based: Requirements 1 and 2
- Competency-based: Requirement 3
- Risk-based: Requirements 4 through 7

Requirement 1 and 2 are worded almost exactly the same. The difference is in applicability. Requirement 1 applies to lines that are either an element of an IROL or of a Major WECC Transfer Path. Requirement 2 applies to those that are rated at 200 kV or more but are not part of an IROL or Major WECC Transfer Path. FAC-003-4 makes this distinction because cascading events are more likely due to outages affecting IROL or WECC transfer path lines than others. So, violations of Requirement 1 can be penalized more severely than those of Requirement 2.

Requirements 1 and 2 are violated if a tree is observed within the MVCD, a tree originating from inside the ROW breached the MVCD when it fell, vegetation caused a sustained outage due to movement of applicable lines, and vegetation originating from inside the ROW or resulted from an intrusion into the MVCD attributable to growth or sag. NERC defines a sustained outage as "the deenergized condition of a transmission line resulting from a fault or disturbance following an unsuccessful automatic reclosing sequence and/or unsuccessful manual reclosing procedure."

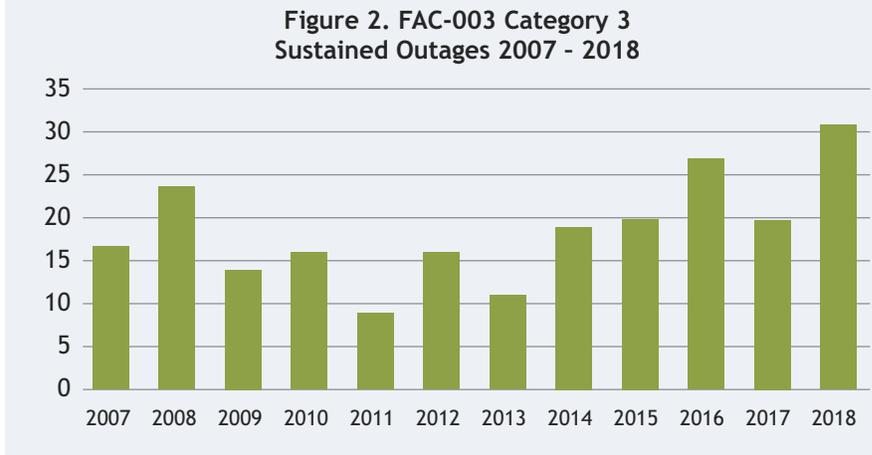
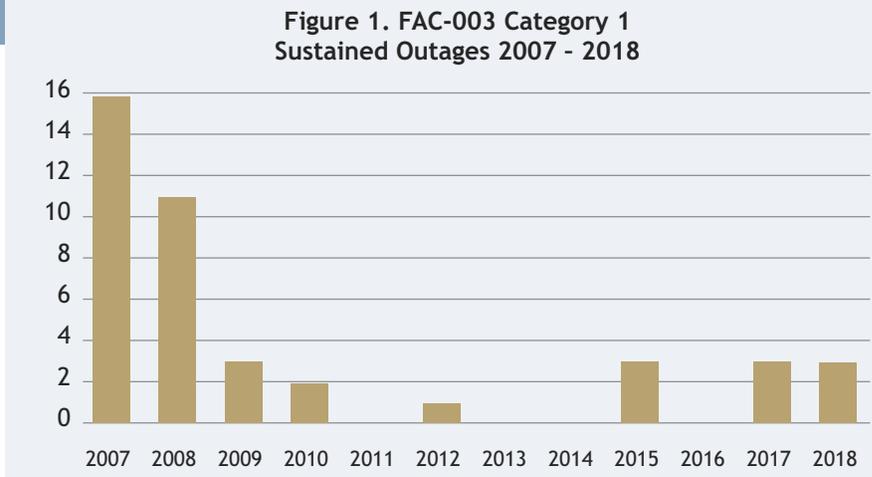
FAC-003 classifies sustained outages in four categories, with subclassification A for outages that occur on an IROL or Major WECC Transfer Path and B for lines 200 kV and above that are not.

- Category 1A - Sustained outages produced by vegetation growing into Requirement 1 lines or

- Requirement 1 lines sagging into vegetation.
- Category 1B - Sustained outages produced by vegetation growing into Requirement 2 lines or Requirement 2 lines sagging into vegetation.
- Category 2A - Sustained outages due to fall-ins from vegetation originating from inside the ROW on Requirement 1 lines.
- Category 2B - Sustained outages resulting from fall-ins from vegetation originating from inside the ROW on Requirement 2 lines
- Category 3 - Sustained outages produced by vegetation falling into applicable lines from vegetation originating from outside the ROW.
- Category 4A - Sustained outages due to lines and trees originating from inside the ROW blowing together.
- Category 4B - Sustained outages due to lines and trees originating from outside the ROW blowing together.

The North American blackouts of 1996 and 2003 occurred during the summer months due to Category 1 outages. They coincided with periods of unusually high demand from region-wide heat waves, and lines sagging into the transmission lines, which served as catalysts for cascading. Consequently, Category 1 outages are considered more serious than other types that are not dependent on heavy loads. Further, Category 1 outages are evidence of an inadequate VM program and probably indicate that there are violations of more than just Requirement 1 and Requirement 2. As a result, they carry greater violation severity due to their potential to cause a transmission grid failure.

The definition of a violation of Requirements 1 and 2 include either a “real time” observance of a breach of the MVCD or the existence of a sustained outage due to a grow-in or sag-in gives utilities some cover. For example, if routine inspections identify a tree with a brown top directly under an applicable line but outside



the MVCD, there is evidence that flash-over between the transmission line and tree might have occurred. However, if no otherwise unexplained sustained outage has been recorded at the site, it would not be a violation of Requirement 1 or 2 since the tree is outside the MVCD and no sustained outage has been identified. So, the situation is still in compliance with FAC-003-4, even though the tree may very well have breached the MVCD at some point. The utility would be wise to act to remove or prune the tree for greater clearance, but it would not be a violation of the standard.

Enforcement

FAC-003 violations are investigated by the Regional Entity in cooperation with NERC and FERC. Fines are determined with reference to the Violation Severity Level of the infraction, the quality of the mitigation plan offered by the transmission or generation owner, whether the utility has had an FAC-003 violation in the past, whether a violation was self-reported, and other factors. Category 1

outages are considered serious by Regional Entities and utilities can be fined as much as much as \$1 million per violation per day for FAC-003 violations (Miller 2011). However, fines have generally been leveled in the low six-figure dollar range. For example, in June 2019, a utility was fined \$120,000 for a violation of Requirement 2 (NERC 2019b). In addition to a six-figure fine, the offending utility’s reputation is compromised as their penalty is widely publicized.

How Successful has FAC-003 Been?

The FAC-003 series of transmission VM standards have been successful insofar as no vegetation-caused cascading outage has occurred since they were first adopted. However, outages and fines have been levied.

From 2007 when FAC-003 was first enforced through 2018, there have been 42 Category 1 sustained outages (Figure 1). In 2007, there were 16 outages, 11 in 2018, and three or fewer each year since. No outages were recorded in 2013, 2014, and 2016. In the past decade, the average



since 2007, often over considerable public resistance (Miller 2011). In some respects, the utility industry can be justifiably proud of achieving near perfection in managing Category 1 outages in recent years. On the other hand, it reflects negatively on the industry to have waited until it caused multiple blackouts and subjected to enforcement action to keep trees from growing into critical lines. In that context, NERC and FERC are reasonable to continue to strictly enforce FAC-003-4, since even one Category 1 outage a year potentially puts an intertie at risk. We as an industry should strive to ensure that the accomplishment of zero such outages from 2011, 2013, and 2014 are the norm and not the exception.

Summary

Sixteen years have passed since the August 14, 2003 catastrophic that disabled eastern North America. FAC-003 was developed as a result and it has been successful in preventing cascading outages since its inception. Category 1 outages pose the greatest risk of initiating a cascading event. Since the adoption of the first version of FAC-003, Category 1 outages have been reduced from 16 a year to an average of only 1.5 a year. Utility vegetation managers can be proud of that accomplishment, yet NERC and FERC have no choice but to continue to enforce FAC-003 with the goal of flawless compliance.

of Category 1 outages in North America is only 1.5 per year.

By contrast, there has been an average of more than 18 Category 3 outages a year since 2007 (Figure 2) (Novembri undated, NERC 2019). Category 3 outages peaked in 2018 when 31 were reported. However, 27 of these were associated with weather-related events and one was due to human error (NERC 2019). Many of off-ROW outages appear to be largely out of the control of vegetation managers.

Given that there are more than 190,000 miles of applicable transmis-

sion lines reticulating the continental U.S. along with many millions of trees that could possibly interfere with the facilities, an average of 18 Category 3 and 1.5 Category 1 outages a year over the past decade is a solid industry record. Even three Category 1 outages a year for 2017 and 2018 is a significant accomplishment, particularly when compared to the 16 that were documented in 2007.

The improvement in Category 1 outages came as a result of a considerable amount of work. Transmission and generation owners have aggressively removed trees from the ROW

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Sacramento Metro Fire completed early morning prescribed burning while favorable conditions (humidity, low winds, low heat, etc.) existed. This was prescribed burning along the Electric Transmission Corridors in the American River Parkway.

SMUD IVM Use of Non-Traditional Approaches to Safety, Electric Reliability, and Environmental Stewardship

By Eric Brown, UAA President and SMUD's Vegetation Program Manager

Integrated vegetation management (IVM) is generally defined as the practice of promoting desirable, stable, low-growing, early successional plant communities using appropriate, environmentally sound, and cost-effective control methods. These methods can include a combination of chemical, biological, cultural, mechanical, and/or manual treatments.

The IVM approach strives to manage vegetation and the environment by balancing the benefits of:

- Public safety
- Species control
- Environmental stewardship
- Regulatory compliance
- Cost

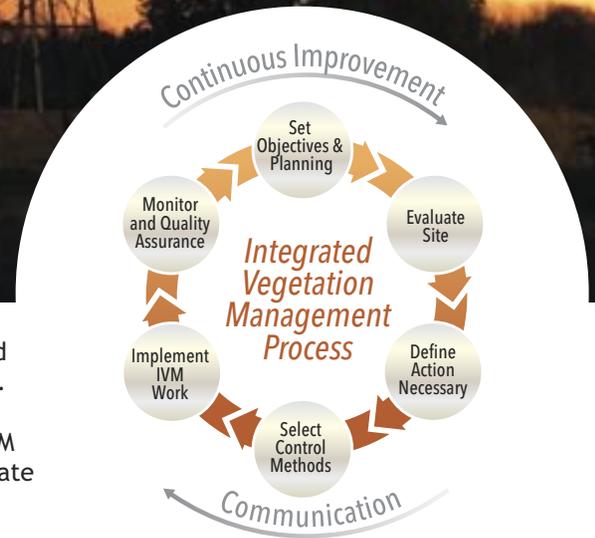
IVM strategies should be deployed integratively and site-specifically. By properly evaluating a site and choosing the most appropriate IVM strategy, IVM practices can generate numerous benefits:

- Lower VM costs
- Safer managed site(s)
- Effective long-term vegetation control and management
- Reduced environmental impacts
- Reduced public health risks/impacts
- IVM strategies can be applied wherever there is a need to manage vegetation. IVM programs are frequently used to manage vegetation along rights-of-way (ROW) to balance safe, reliable, and cost-effective VM while minimizing risks to public safety and wildland fires.

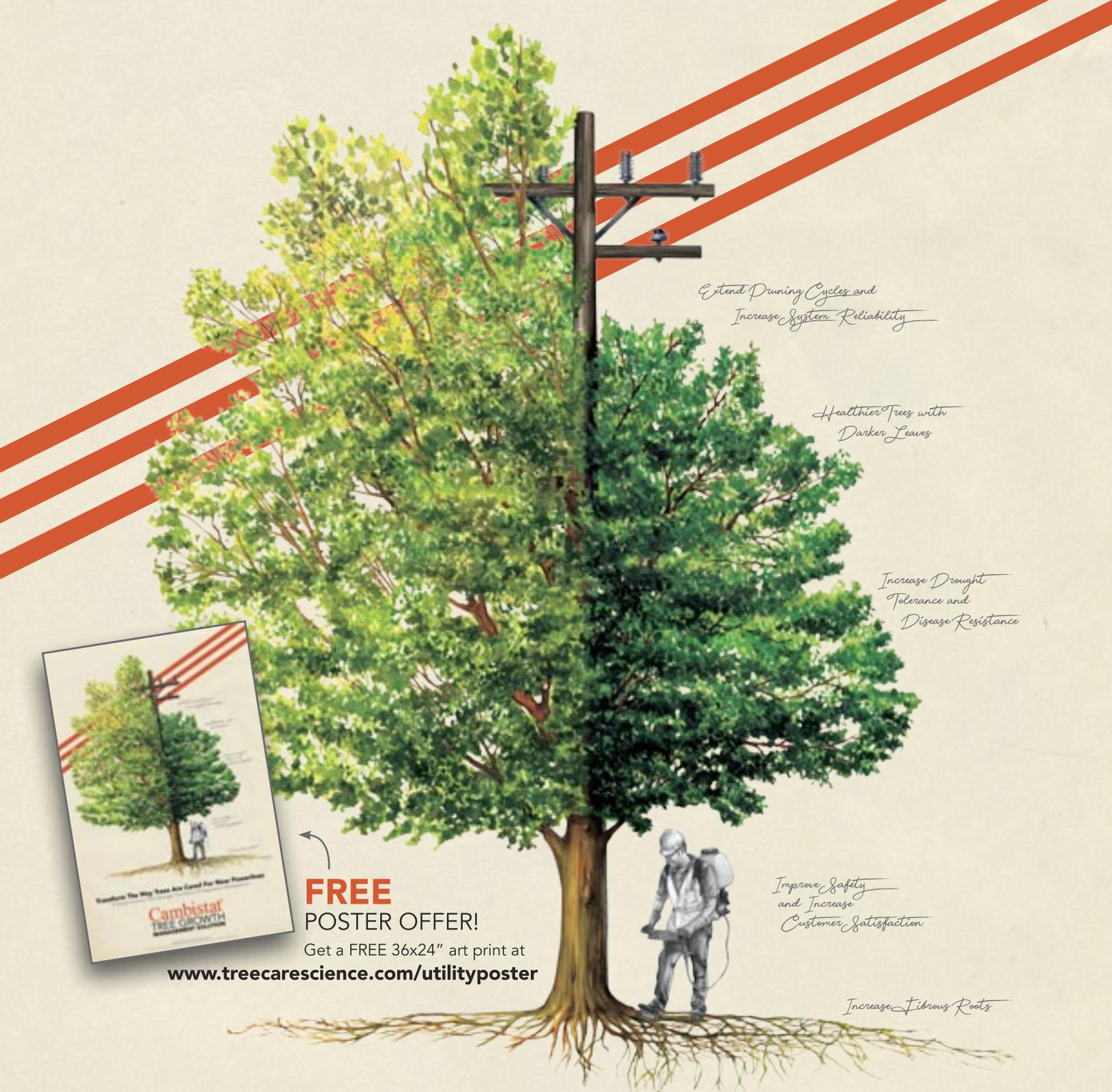
ROW examples include:

- Electric distribution & transmission (T&D) corridors
- Airports
- Oil and gas transmission pipelines
- Levees
- Dams
- Open spaces (Wildland Urban Interface areas)

In Sacramento California, the Sacramento Municipal Utility District (SMUD) has been collaborating with landowners and land managers, local



Sacramento Metro Fire completing Prescribed Burning along the Electric Transmission Corridors in the American River Parkway.



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agencies, and utility colleagues to deploy livestock grazing and prescribed burning as a truly “integrated” approach to VM. Since 2012, SMUD has partnered with the American River Parkway Foundation, Sacramento County Parks, and Sacramento Metro Fire Department to expand our IVM approach from our long history of manual, mechanical, and chemical uses to utility VM (UVM). While the traditional methods of IVM were beneficial/successful in an area affectionately known as the “Jewel of Sacramento,” we still had opportunities for continuous improvement in our management. While we used our traditional, mechanical, manual (hand crews), and chemical approaches to IVM, we continued to encounter many challenges with ongoing fuel loads (grasses and flammable noxious weeds) well outside the ROW that continued to cause non-utility ignitions (typically human caused) that were leading to unplanned interruptions of both NERC and NON-NERC transmission



facilities. These events (two or three wildland fires in this small geographic area) were wreaking havoc with key customers—in this case, it was (at the time) impacting the President Obama’s Twitter feed. As you can imagine, there was a swift and direct communication to address these interruptions quickly and thus far, these IVM techniques are still used in 2019 and have all but eliminated these wild-fire and subsequent interruptions.

New Bill Means Better Pay and Benefits for Line Clearance Tree Trimmers

By Darrell Daniels, VM Supervisor, SMUD

California has the second highest cost of living rate in the U.S. Price data is based on the 2018 Annual Average Cost of Living Index. In the utility industry, one of the lowest-paying high-voltage job classifications is the Line Clearance Tree Trimmer. We lose valuable tree workers to areas such as line or even alternative industries where the pay-risk ratio is more sustainable. A large portion of line workers at Sacramento Municipal Utility District (SMUD) were line clearance tree trimmers at one time. The pay difference can be more than \$25 an hour. Fortunately for the whole of VM, the bill “SB-247” was passed in October 2019.

SB-247 was introduced by William Dodd. It is essentially a wildfire mitigation bill that amends and adds to Public Utility Codes Section 8386.3 and Section 8386.6. The largest impact this will have is on California’s tree worker resource pool. The last clause of this bill states: “All qualified line clearance tree trimmers shall be paid no less than the prevailing wage rate for a first period apprentice electrical utility lineman as determined by the Director of Industrial Relations.”

This raises both wage and benefit packages for line clearance tree



ERIN CREEKUR, ARIZONA PUBLIC SERVICE

trimmers in California substantially. Initially, the projection is a minimum of a 30 percent increase in just pay rate, not including benefit increases. While the growth may come with growing pains, the benefits to the VM industry will far outweigh them. Benefits of this Senate bill are not only going to impact the utilities; it will provide a larger resource pool with employees and contractors with

better developed skillsets, less injury occurrences, as well as further professional recognition in the public.

This will also impact every tree worker in a very positive way. Jason Perez, a foreperson on a tree crew in the Sacramento Region who has been a line clearance tree trimmer for 23 years, was asked how this affected him.

“For the first time since I started doing this work in 1996, I feel we are being recognized fully and will be able to take care of my family without the weekly paycheck-to-paycheck stress.”

Keith Jackson, a Sacramento Municipal Utility District (SMUD) Vegetation Planner, was also asked his view on the increase.

“For line clearance tree trimmers, this has been a long time coming. This will create more qualified tree workers and a larger volume of certified arborists and utility specialists as the professionalism of the industry will grow with this recognition.”

Becoming a recognized professional trade, even in only a few states now, will greatly benefit the VM industry in workforce retention and development. While this bright new step towards a sustainable workforce seems rushed, it is long overdue.



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Community Partnership in Fire Mitigation Efforts

By Steve Vanderburg, Principle Meteorologist, SDG&E

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San Diego Gas & Electric (SDG&E) is addressing fire mitigation by considering the impact of their actions at the customer level. This strategy and dedication to the micro-level effects of fire prevention strategies such as public safety power shutoffs (PSPSs) is allowing the utility to maximize safety and minimize customer impact. SDG&E is a comparatively small utility, which allows for a greater degree of flexibility and innovation involved in every decision to enact a PSPS. Investments in advanced weather technologies, fire behavior modeling, artificial intelligence (AI), and a Vegetation Risk Index, combined with providing resources and education to the community, are building a strong foundation of wildfire resilience.

While regulations are continuing to manifest around the needs of communities and the need for improved safety, SDG&E has positioned itself at the forefront of the effort by proactively addressing concerns before they arise. This has been evident in two major areas: investing in their customers by designing advanced technological solutions and implementing creative strategies and community engagement.

One of the earliest instances where SDG&E initiated a PSPS, a pre-emptive shutting off of power to avoid sparking and potential fires, took place in 2013 as part of the solution to the growing concern of detrimental fires caused by utility infrastructure. Since then, SDG&E has been dedicated to developing cutting-edge processes for optimizing the use of PSPSs. Since 2007, SDG&E has invested more than \$1.5 billion in their Fire Risk Mitigation Initiative (FiRM), which serves to address potential fire risk through upgrading older overhead distribution equipment and implementing new advancements to improve PSPS use.

Recent improvements in Hellhole Canyon, a notoriously windy microclimate, illustrates how SDG&E is investing in their systems and thereby enhancing the quality of life of their customers. The Hellhole Canyon weather station routinely measured some of the strongest winds in SDG&E's service territory, and these severe wind conditions increase fire risk. The resulting PSPS to mitigate these threats would affect hundreds of customers in the Valley Center community. In response to this issue, implementing additional weather stations and installing a new SCADA switch enabled SDG&E to isolate the windiest portion of the circuit. The outcome was a decrease in customers affected by PSPS outages by approximately 95 percent.

Another impactful way SDG&E has increased and promoted positive customer service and wildfire resilience is via targeted community engagement. Beyond partnering with academia, government, and public safety professionals, SDG&E is listening to the community to derive solutions for public safety. At one town hall meeting, important needs of the community during necessary shutoffs, including water, food, information, and a place to charge devices were addressed. As a result of these engagements, community resource centers were implemented as temporary facilities to provide for some of these needs. Such implementations are now a common element during PSPS events, and similar solutions are now growing in the industry.

Dialogue with the community goes both ways, and as part of SDG&E's commitment to wildfire mitigation, events to promote awareness and education are used as an important part of the larger initiative. This year, numerous open houses and three Wildfire Mitigation Resiliency Fairs allowed people to learn more about fire risk mitigation from public safety partners and local fire agencies as well as what SDG&E is doing to make the community safe. Reaching out to people in these venues, as well as in one-on-one meetings, have created a positive ripple effect as the community discusses emergency plans, emergency kits, and how to make homes more resilient to the threat of wildfires.

An important element of SDG&E's fire mitigation efforts is found in their vegetation management (VM) program. Tree and powerline conflicts remain one of the industry's highest potential risks, one of the greater challenges being the proactive abatement of hazard trees. In addition to applying greater post-pruning clearances and increasing the frequency of inspections, SDG&E is using integrated data as a targeted approach to its operations. With a robust and detailed tree inventory database and with historical outage information, SDG&E is incorporating meteorology data to develop a Vegetation Risk Index within its service territory as a predictive tool to identify where trees and power lines should not coexist.

For the coming year, SDG&E's commitment to developing innovations will take the form of opening a Fire Science and Innovation Lab which will help generate continued advancements. However, as the landscape around fire mitigation changes, community input and engagement will continue to shape the industry and aid in lessening the risk posed by catastrophic wildfires, regardless of the cause.

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Protecting Critical Habitat Along Duke Energy's ROWs

Since 2017, The National Wild Turkey Federation's (NWTF) Energy for Wildlife program has been working closely with the Duke Energy Foundation to conserve or enhance thousands of acres of critical habitat across Florida, North and South Carolina, and Indiana.

The project is designed to benefit imperiled pollinators and birds as well as numerous other wildlife species. Conservation efforts are focused on establishing or enhancing habitat on public lands, such as state or national forests, and nearby areas where Duke Energy's transmission rights-of-way (ROW) intersect with large areas of forested habitat. The enhanced habitat conditions will provide cover and a sustainable food source while serving as a protective travel corridor for wildlife species that need it most.

Work in 2018 and 2019 has conserved or enhanced public lands on 31,796 acres in Florida, 813 acres in South Carolina, 24,385 acres in North Carolina, and 906 acres in Indiana. That's a combined total of 57,900 acres of habitat in the past two years!

"The NWTF has worked with Duke Energy to enhance habitat along numerous ROWs, but this partnership takes our efforts for wildlife and habitat improvement to an entirely new level," said Steve Barlow, director of energy partnerships for NWTF. "We are leveraging this funding and the dedication of our volunteers to directly benefit

some of the most significant habitats across Duke Energy's coverage areas."

Funding is also supporting education efforts for Duke Energy customers—landowners and regional stakeholders—about the benefits of adopting conservation practices on their own properties. In addition, Duke Energy is offering in-kind support for the project, including coordinating in-house vegetation management (VM) professionals to help with the location and implementation of the projects.

"We're taking action now to ensure that our kids and grandkids can enjoy the benefits of natural habitat and wildlife that we now enjoy," said Jeff Racey, director of transmission vegetation for Duke Energy. "Beyond this donation, we are rolling up our sleeves and working with NWTF to conserve the natural habitat that wildlife, and future generations, will depend on."

Conservation practices, which include integrated VM (IVM), timber management practices, and targeted herbicide treatments, aim to provide enhanced feeding and nesting environments for wildlife species.



Furthering Education: A New DRG Program Seeks to Develop Talent and Expertise

Davey Resource Group

Acquiring exemplary talent and retaining a workforce of qualified individuals has recently been in the spotlight as a critical issue to be solved in this industry. As millennials and other upcoming generations put more emphasis on fulfillment in their work beyond just a paycheck, paying attention to this growing need can pay off massively with further development, employee satisfaction, and ultimately greater retention. One area that has proven to provide increased personal fulfillment in the workplace is training, and the Davey Institute of Utility Sciences certification course in utility vegetation management (UVM) is a new initiative supplying a case study in the long-term impact of continued education.

Davey’s flagship training program, the Davey Institute of Tree Sciences (DITS) has been an annual tradition which began in 1909, with 1,620 graduates in the last 40 years. However, there became an increasing need for another, more accessible course that accommodates the needs of managers looking to excel in their utility careers. To answer this growing interest, the inaugural Davey Institute of Utility Sciences (DIUS) was launched in April of 2018. The curriculum was developed based on the surveys of 59 utility and system managers from 25 utilities representing 933 years of practice in the UVM. These utilities serve 142.7 million customers, managing 1,677,617 distribution miles and 452,104 transmission miles. This breadth of expertise has helped to develop a timely, dynamic way to engage teams.

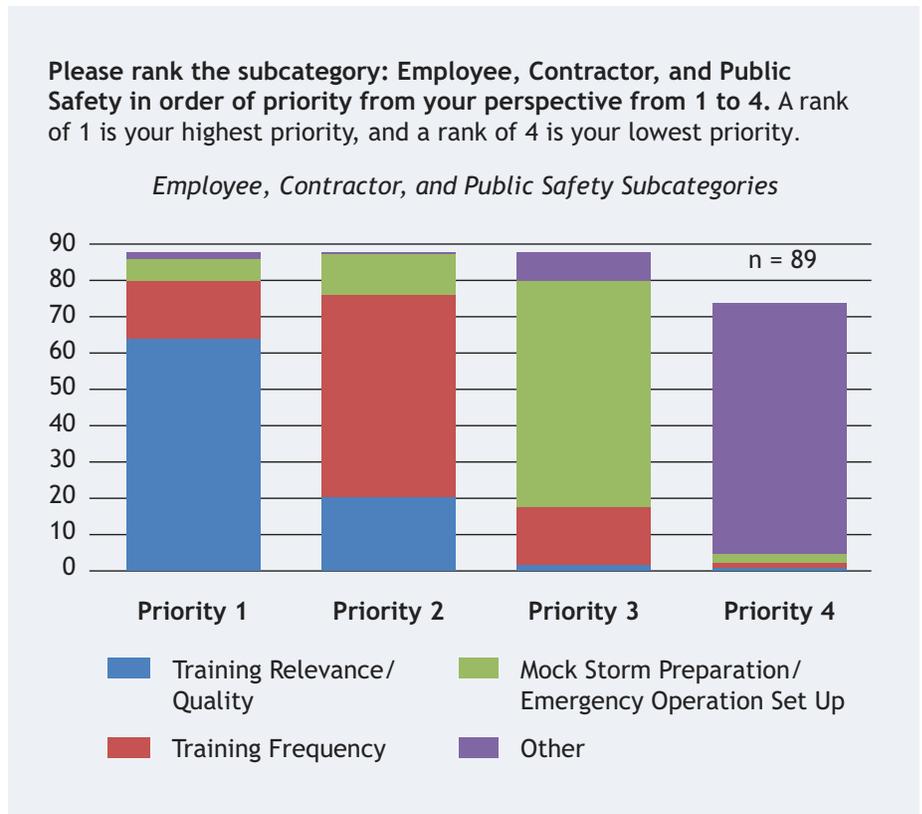
To participate in DIUS, candidates for the program must complete a prerequisite of four credit hours of material through online courses to attend the traditional and outdoor laboratory classes which are conducted at the

Institute. The certification then requires further online courses after those two weeks. This combined style allows for greater accessibility as participants only need to be present for two weeks in order to complete the course, and they still receive hands-on experience which enriches their learning and heightens engagement.

Utility managers communicate daily with the utility, its customers, and their staff, all of which can have competing goals and objectives. Due to this, it is vital that the communication skills of managers are honed for a variety of situations, especially since that aspect represents a large proportion of their position. The initial DIUS sessions incorporated a heavy focus on roleplaying in small groups to present different approaches to challenges

and correct for less effectual methodologies. This will remain a primary focus, but part of the intent with DIUS is to adapt to the changing needs of utilities by conducting polls and collecting other input from utility managers to best serve the current industry landscape.

Based on feedback and polling, the topics for the upcoming year will include technology in work planning, tree failure, and using social media. Every year, new subject matter experts are added to enhance the program, and past presenters tune up their material with the feedback received from the previous classes. This lecture feedback is essential for keeping the curriculum relevant and interesting as the industry grows and changes.



This graph shows the results from a UAA Research Committee survey indicating which areas were prioritized for training by managers of utilities.



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UAA Opinion Expressed in Letters to the EPA and USFS

In recent months, the UAA decided it needed to voice its opinion on a couple of matters of significance to our industry, and the UAA board wanted to share these opinions and comments with the membership. Please see the letters which are published on the follow-

ing pages. The board wishes to thank Lucas Beane, Geoff Kempter, and Mike Neal for leading the teams that developed the letters to the EPA and USFS respectively. Thanks also to the dozens of UAA members that helped by participating in the review process.

LETTER TO THE U.S. ENVIRONMENTAL PROTECTION AGENCY

October 15, 2019

Nancy Fitz
Minor Use Team Leader
Office of Pesticide Programs
U.S. Environmental Protection
Agency
(703) 305-7385
fitz.nancy@epa.gov

Dear Ms. Fitz,

The Utility Arborist Association (UAA) is an organization of more than 4,000 individuals with interest in and a commitment to the maintenance of trees and other vegetation for the purpose of ensuring the safe and reliable distribution of energy, including electric, oil, and gas, to business and residences. We are inquiring with your office to provide clarification on a FIFRA interpretation made at a state level regarding the use of custom blends and the potential impacts this will have on our industry.

The UAA has established Best Management Practices (BMPs) to be used in the utility vegetation management (UVM) industry to ensure that utility rights-of-ways (ROW) are managed in the most sustainable manner and with the safest practices. One such BMP, in which we collaborated with Steve Hopkins of the U.S. EPA, is the "Closed Chain of Custody for Herbicide Use in the UVM Industry" BMP. As part of this practice, we promote the use of custom blends to be used on utility ROWs to greatly reduce the risk of exposure

to both the environment and the applicator as well as ensure that the pesticide formulation is exact as to what is permitted.

Recently, the UAA was notified of a state-level interpretation that custom blends could not be used by VM contractors performing integrated VM (IVM) on utility ROWs. The interpretation deemed this activity in violation with FIFRA CFR 40 167.3, primarily due to requirement (2) which states, "the blend is to be used on the customer's property (including leased or rented property)." The interpretation by the state is that the utility itself is the customer, and therefore a UVM contractor working as an agent of the utility cannot meet this requirement.

A similar issue was raised in 2009 with applications on the New York Power Authority ROW and was clarified in 2010 with a letter from Richard Colbert, the Director of the Agriculture Division, U.S. EPA. At this time, Mr. Colbert clarified that a utility easement or ROW does meet the requirement of "customer's property (including leased or rented property)"; however, this clarification did not specifically enumerate that a VM contractor is allowed to act as an agent on behalf of the utility to perform the herbicide application within the ROW.

The UAA feels strongly that the use of custom blends in a closed chain of custody system is by far the safest procedure for the environment and

the applicator, and we believe the U.S. EPA is in agreement with this preferred procedure. Furthermore, the state which has interpreted this process to be in violation of FIFRA has yielded that they will maintain this position until directed otherwise by the U.S. EPA.

We ask that the U.S. EPA offer guidance for our organization and our industry in the interpretation and intent of the custom blend requirements in FIFRA CFR 40 167.3, as this will have profound impacts on the industry and how IVM programs are conducted on utility ROWs across the country.

Much of our membership is currently planning VM programs for the 2020 season and require clarification on this interpretation to effectively do so. We ask for your reply and clarification of this matter no later than December 31, 2019. Thank you for your time and consideration in this matter, and we welcome the opportunity to speak with you in more detail on this issue. Please feel free to reach us at the contact information provided below.

Respectfully,

Eric Brown,
 UAA President
 Utility Arborist Association
 2009 W. Broadway Ave.
 Suite 400, PMB 315
 Forest Lake, MN 55025
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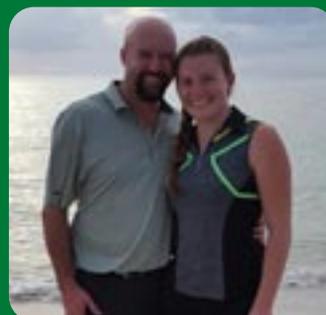
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UAA Opinion Expressed in Letters *(Continued)*

LETTER TO THE U.S.D.A. FOREST SERVICE

November 22, 2019

**USDA Forest Service
Lands and Realty Staff
201 14th Street SW, Mailstop 1124
Washington, DC 20250-1125**

The Utility Arborist Association (UAA) is an organization of more than 4,000 professionals that represent investor-owned, rural cooperatives, municipal, public power electric utilities, vegetation management (VM) contractors, academics, and vendors who have an interest in and a commitment to the maintenance of trees and other vegetation for the purpose of ensuring the safe, reliable, and environmentally sound distribution of energy to all citizens.

The UAA wants to provide comment on: “The U.S. Department of Agriculture, Forest Service (Agency) is proposing to amend its existing regulations, for the Agency’s special uses to implement Section 512 of the Federal Land Policy and Management Act, as added by section 211 of division O, Consolidated Appropriations Act.”

The UAA recognizes the challenges faced by the Forest Service as they work under various multiple-use mandates. However, when Federal agencies approve the permit for the electric facilities and right-of-way (ROW), the proposed action has taken place. It is important they recognize the primary use of that strip of land is for the safe and reliable delivery of power from one location to another. The Forest Service needs to recognize that electric facilities and ROWs are critical infrastructure that must be protected like they protect natural resources and the environment. Some of the hazards inherent to powerline facilities demand that VM be the main priority over less compatible uses. It’s imperative for utility companies to operate and maintain these facilities to sustain national security, commerce, industry, and quality of life.

The UAA, EEI, VM managers, and the Federal agencies met to revise the now agreed upon 2016 memorandum of understanding (MOU). During these discussions, we received valuable feedback from the Federal agencies about concerns they have regarding utility VM (UVM) programs. Agencies perceive that utilities are often not consistent in their approach to VM activities, and in many cases, give little or no notice regarding VM activities being performed on Federal lands.

Inconsistencies and misunderstandings between the utilities and the Federal agencies must be eliminated.

This Section 512 needs to be consistent between the regional forest service, districts, and the utility companies to be successful. There needs to be an appeal process to the Forest Chief in this section if both parties cannot come to a consensus agreement.

The UAA agrees with the development of a long-term operating plan for the life of the permit. This plan shall follow the most current ANSI A300 (Part 7) for integrated VM (IVM) and the companion publication ISA’s IVM best management practice (BMP). This will provide a consistent approach from the utilities in developing an operating plan. The purpose of part 7, IVM, is to provide performance standards for IVM and to guide the written specifications, best practices, training materials, and other performance measures.

A concern the UAA has is in regard to the definition of hazard trees. The UAA recommends removing that requirement and adding ANSI A300 Part 9 Tree Risk Assessment (a.) Tree Failure, the most recent revision. The purpose of this standard is to provide performance standards for the practice of tree risk assessment and to guide the development of written specifications, best practices, training materials, and other performance measures. The utility companies employ or contract foresters and/or arborists to perform tree risk assessments. A study published in the Journal of Arboriculture July 2003, entitled “The Effects of Tree Mortality on Power Line Security” by Siegfried Guggenmoos, showed more than 85 percent of tree-caused outages are from trees outside the ROW. Safety and fire hazard risk increase in relation to the clearance distance. Tree-to-conductor contacts arising from tree failures result in breaking the conductor and bringing it to the ground or bringing conductors together. The standard of care for reducing the risk of power outages or forest fires from trees is the responsibility of the utility company. A 10-foot buffer needs to be removed from the Section 512 because it is an arbitrary number. The removal of trees should be based on the most current ANSI Z133 Safety requirements for Arboricultural Operations. Section 4.1.6 states when determining the presence of an electrical hazard, consideration shall be given to the potential movement of an electric supply line due to wind, load sag, or other factors that affect line’s position in relation to the work. The minimum approach distance for safety reasons should be the basis for removing hazard trees that could contact electric facilities.

Table 1 (on the following page) is from the current version Z133 Safety Standard.
(Continued on page 40)

UAA Opinion Expressed in Letters *(Continued)*

Nominal Voltage (Phase to Phase)	Minimum Approach Distance (MAD)	
	ft-in	m
kV		
50.0 and less	10-00	3.048
50.1 to 72.5	11-00	3.353
72.6 to 121.0	12-08	3.861
138.0 to 145.0	13-04	4.064
161.00 to 169.0	14-00	4.267
230.0 to 242.0	16.08	5.080
345.0 to 362.0	20-08	6.299
500.0 to 550.0	26-08	8.128
785.0 to 800.0	35-00	10.668

These ANSI standards were created to standardize a scientific approach utilizing people from the green industry association, governmental agencies, and tree care companies to develop a consensus agreement. The USDA Forest Service is represented on this committee by Dana Coehlo.

Under the proposed NOPR, “the Agency’s NEPA regulations would expand the current CE for special use authorizations at § 220.5(e)(3) from 5 to 20 acres and would remove the qualifier ‘minor.’ One of the examples for this CE would be approval of up to a 40-foot-wide, 4-mile-long utility corridor on NFS land.” The UAA recommends the exemption needs to be extended to the width specified in the special use permit for the length of the line.

Utility companies have to plan, budget, and contract the work plan at least six months out for the next calendar year. The UAA recommends reducing the approval of the operating plan from 120 days to 60 days. The Forest Service is able to use cost recovery to provide the necessary manpower to meet this deadline. Further, these required timely activities are often mandated by both state and federal statutes.

The UAA supports the EEI, NRECA, and APPA (collectively, the Trade Associations) recommendation:

“the Service eliminate the use of the term ‘non-emergency VM’ used throughout the proposal to avoid confusion. ‘Non-emergency VM’ could be interpreted as ‘routine’ VM. Therefore, the Trade Associations propose two new definitions for VM activities to include in an approved operating plan or agreement: 1) routine VM; and 2) emergency VM:

Routine VM—periodic management of plant communities within the ROW and on abutting National Forest System lands to identify compatible and incompatible vegetation, consider action thresholds, and evaluate, select, and implement the most appropriate control method or methods in accordance with applicable reliability and safety standards as identified in an approved operating plan or agreement under 36 CFR 251.56(h).

Emergency VM—unplanned and reactive management of

plant communities within the ROW and on abutting National Forest System lands to address all vegetation hazards, including hazard tree and necessary wildfire mitigation, to prevent the loss of electric service in accordance with applicable reliability and safety standards as identified in an approved operating plan or agreement under 36 CFR 251.56(h).”

Types of activities conducted under the plan requiring prior written approval from AO under 36 CFR 251.61, including construction, reconstruction, non-routine maintenance, and non-emergency VM:

The proposed rule is unclear regarding what is considered as “prior written approvals.” We understand that an approved plan was intended to be written approval from the AO. This should be made explicit in the proposed rule. Routine VM actions already covered in an operating plan or agreement should be authorized to proceed with a notification of the upcoming work only and should not require additional review for each cycle of the routine work.

The FS Propose Rule should provide guidelines regarding what circumstances would require revisions and additional review of the operating plan or agreement prior to expiration. A change in staff at Forest Service alone is not sufficient reason for changes to the operating plan or agreement.

The UAA shares concerns described in the comments made by the NRECA and APPA:

”Per FLPMA Section 512(c)(4)(A), the agency shall jointly develop with the Department of the Interior (DOI) Bureau of Land Management (BLM) a consolidated and coordinated process for the review and approval of proposed operating plans and agreements. This process should include timelines and benchmarks for (1) the submission of agency comments on the proposed plans or agreements and schedules for final decision; (2) the timely review of modification of the plans or agreements in cases in which modifications are necessary; (3) a process for modifying plans or agreements in a prompt manner if changed conditions necessitate such a modification; and (4) a process that ensures, to the maximum extent practicable, prompt agency review and approval of plans or agreements within 120 (although, UAA recommends 90) days from the date the plan or agreement is submitted.

Given the linear nature of electric cooperative transmission and distribution (T&D) infrastructure, facilities transverse myriad landscapes which can include both NFS and BLM-managed lands. It is imperative that the Forest Service and BLM work together to develop and implement this joint process, as envisioned by Congress, for consistent inter- and intra-agency implementation. NRECA and APPA urge the agency to have this process in place concurrent with the publication of the final rule to ensure timely, efficient, and consistent reviews and approvals. Any delay in developing and implementing this joint



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UAA Opinion Expressed in Letters *(Continued)*

process will result in delays in approving proposed plans and agreements, thereby threatening the safe, reliable operation of electric systems and ability to mitigate fire hazards. Further, NRECA and APPA encourage the agency to be transparent with the process so that electric co-ops and other stakeholders understand agency expectations upfront. Such transparency will also aid in holding the agency accountable in meeting the review and approval timelines set by Congress.”

Having separate processes isn't in the best interest of the utility companies and this should be re-evaluated between BLM and the Forest Service. It was supposed to be a joint effort between BLM and the Forest Service, but to date, it appears that this is not happening.

The Forest Service should develop a more standardized approach for UVM in their Forest Handbook. This will ensure a uniform and consistent approach on this matter across the U.S.

The UAA supports Section 512 with the modifications outlined above.

The UAA is available to provide education to forest service employees on UVM. The UAA and our members can partner with the Forest Service to help them meet executive orders (13751, 13112) to combat invasive weeds by utilities managing vegetation according to ANSI A300-Part 7 IVM. This is especially relevant for high wildfire risk areas where utility companies can help control invasive species and restore native habitat.

Other opportunities include helping the Forest Service in meeting the Federal Strategy on Pollinators by managing to restore early successional plant species beneficial to birds, bees, and lepidopterans.

The UAA and our members are committed to working with the Forest Service to improve the process for maintaining vegetation on Forest Service lands while providing safe, reliable, and environmentally sound VM for the social benefit of the public.

Sincerely,
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