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# Beyond Reliability: Integrated Vegetation Management

By **JOSIANE BONNEAU**, **PHILIP CHARLTON**, **JOHN GOODFELLOW**, and **RUTH STEIN**

**E**ffective vegetation management (VM) programs have long been important to providing safe and reliable electricity while minimizing environmental impacts. Now energy companies are looking beyond reliability goals, from focusing exclusively on what vegetation has to be controlled to asking the important question, “What habitat can be created in the process of controlling incompatible vegetation?”

Energy companies are breaking down the traditional silos surrounding VM and bringing together a diverse team of internal stakeholders, including environmental, communications, sustainability, capital investment, and land groups.

The result has been the creation of pollinator and wildlife habitat; protection of rare, threatened, and endangered species; conservation of cultural and riparian resources; reduction in the spread of non-native invasive species; and improved relationships with communities, regulatory bodies, and other external stakeholders. This success leverages existing vegetation maintenance expenditures while generating added value for the company and reducing resources needed for right-of-way (ROW) maintenance.

## Turning a Corner

Almost 14 years ago, three Ohio transmission lines sagged into trees in quick succession, setting in motion the Northeast Blackout of 2003. That incident resulted in a

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rewrite of the rules under which VM is carried out on the high-voltage energy grid in North America. Since then, the electric power industry has been very successful in reducing instances of flashovers from high-voltage conductors to trees.

It also is important to acknowledge that, in some cases, the changes

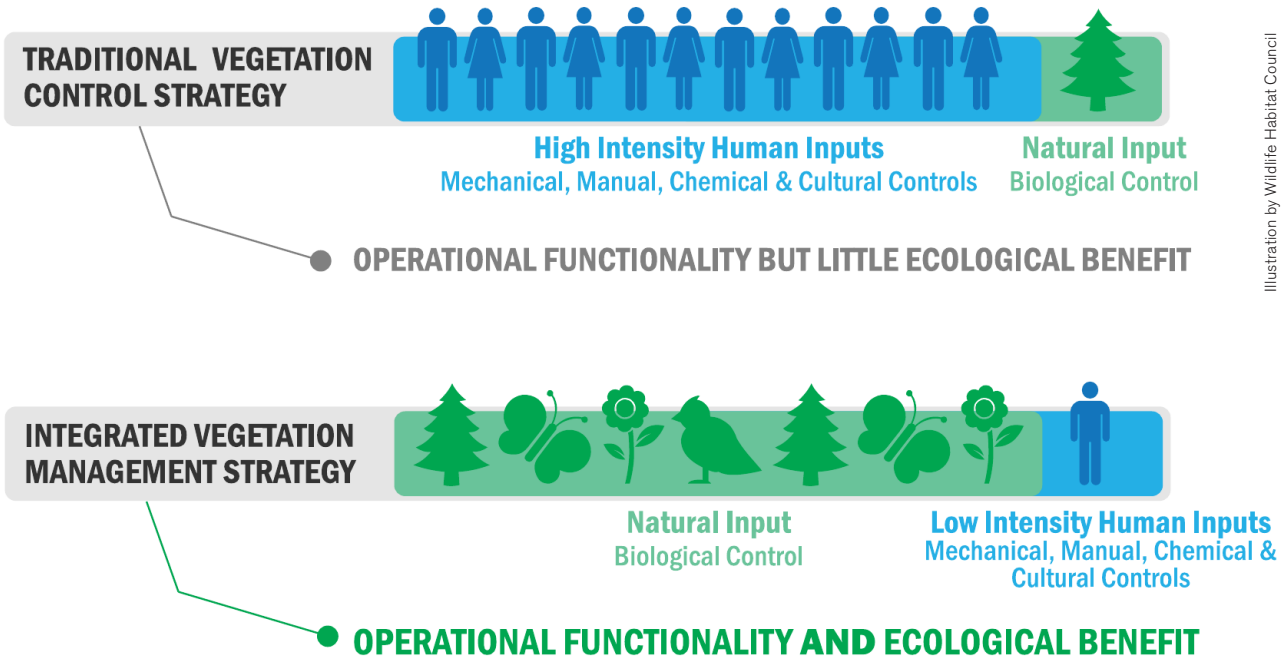
## Critical Support for Pollinators

Pacific Gas & Electric (PG&E) vegetation management teams face a tough balancing act: They must keep lines clear of incompatible trees and shrubs, even where customers prefer to let the countryside grow wild.

Integrated vegetation management (IVM) efforts reduce the trees and heavy brush that threaten power lines and encourage low-growing, flowering plants, grasses, and small shrubs that support butterflies and bees. Those pollinators play a vital role in the environment and the economy. In fact, a 2011 study from the University of California, Berkeley, found that wild bees have a \$2.4-billion economic impact on California's agriculture industry.

PG&E's IVM program has begun to focus on research and partnerships that spotlight the plight of pollinators.

PG&E is part of the San Francisco-based nonprofit Pollinator Partnership and has provided significant funding for research to help understand how the company's right-of-way management may benefit pollinators. The company also is a member of the American Business Collaboration for Pollinator Conservation Action, or Business for Bees.



in VM activities on transmission ROW can significantly alter the ecological characteristics of existing transmission corridors, resulting in unnecessary disruption to the environment and increased management costs and effort.

Research, case studies, and on-the-ground experience have proven integrated vegetation management (IVM) to be an effective means of achieving management objectives in an economically efficient and environmentally responsible manner for the long term.

Today's IVM principles are intended to create, promote, and conserve stable plant communities that are compatible with overhead transmission lines and to discourage incompatible plants such as tall-growing trees that may pose a risk to the reliable operation of the transmission system.

**IVM's Environmental Benefits**

American National Standards Institute (ANSI) A300, Part 7, defines IVM as a system of managing plant

communities in which managers set objectives; identify compatible and incompatible vegetation; consider action thresholds; and evaluate, select, and implement the most appropriate control method(s) to achieve their established objectives.

What does adopting an IVM-based program really mean for progressive energy companies? It means moving away from rigid, one-size-fits-all prescriptions based on fixed time periods. It means not repeating nonselective mowing or broadcast spraying across the entire ROW without first setting objectives of establishing diverse, compatible plant communities. It also means evaluating control methods based on their environmental impact and anticipated effectiveness, while considering site characteristics, security, economics, current land use, and other factors.

The result is an emphasis on using selective maintenance techniques to encourage relatively stable communities of low-growing plants that naturally inhibit the

development of tall-growing trees that can interfere with the overhead facilities. A successful IVM-based program will require fewer costly maintenance activities as relatively stable communities of compatible plants are established and nature plays a role in decreasing re-invasion by tall-growing trees.

At its core, IVM requires a paradigm shift away from a focus on simply *controlling* unwanted trees. IVM focuses on actively *managing* the entire ROW using treatments that encourage the establishment of compatible vegetative cover. The value of IVM exceeds achieving objectives of safety and reliability at a lower cost. Adopting the principles at the operational scale generates tangible outcomes considered worthwhile across the company.

For most energy companies, VM activities and their outcomes are highly visible to the public. Questions and comments are commonplace. IVM offers answers based in science, from promoting native habitats for a suite of

locally appropriate species to increasing ecosystem value and biodiversity. This positive environmental message is key to constructive community relations.

The adoption of IVM can provide different narratives to be shared with local, state, and federal agencies. A company removing tall-growing trees may create native grassland habitat important to range and wildlife managers. Less site disturbance during VM activities may contribute to the health of a watershed as pursued by the local township. The IVM-managed segment near a high school, for example, may offer the school district more visibility and a greater sense of safety.

These IVM benefits are not only valuable when managing existing corridors but also are instrumental when looking to secure permits for new energy infrastructure. The beneficial outcomes of IVM implementation being used as metrics for sustainability reporting should not be overlooked.

### Raising the Bar

Some energy companies are raising the bar and seeking to formally distinguish themselves through their commitment to IVM.

The Right-of-Way Stewardship Council has established an accreditation program to recognize excellence in VM on transmission and natural gas ROW on the North American energy grid. The Right-of-Way Steward Utility Accreditation program offers a comprehensive set of requirements that are rooted in the current ANSI standard and associated best management practices and provides a path to environmental stewardship excellence.

The ROW Steward initiative has the support of many industry practitioners and regulators.

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“The Environmental Protection Agency supports the industry’s idea of a credible third-party certification program for utility rights of way based on integrated vegetation management principles and standards, which provide a means of reducing the need for pesticides and greater natural species diversity along rights of way and better control of invasive species,” said Frank Ellis, chief of EPA’s Environmental Stewardship Branch. “The agency welcomes development of a program to ensure credibility, appropriate standard development,

and the promotion of IVM adoption on the U.S. electric power grid.”

The size of the land area being managed has caught the attention of several environmental stakeholders as well. Bill Toomey, The Nature Conservancy’s (TNC’s) director of forest health protection, sees ROW Steward as “an opportunity for TNC to leverage our expertise and improve natural resource management practices on millions of acres of land.”

“ROWs across the country represent an invaluable opportunity for the creation of native habitats, control of invasive species, and enhancement of early successional habitat for nesting birds,” said Margaret O’Gorman, president of the Wildlife Habitat Council. “Offering landowners, energy companies, and the community a credible framework to better manage the extensive transmission and distribution network has the potential to positively impact many species for the benefit of all.”

To date, the council has recognized seven energy companies [AltaLink, Arizona Public Service, Bonneville Power Authority, New York Power Authority, Pacific Gas & Electric (PG&E), Sacramento Municipal Utility District, and Vermont Electric Light Company] with accreditation as ROW Stewards for their excellence in sustainable IVM on transmission corridors. In addition, PG&E became the first company to be accredited by the council for its IVM on natural gas pipeline ROW.

### The Value of the Accreditation

The accreditation process is rigorous and requires a top-to-bottom examination of a ROW management program. This high-level challenge to procedures and policies inevitably identifies potential areas for improvement.

Beyond the benefits of the internal procedures analysis, the accreditation offers third-party recognition, as well as an independent, proven process to convey credibility and bring recognition to IVM programs. Like the benefits of IVM, the value of the accreditation reaches beyond the practitioner's sphere; it has the potential to positively impact the industry, communities, stakeholders, and agencies. Accreditation benefits include:

- *Institutionalizing sustainable management.* Comprehensive documentation processes institutionalize sustainable management and ensure adoption, efficiency, and continuity of practices and policies while engendering consistent performance.
- *Improving positive relationships with stakeholders.* The accreditation places strong emphasis on engaging communities and other stakeholders in VM. From broad communication to consultation and active participation, these interactions are known to generate positive outcomes with stakeholders. A greater understanding of activities and outcomes by customers can lead to increased confidence and trust and a decreased likelihood of conflict and legal disputes.
- *Surpassing regulatory requirements.* Society's growing interest in the environment and the heightened awareness of the potential impacts of infrastructure corridors on landscapes increasingly attract attention to VM activities. Proactively applying the accreditation principles on a voluntary basis is likely to strategically position the industry to prevent or meet any future regulations by

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demonstrating a long-standing commitment to the environment and societal values.

### Looking to the Future

For asset-owners in the early stages of the transition to IVM on parts of their system or for those experienced in implementation, the accreditation can serve as a blueprint to success. The principles are building blocks for new programs and a reference guide for existing operational VM documents.

With the accreditation expanding from transmission corridors to pipeline ROW, it is positioned to be used increasingly as a proxy for environmental stewardship metrics and industry benchmarking. Eventually, the program even may develop to include VM programs for roads and highways. **EP**

### Improving System Reliability with Integrated Vegetation Management

In 2016, the Arizona Public Service (APS) Forestry and Special Programs Department conducted vegetation management (VM) work along its transmission and distribution power line corridors throughout Arizona as part of its ongoing integrated vegetation management program. The company's efforts help reduce non-compatible species within the right-of-way and prevent hazardous trees from falling into power lines, significantly reducing the chance of a catastrophic wildfire.

Some 2,000 miles of transmission line and more than 1,800 miles of distribution line were inspected and treated through manual or mechanical tree and brush removal, pruning of vegetation, and/or herbicide application to targeted incompatible vegetation. These VM activities involved 313 distribution and 73 transmission power line circuits, or approximately 37 percent of the APS overhead transmission and 16 percent of the APS overhead distribution system. Vegetation that required treatment posed a potential risk to power lines, structures, or equipment.

The work was carried out across multiple jurisdictions, including private land, Bureau of Land Management, Forest Service, tribal lands, local and state parks, military, National Park Service, State Trust, and Bureau of Reclamation lands.

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