HERBICIDES: Collaborative Efforts,

Community-focused right-of-way initiatives result in low-maintenance, environmentally sustainable vegetation strategies.

By **Rick Johnstone**, *IVM Partners Inc.*

A successful utility vegetation management program on the environmentally sensitive Delmarva Peninsula, with its coastal bays such as the Chesapeake Bay, demands good communication and cooperation with conservationists, sportsmen and government regulators.

This spirit of meeting multiple objectives while striving for safe and reliable electric service was sought by the Vegetation Management Task Force of Edison Electric Institute (EEI) in its quest for a memorandum of understanding (MOU) with federal land management agencies relative to vegetation management of electric transmission rights-of-way (ROW). In meeting after meeting in Washington, D.C., U.S., all parties voiced their desire for better land management practices, but the inherent distrust between industry and regulators stymied the agreement.

Delmarva Power's system forester at the time regularly attended both industry- and conservation/agency-sponsored meetings to keep the pulse of each side's concerns and to communicate why and how the utility practiced integrated vegetation management (IVM). In these meetings, it was not uncommon to hear complaints about the other side not being sensitive to another group's concerns, considering the various parties seldom talked unless the utility needed a permit or there was a complaint.

The utility group complained about the environmentalists' opposition to herbicides and disregard for reliability or costs; the conservation/agency group complained about the utility clear-cutting and spraying poisons. However, when asked who they invited from the other side to discuss their concerns, both sides replied, "No one."

Bridging the Gap

Delmarva Power's system forester discussed this problem with the National Fish and Wildlife Foundation (NFWF) along with an idea for bridging the gap between industry, agencies and conservationists: form an entity to

Sustainable Results

act as a liaison between the often-opposing groups and provide education on mutually beneficial IVM practices. With electric and natural gas ROW occupying close to 8 million acres (3.2 million hectares) of land in North America, a huge opportunity for improved wildlife habitat is being squandered. Whether a utility or federal agency, in reality, both sides work for the public at large.

NFWF liked the idea and supposed government grants could help fund it, but only if it was a nonprofit entity. Integrated Vegetation Management Partners Inc. (IVM Partners) became that entity when chartered as a 501-C-3 nonprofit corporation on Aug. 3, 2003. It operates exclusively for charitable, scientific, literary and educational purposes to develop, educate professionals and the public with respect to, and apply best vegetation management and conservation practices and related activities.

Two weeks later, the largest electrical blackout in North American history occurred and increased urgency for better vegetation management practices of the electric grid. Congress called for an investigation and the federal regulators soon followed with FAC-003. In the meantime, IVM Partners conducted vegetation management case studies at Chesapeake Farms on Maryland's Eastern Shore using side-by-side comparisons of various vegetation practices and tracking the ecosystem vegetation changes with photographs and research studies performed by Michael R. Haggie, a botanist with the conservation group Chesapeake Wildlife Heritage.

The first IVM and Ecosystem Management Workshop was conducted in October 2005 for EEI, federal land management agencies and the U.S. Environmental Protection Agency (EPA). Classroom and field tours showcased the various practices with unbiased scientific documentation, which increased the groups' understanding and contributed to the EEI-federal agency MOU signing in May 2006.

South River Greenway

Baltimore Gas & Electric (BGE) owns a high-voltage transmission corridor carrying 500 kV and 230 kV from Calvert Cliffs Nuclear Plant on the Chesapeake Bay to areas farther north. Following its transmission vegetation management program (TVMP), filed to meet FAC-003-01, BGE removed all tall-growing trees on steep slopes and in wetlands of this ROW that previously had been allowed to grow. This resulted in adverse publicity carried by the Annapolis newspaper and Baltimore television network. Not only did the public decry the felling of the trees, it also demanded all the wood be cleaned up and removed, the type of work one might expect in a residential community, not in a rural setting. A 3-mile (4.8-km) section and about 200 acres (81 hectares) of this transmission corridor falls within the middle of an area called the South River Greenway.

The South River Greenway is an area of undeveloped forest covering 10,000 acres (4,047 hectares) of rolling

rural land in northern Anne Arundel County, Maryland, U.S., about 10 minutes northwest of Annapolis, Maryland. It is ecologically important as watershed protection for the South River and the Chesapeake Bay, and it has important attributes:

- 6,000 acres (2,428 hectares) of natural resource forest hubs and corridors
- 15 different wetland types covering 800 acres (324 hectares)
- 18 species of nesting forest interior birds
- Regionally important area for reptiles and birds
- Native American burial ground
- Historical spawning area for yellow perch and river herring
- Historical buildings, colonial wharf and a hospital.

The South River Greenway has a steering committee representing the following project partners: Anne Arundel County, Biophilia Foundation, Environmental Finance Center, Maryland/D.C. Audubon, Maryland Environmental Trust, Maryland DNR, NFWF, Scenic Rivers Land Trust, South River Federation, Trust for Public Land and U.S. Fish & Wildlife Service (USFWS).

IVM Liaison Education

The Chesapeake Wildlife Heritage contacted IVM Partners in February 2009 and asked to speak with the Biophilia Foundation about ROW maintenance practices by BGE relative to the South River Greenway. This led to a conversation between IVM Partners and the USFWS's Chesapeake Bay field office in Annapolis and a field trip with BGE to review the concerns.

Since IVM Partners had just been hired to develop an IVM plan for the Columbia Partnership *(T&D World* Vegetation Management supplement, June 2011), BGE agreed to have a similar effort developed for the South River Greenway. IVM Partners conducted a preliminary review of all management concerns and presented a summary of IVM-proposed methods with an expectation of what might be achieved to the South River steering committee in May 2009.

Similar to what was found in urban communities, routine mowing of accessible upland areas was tolerated and expected by rural South River residents, while cutting of inaccessible areas was abhorred. However, this routine cutting was encouraging the establishment of many nonnative invasive plants, which were cut simply to the grass-height stage.

The steering committee acknowledged this and opposed removing the wood debris and logs demanded by residents. USFWS pointed out the wood provided vital habitat for rabbits, birds, reptiles, amphibians and pollinators, and helped to hold the soil on slopes to reduce erosion. It also was understood the patchwork of vegetation provided by a mixture of prairie and shrubs would be the optimum of food and cover for forest interior dwelling birds and mammals.

Vegetation Plan

IVM Partners developed a vegetation plan that focused on the primary objective of safe and reliable power transmission, and the secondary objective to optimize habitat for song birds, pollinators and other native wildlife. This would be achieved by using the RADIARC broadcast herbicide application on all the accessible upland areas currently being mowed, to remove the trees and invasive plants and release native prairie plants. The steep slopes, ravines and wetlands, as well as the border zone of the corridor, would be selectively treated by hydraulic or backpack applicators, with the intent to retain as much desirable shrub and herbaceous vegetation as possible.

Additional field meetings were held with BGE, USFWS, IVM Partners and Audubon in the summer 2009 to discuss allowing access for bird and pollinator surveys. The topic of nature trails also was discussed but not acted on at that time.

Application Plans and Documentation

IVM Partners held field meetings in late summer 2009 to review the plan with the BGE field forester and its contract applicator. Chesapeake Wildlife Heritage was called to document botanical changes in an accessible upland prairie area and a ravine that could be used for educational workshops. IVM Partners contacted DuPont to provide a sample of its new herbicide product for testing against registered products presently available.

One group of botanical documentation transects was established within the center of the ROW to compare the results of the RADIARC broadcast application of an herbicide mixture of Krenite, Arsenal, Escort and Milestone to remove invasive plants and restore native prairie against the application of the new product Mat 28 (aminocyclopyrachlor), which carries the labels Viewpoint and Streamline. As a member of the EPA Pesticide Environmental Stewardship Program, IVM Partners is always searching for products that can achieve the desired efficacy at low application rates with minimal environmental impacts.

Another study transect was established along the center of the ravine area to document plant diversity resulting from selective herbicide application, designed to preserve desirable native shrubs.

The 2009 Workshop

In September 2009, a discussion by IVM Partners with USFWS and the EPA developed into plans for an educational workshop to be hosted by the USFWS Chesapeake Bay field office.

The IVM workshop was held on Sept. 15, 2009, with the EPA and USFWS jointly expressing their support of IVM as an optimum management scheme for reducing pesticide risk and improving wildlife habitat. The field tour at South River demonstrated proper and improper

The South River right-of-way in 2009 after mowing.

The South River right-of-way in 2011 after IVM .

uses of RADIARC and Widecast broadcast application equipment, and emphasized the need for professional training. Roy Johnson of Waldrum Specialties, the creator of the RADIARC, Widecast and ultralow-volume application equipment and THINVERT (paraffinic oil inversion), demonstrated the selective qualities and low herbicide volume needs of those techniques. Eco-Pak demonstrated returnable and refillable containers that eliminate landfill waste of pesticide containers.

The local media praised BGE for its willingness to try new methods. The tour then continued on to the Eastern Neck National Wildlife Refuge to review invasive weed control and habitat restoration efforts by IVM Partners using similar herbicides and techniques.

Case Study Treatment and Benefits

The professional use of broadcast herbicide applications and selective backpack treatments under an integrated approach demonstrated the following benefits:

- Better crew management through the use of GIS maps that designate treatments
- Improved bird, pollinator and wildlife habitat with shrubs in ravines, wetlands and along ROW border zones, with prairie in wire zones
- Reduced noise, air and hydrocarbon pollution from mowing equipment
- Control of non-native invasive plants
- Management of endangered ecosystems
- A greener approach for BGE and customer acceptance of management
- Long-term cost savings.

Educational Outreach

In addition to the Sept. 15, 2009, workshop, the South River-IVM partnership was praised by the Chesapeake Bay field office and recommended for further adoption at a Northeast regional meeting of USFWS staff. The EPA consulted with IVM Partners for assistance in developing an IVM fact sheet to nationally encourage responsible use of herbicides in an integrated approach.

IVM Partners met with BGE and USFWS again in March 2010 to discuss the next steps for documenting the use of the study area by birds and pollinators. USFWS and U.S. Geological Survey (USGS) organized the documentation by their staff, Audubon and volunteers. In 2010, they found 40 species of butterflies using the flowering plants in the ROW and more than 100 species of native bees. The most common bee species found use shrubs for nest building in pith exposed by animal browsing or in bare soils. The bird census also found more than 100 species, including the highest-priority prairie birds, Prairie warbler and Wood Thrush.

The ravine study site received a follow-up selective backpack treatment in October 2010, and IVM Partners hosted another IVM and ecosystem management workshop that month to educate more than 125 people, including 50 employees of the EPA's Washington, D.C., office. The workshop began with a summary paper on IVM and classroom discussions, followed by field tours of the Columbia and South River study sites.

While on the South River field tour, an EPA employee asked about the significance of the ROW habitat. A pollinator expert from USGS supplied the answer by stating most people mistakenly think more forests are needed when, in reality, the U.S. has more forested acres than it did 100 years ago. What the country is lacking in is old field and native prairie habitat, such as the BGE transmission ROW selectively managed with herbicides to release the herbaceous plants, which is perhaps the best pollinator habitat in the Mid-Atlantic states.

The importance of utility ROW for pollinators was shared by IVM Partners with the North American Pollinator Protection Campaign, which led to its ROW Task Force development of a brochure titled, "Plight of the Pollinator: Save Money, Time and Energy with IVM and Energy Rights-of-Way for Wild Pollinators."

The prairie and ravine study areas used for the 2009 and 2010 IVM and ecosystem management workshops focused on education of federal, state and local public agencies, utility and contractor personnel, and area

media and the public. Included in this group was the Maryland Public Service Commission staff, which now includes IVM plans as a requirement for new electric transmission construction projects.

These sites were certified as Wildlife and Continuing Learning sites by the Wildlife Habitat Council (WHC) in 2011 and used for the field workshop education of approximately 50 employees of various corporations attending the 2011 WHC Annual Conference in Baltimore.

Growing Interest

The success of the South River Greenway partnership encouraged USFWS and USGS to propose similar IVM work at Patuxent National Research Refuge near Washington, D.C. A field meeting was held at Patuxent in December 2010 with BGE, USFWS, USGS, Patuxent Refuge Managers, Quality Deer Management Association (QDMA) and IVM Partners.

BGE operates a transmission corridor crossing 5.5 miles (8.9 km) of the refuge and encompassing about 200 acres (81 hectares). A plan was formulated to treat half of the refuge ROW in 2011 and the other half in 2012, staggering the work with two spans treated and two spans skipped in 2011, then treating the skipped spans in 2012 with the previous year's work receiving a touch-up. IVM Partners developed plans specific to each two-span area based on the primary objectives of the utility and the secondary objectives of the refuge biologists. Chesapeake Wildlife Heritage provided the botanical documentation at selected sites.

One example of merging the objectives is in a two-span section primarily composed of autumn olive trees and low-growing plants dominated by nonnative lespedeza. The utility was concerned about the autumn olives for access and reliability, while the refuge biologist wanted the lespedeza controlled, and QDMA wanted to disc it and plant a food plot. IVM Partners convinced them that a broadcast treatment of herbicides could remove both the autumn olive and the lespedeza, and allow germination of desirable seeds lying dormant in the soil. If native wildlife food plants did not germinate, then QDMA could try planting.

A 2011 RADIARC treatment of Krenite and Streamline herbicides effectively removed all the invasive plants and restored native prairie plants beneficial to a wide assortment of wildlife.

These cooperative efforts encouraged the WHC and the Pollinator Partnership to develop separate MOU agreements with IVM Partners to expand these habitat restoration efforts to other utilities. They also are members of a committee with EEI and the International Society of Arboriculture to develop a ROW accreditation program, which recognizes utilities that employ IVM best management practices.

IVM Partners also received an inquiry from the North American Electric Reliability Corporation (NERC) as to which utilities are successfully practicing IVM, since NERC is considering a recommendation of that integrated approach. It believes IVM promises to maintain a reliable electric grid while resolving the number-one customer complaint — wholesale cutting of vegetation. TDW

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