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*What happens when over 300 Chicago Wilderness members assemble for a day of sharing, learning, and fun? Kelli Krueger discusses highlights, survey results, and recommendations for future gatherings from the 2004 Congress.*

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## Chicago Wilderness Congress: The Power of Partnership

Kelli Krueger

Friends of the Chicago River

On Thursday, November 18th, Chicago Wilderness (CW) held its fourth biennial Congress at the Lincoln Park campus of DePaul University in Chicago, Illinois. Since 1996, Chicago Wilderness has grown from 34 member organizations to more than 170. Congress is the one opportunity specifically created for all of the member organizations to come together to discuss, learn, and network. The goals of Congress are to facilitate the sharing of information about the achievement of consortium objectives, to learn about CW team activities since the last Congress, and to discuss and recommend activities for CW and its teams for the coming two years. Congress provides opportunities for individuals to network with their colleagues in other member organizations. Congress inspires CW members, and affirms the significance of the work done by the consortium.

The 2004 Chicago Wilderness Congress was a huge success. This year's Congress included a sneak preview of the upcoming PBS documentary *Edens Lost and Found*, the unveiling of the Strategic Plan, twenty-one presentations, and six discussion sessions. Congress was packed with enriching and informative presentations on consortium activities, posters of projects made possible with CW funding, and discussion sessions about current efforts and possible future endeavors for the consortium. Congress was the perfect forum to introduce the Strategic Plan, which provides a framework, focus, and direction for the consortium's work. With the tremendous growth of the consortium over the years, fitting so much valuable information into one day was an onerous task. The high level of participation in this year's event has led the Congress Organizing Committee to consider recommending that the Congress be held every year.

### Highlights

The producers of the upcoming PBS documentary *Edens Lost and Found* graciously previewed a portion of the documentary that focused on the Chicago Wilderness region to open this year's Congress. Congress participants were delighted to see themselves and fellow CW members featured in the inspiring film. Everyone agreed that *Edens Lost and Found* will be a great way to feature the work of our consortium. It set the tone for a wonderful day of sharing and collaboration.

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The spirit of this cooperative planning was evident in the presentation of the Strategic Plan. The Strategic Plan is a very valuable tool that will foster more collaboration and better organization of the consortium. The Plan achieves these goals by providing the strategic framework, focus, and direction for the consortium's work in the next 10-15 years, and by identifying the operational structures, processes, and programs needed to support the collaborative model. Changes to the structure and process of the consortium have been designed to operate with effectiveness, quality, and consistency and will provide non-profit and Corporate Council members with additional opportunities for participation. The next few years will be tremendously exciting for Chicago Wilderness as the new structure and process is put to use.

Congress was the perfect opportunity to learn more about the consortium with sessions like "CW 101," "How CW projects are funded," and "The CW Membership Map." The agenda featured presentations on several projects including: "A Green Infrastructure Vision for Chicago Wilderness" and "The Sustainable Development Principles," as well as updates from the work of specific projects like Midewin and the Calumet Region. Participants heard about the progress of our teams with the Education Team Volunteer Management Task Force and the Science and Natural Resources Team Aquatics Task Force presentations. There were numerous other presentations ranging from topics like "Lobbying and Advocacy" to "Trends of Change in Prairies and Wetlands."

During lunch, several CW members were honored in two different award ceremonies; one for the Chicago Wilderness Excellence in Conservation Awards and another for the EPA Conservation and Native Landscaping Awards. After lunch, an interactive poster session comprised of CW funded projects was presented. The remainder of the afternoon included another concurrent presentation session and a discussion session which featured several exciting topics including: the "Preview of the Biodiversity Report Card," "Developing a Scientific Research Agenda," and the "Exploration of a Biosphere Reserve Initiative."

### **Conclusion: More, More, More**

The Strategic Plan illustrates how challenging it can sometimes be to harmonize the voices of so many different organizations. The Chicago Wilderness Congress is the arena for those voices. "It was wonderful to see how many different groups are united for the same purpose," said one Congress participant. Evaluations of the event were overwhelmingly positive. When asked what the Organizing Committee could do to improve Congress, most people said they wanted more of the same. Attendees cited networking, discussing issues, and hearing about project results as elements of the event they found to be very valuable. Many people suggested that the sessions should be longer to allow for more discussion, and some people asked for more discussion and networking at Congress in general. In their surveys, 61% of participants expressed the desire to have Congress every year instead of every two years, and 82% wanted to allow more than two participants per organization to attend Congress. In addition, 59% agreed that it would be acceptable to charge a fee for Congress to cover the cost of food.

These evaluation results show just how valuable Congress is for the consortium. Member organizations participate in CW at so many different levels and in so many different ways. Congress is an opportunity to "touch base" with the consortium and

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see what's going on. Congress provides the opportunity to discuss the issues and projects that interest members the most. Congress fosters an atmosphere for networking, and for some individuals is the only chance they get to meet with other CW members. Hosting an event that assists in informing the greatest number of members is invaluable to the success of the consortium.

The growth of the consortium brings many challenges. This year, finding adequate space for Congress and funding for food presented obstacles for the Organizing Committee to overcome. No doubt by the time the next Congress meets, the consortium will have grown larger still. How will we accommodate all of the members? Will it be difficult to provide an informative and productive day of learning and sharing that is organized and comprehensive? If Congress was held every year, would that address these concerns or create new ones? These questions present some interesting challenges, but none insurmountable. The structure and function of Chicago Wilderness Congress fluctuates, just like the consortium itself. I feel that the more successful the consortium is, the more successful Congress will be. This year's Congress indicated a promising future for Chicago Wilderness, which leads me to believe our next Congress will be an even more inspiring and exciting event.

*Kelli Krueger is the North Branch Project Coordinator for Friends of the Chicago River and can be reached at [kkrueger@chicagoriver](mailto:kkrueger@chicagoriver).*

*Get a behind the scenes look at how the City of Chicago created and implemented the successful rooftop garden atop City Hall in this article by Kimberly Worthington.*

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## The Story Behind the City of Chicago's Green Roof

Kimberly Worthington

Chicago Department of Environment

Urban areas act as heat islands and raise local temperatures, contributing to air pollution, especially smog. Large amounts of asphalt and dark-colored roofs that absorb the sun's energy during the day and release the stored heat in the evening are a major contributor to the urban heat island effect. The effect is similar to a person wearing dark-colored clothing on a very hot day. The combination of pollutants from energy production, vehicular traffic, and higher air temperatures create smog and decrease the air quality in the urban center. This pollution is dangerous to human health and can irritate the eyes, aggravate asthma, and cause permanent lung damage.

Richard M. Daley has made the "Greening of Chicago" a top priority in his 15 years as Mayor of Chicago. One of the highest profile examples of this commitment to making the city healthier and more environmentally sustainable has been the installation of a garden on the roof of City Hall. Such rooftop gardens are often referred to as "green roofs".

### Background

Green roofs first appeared on Chicago's drawing board in 1998 when the City was selected to participate in the US EPA's Urban Heat Island (UHI) Initiative. The UHI Initiative looked to reduce heat island effects through asphalt replacement, light-colored and reflective roofing materials, and green roofs.

After seeing green roofs while traveling in Germany, Mayor Daley decided that City Hall would be the first city government building to have a green roof. The timing was perfect because the roof at City Hall was in need of replacement.

In the spring of 2000, the City's Departments of Environment, Planning & Development, and General Services began construction of the 21,000 square foot rooftop garden at City Hall. The City hired Weston Solutions, Inc. (formerly Roy F. Weston Consultants) as general contractor, and Weston in turn selected a team of firms with extensive experience in the green roofing industry. Selected as design architects were William McDonough and Partners. Conservation Design Forum Inc, and Atelier Dreiseitl of Germany were selected as landscape architects, Halvorson & Kaye as structural engineers, and Katrakis and Associates as energy analysts.

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The goal of the project was to implement a broad-scale heat island reduction initiative in Chicago to achieve significant heat island reduction within a few years, and to quantify the projected ozone reductions. As a side benefit, there were potential cost savings because green roofs can last up to 30 years—fifteen years longer than a conventional roof. Green roofs last longer than conventional roofs because the garden protects them from damaging elements.

### **Implementing the Green Roofs Project at City Hall**

The City of Chicago wanted to study the effectiveness of green roofs in lowering urban air temperatures. Initially, the project team developed a feasibility study using energy and air pollution models to try to quantify the effect that both a single green roof (City Hall) and an entire city of green roofs would have on temperatures. Success would be measured by carefully monitoring City Hall green roof temperatures compared to those of the adjacent Cook County building.

The structural capacity of City Hall's roof was relatively large; after reviewing the original blueprints, engineers discovered that the building was designed for an additional floor that had never been built. To support the green roof, the City made structural accommodations, such as reinforcing the former skylights (which had been covered over many years before), planting two trees over structural columns, and using a very lightweight custom growing mixture (the growing mixture weighed about 65 pounds per cubic foot compared to 110 pounds for typical soil). The rooftop garden consists of various layers of materials that include a waterproof membrane, a root barrier, lightweight insulation, drainage media, the growing mixture and, of course, the plants.

There are two types of green roof systems—"extensive" and "intensive." An extensive green roof weighs less than an intensive roof, generally has shallower-growing plant material, and has heartier plants that require little maintenance. Intensive green roofs are the most like gardens on the ground, with deeper-growing plant material, more intricate or delicate plantings, and higher maintenance needs such as irrigation and pruning. The City Hall garden has components of both types of green roofs. For example, the skylight area uses both semi-intensive and an extensive approaches. A drip-hose irrigation system was installed to utilize on an as-needed basis. The two trees planted over the structural support beams use the deeper intensive system.

Initially, more than 21,000 perennials and two trees (a prairie crabapple and a cockspur hawthorn) were planted. In subsequent spring seasons, a variety of annuals and perennials have been planted to replace plants that did not fare well in the seasonal conditions.

In addition to the plants, the rooftop garden at City Hall also has beehives which were installed in 2003. The honeybees help pollinate the plants and have produced impressive quantities of honey. Ten birdhouses have been installed that attract wildlife such as finches, chickadees, and wrens. The garden is also home to monarch butterflies and grasshoppers.





*Green roof close-up, showing variety of plant material and stepping stones for access to the garden.*

*Photo courtesy of Mark Farina.*

### **Basic Findings**

Initial results indicate that the green roof is effective in reducing temperatures that add to the urban heat island effect. The City measures the surface temperatures and ambient air temperature in the garden as compared with the black tar roof of the adjacent Cook County building. The County side has reached surface temperatures of 165 degrees, while the planted surface of the City Hall rooftop garden has reached 93 to 100 degrees.

The plants reflect heat, provide shade and help cool the surrounding air through evapotranspiration. The

garden provides help in conserving both cooling and heating energy. Modeling shows that the garden reduces costs by \$3,600 per year.

Rainwater is a valuable resource and reusing it is a component of Mayor Daley's Water Agenda. The garden also absorbs 75% of a one-inch rainfall, before there is runoff into the sewers. Two 150-gallon cisterns also retain rainwater for later use.

### **Discussion**

The construction of the rooftop garden at City Hall has generated interest across the globe. Television crews from Japan and Great Britain, along with American networks, The Weather Channel, National Geographic Channel, CNN and CBS have visited Chicago to produce news features about the garden. National publications that have featured the garden include the New York Times, Washington Post, National Geographic, Landscape Architecture, Metropolis, and Audubon. Chicago also co-hosted the first annual Green Roof Infrastructure Conference in May 2003.

The success of the City Hall rooftop garden has led to new developments. Today there are more than 100 public and private rooftop gardens and green roofs either completed or under construction in Chicago, with more planted every day. These projects encompass more than one million square feet of green roofs, and include the award-winning Chicago Center for Green Technology (CCGT) and the Schwab Rehabilitation Center.

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From a policy perspective, the City's Department of Environment has included green roofs as one of the recommended technologies in its Guide to Stormwater Best Management Practices. Chicago has also moved forward in revising the City's energy code. The Department of Planning and Development has developed a floor/area ratio incentive for new developers who propose to use a green roof on at least 50% of their development. Green Building and Green Roof policies are applicable to new public buildings, planned developments, and privately funded structures that are subsidized by the City of Chicago. Depending on size, type of building and level of public assistance, a roof would be 10 to 100 percent green.



*Green roof with thriving plant material.*

*Photo courtesy of Mark Farina.*

### **Constructing a Green Roof**

For individuals or companies interested in installing a green roof on a building, there are a number of issues to consider prior to commencing construction. The most cost-effective time to construct a green roof is when the roof needs replacement, or is newly built. Structural capacity must be determined prior to designing a rooftop garden to determine if the roof can support the additional weight of soil and plants. A licensed structural engineer must be hired to conduct structural analyses and to determine the amount of weight the roof can support at different locations. This capacity will help determine the type of garden that can be built.



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Design considerations include access for transporting materials, and garden maintenance. Irrigation may be needed to supplement rainfall, and/or drainage for excess rainwater. It is also important to consult with the local building department to apply for required permits, and to determine any safety requirements such as exits and barriers at the roof edges.

*Kimberly Worthington is a Deputy Commissioner for the City of Chicago, Department of Environment. For more information about rooftop gardens in Chicago, visit the City of Chicago's Web site at [www.cityofchicago.org](http://www.cityofchicago.org). The Web pages for the Departments of Environment, Planning & Development and Buildings are also excellent resources for information about green roofs and rooftop gardens.*

*How does adoption of a common conservation strategy happen in a region as diverse as ours? Elizabeth McCance explores the factors necessary for promotion of ecosystem management practices using the Chicago Wilderness consortium as a test case.*

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## Learning to Adopt Ecosystem Management

Elizabeth McCance

Chicago Wilderness

### Introduction

Despite years of efforts, we are still losing biodiversity at unprecedented rates (Myers 1998; Leemans 1999). Clearly, traditional approaches, which have focused on a single site, species, or other components, are not adequate, and more or different strategies are needed to stem the tide of biodiversity loss. Ecosystem management is emerging as a response to the recognition that threats to biodiversity are large-scale natural processes intertwined with societal processes (Gunderson et al. 1995; Cortner and Moote 1999). Fencing off individual nature preserves and implementing species-by-species action plans are not enough to conserve global biodiversity.

Incorporating the need for much broader thinking, ecosystem management involves collaboration among the diverse stakeholders; regional or landscape level perspectives of the issues; thinking of the system holistically rather than as isolated parts; restoration of whole ecosystems including ecological processes; and adaptive management (Christensen et al. 1996; Cortner et al. 1998; Grumbine 1994; Slocombe 1998; Yaffee 1999). Ecosystem management particularly addresses a number of today's conservation challenges, such as rapid spread of invasive species, recognition of multiple valid uses of landscapes, as well as fragmentation and its consequences for large scale ecological processes (e.g. natural disturbance, hydrology). Because ecosystem management is a different approach to conservation, individuals and organizations need to learn about and adopt the concept before it can be implemented. Understanding how this learning process is taking place in Chicago Wilderness (CW) members is the crux of this study, which was undertaken as my doctoral research.

Given the need for ecosystem management approaches if biodiversity is to be conserved, what promotes ecosystem management? Does participation in an ecosystem management effort promote this learning and subsequent adoption? How might organizational and individual traits affect participation and adoption of ecosystem management? To explore these questions, I surveyed the CW membership.

While the consortium literature advocates the use of ecosystem management, it is unclear the extent to which each individual member has adopted this new approach.

As shown in Figure 1, I looked at how participation in Chicago Wilderness affected the adoption of ecosystem management and how both the participation and adoption processes were influenced by individual and organizational traits.

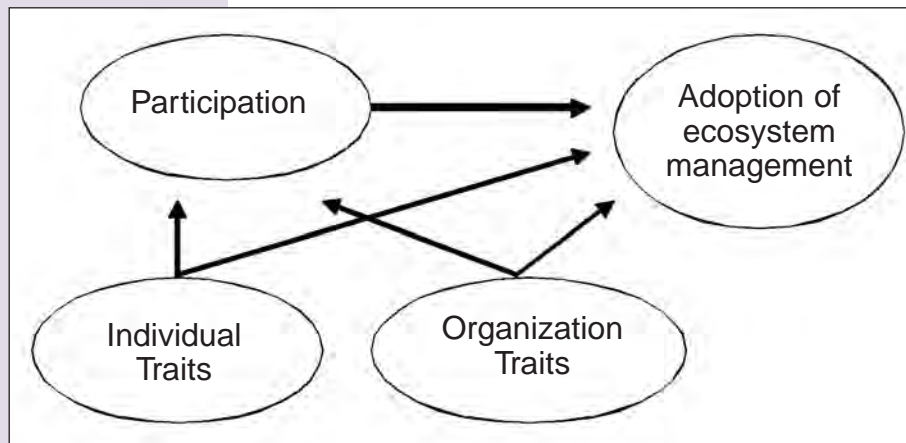


Figure 1: Overall diagram of study

Thirty-four conservation organizations and agencies formed the CW consortium in 1996 to promote more, new, and better approaches to conservation in the region. They recognized that biodiversity

conservation was dependent on working both together and on a regional scale. Although CW has grown tremendously and continues to attract new members each year, the challenge is to engage members in the collective activities of the consortium and to implement synergistic, collaborative conservation strategies in the region. For the CW consortium to be truly successful in its mission of biodiversity conservation in the metropolitan Chicago region, the organizations and agencies need to jointly fulfill that mission, through a coordinated ecosystem management approach.

## Methods

A survey was used to gather data on each of the main study components. The survey was mailed to all Chicago Wilderness member organizations, targeting one to six individuals within each organization who had been previously identified as having some knowledge about CW and their organization's relations with the consortium. In total, the survey was mailed to 492 people in 150 organizations; 299 people from 124 organizations returned the survey.

The survey included a number of questions about how respondents and their organizations participated in CW activities, for example, how frequently they attended meetings, read the e-mail bulletin, discussed issues with colleagues, or how often their organization sent someone to CW meetings. In addition to participation levels, a number of questions were asked about characteristics of either the individual respondent or their organization. Individual traits measured included field

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of expertise, level of management responsibility, date of training, and feelings of personal responsibility to find solutions to conservation challenges. Organizational traits measured included the organization's size, type, length of time as a CW member, similarity of mission to that of CW, and the organization leadership's support for CW.

The adoption of ecosystem management was measured by looking separately at each of the components of ecosystem management: systems thinking (the concept of considering all interconnecting parts rather than a single element), regional perspectives (managing across a landscape rather than a single site), collaboration (including multiple stakeholders in project planning and design), adaptive management (adjusting strategies based on affects of those strategies), and the restoration of ecosystem processes (focusing on ecosystem functions as well as elements). A variety of questions asked about the respondent's beliefs and attitudes about each of these components to gauge the extent of adoption or embracement of these concepts. Once the data was gathered, statistical tests (ANOVA and linear regression) were performed to identify which of the various participation, individual, and organizational measures affected attitudes towards the components of ecosystem management.

## Results

The different measures in this study (levels of participation, and individual and organizational traits) affected the components of ecosystem management differently. There was no single significant predictor of ecosystem management adoption, but rather different traits predicted different components. The results from the regression models are shown in Table 1. Within the table, if there is a number in the cell (beta value) then that factor significantly predicted the variation in the component of ecosystem management. Positive values indicate a positive correlation; negative values indicate a negative correlation. Some of the results are discussed below.

### *Role of involvement in the adoption of ecosystem management*

The survey contained a number of questions about the nature and extent of individual and organizational involvement in CW, through meetings, reading CW materials, etc. Factor analysis of the responses revealed that individuals and organizations were involved in CW in three different ways that I defined as *passive involvement*, *active involvement*, and *integrative involvement*.

I defined passive involvement as a type of involvement that included reading about CW and talking to others, but not actively engaging in any of the CW activities. Active involvement referred to participating in various CW activities, such as attending meetings and/or participating in projects. Finally, integrative involvement measured how engaged the organization was with CW, to the point of realigning, as needed, organizational priorities to coincide with those of CW. It was measured by asking questions about shifting priorities to align with those of CW, looking to CW to provide direction, and consulting with the consortium when making decisions. In this case, integrative involvement represents more extensive engagement than active involvement; rather than just being present, there is an internal shift to accepting and promoting the goals of CW.

The results of this study indicate that passive involvement is the strongest predictor of adoption of ecosystem management components. Respondents who were more



Independent variable	Benefits of collaboration	Costs of collaboration	Challenges of Chicago Wilderness	Attitudes towards evaluation	Importance of working on a regional scale	Importance of integrating strategies	Importance of restoring ecosystem processes
	Adjusted R <sup>2</sup> =0.411 p<0.001	Adjusted R <sup>2</sup> =0.152 p<0.001	Adjusted R <sup>2</sup> =0.109 p<0.001	Adjusted R <sup>2</sup> =0.126 p<0.001	Adjusted R <sup>2</sup> =0.067 p<0.001	Adjusted R <sup>2</sup> = 0.078 p<0.001	Adjusted R <sup>2</sup> =0.047 p<0.001
Active involvement	0.208						
Passive involvement	0.233	-0.183	-0.300		0.185	0.222	
Integrative involvement							
Level of management responsibility		0.117			-0.165		
Expertise							
Date of training							
Time in organization							
Feelings of personal responsibility		-0.126		0.186	0.175	0.135	
Organization size							
Organization type	Sig.	Sig.	Sig.				Sig.
Time in CW							
Number of people in CW 0.094							
Similarity of mission to that of CW			0.268				
Importance of biodiversity goals							
Extent learning organization							
Perceived leadership support for CW	0.146	-0.195	-0.212				0.172
Open decision-making processes							

Table 1: Predictors of adoption of components of ecosystem management based on regression analysis. (Cells include beta values where significant).

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passively involved with CW were more likely to have adopted ecosystem management as an approach to conservation than those involved in other ways. While active involvement influenced the extent to which respondents had adopted some of the components of ecosystem management, the majority of the variation in adoption was explained by passive involvement. Thus, passive involvement—getting people to read about and informally discuss the issues—appears to be key to engaging people in ecosystem management.

***Role of individual and organizational traits in participation and adoption of ecosystem management***

Many organizations are complex, and, as a consortium of organizations, CW is even more complex; thus there is much more to the story than just passive involvement leading to adoption of ecosystem management. Traits of individual respondents and of their organizations played a role in the extent to which individuals participated in CW activities and learned about and adopted ecosystem management. Because they led to recommendations, I want to focus on three of those traits: feelings of personal responsibility to find solutions to conservation challenges, perceptions of leadership support for CW, and the number of people per organization involved in the consortium's activities.

One survey question asked how personally responsible a person felt for finding solutions to conservation challenges. The survey results indicate that feelings of personal responsibility are a strong predictor of adoption of ecosystem management principles. The more feelings of personal responsibility respondents had, the more they had adopted adaptive management, regional perspectives, systems thinking, and the more they participated at a passive level.

The number of people from a given organization who were involved with CW also influenced the degree to which a respondent adopted ecosystem management. This may not be surprising, as the number of people involved in consortium activities could be interpreted as another measure of the organization's involvement in CW. As discussed above, the more people discuss and read about CW, the more they adopt ecosystem management. Therefore, involving many members of an organization is a means of increasing passive involvement.

Increasing the number of people from an organization who were involved with CW not only increased levels of passive involvement, but also increased active and integrative involvement levels. Respondents who worked for an organization with many others involved in CW were more likely to attend various meetings and look to the larger collective to set direction.

In the survey, I did not measure how involved an organization's leaders actually were with CW, but rather how involved the respondent thought their leaders were. This measure—perceived involvement of organizational leadership—turned out to be a strong predictor of how one viewed two components of ecosystem management. Respondents who believed that their organization's leaders were supportive of CW saw more benefits of collaboration, and believed more strongly in the need to restore ecosystem processes.

Perception of leadership support also led to increased levels of participation. Respondents who reported higher levels of leadership support were significantly

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more likely to be passively, actively, and interactively involved with CW. People who believe that their leaders believe in collaborative activities may feel more freedom to get involved.

### **Implications/Recommendations**

Results from this study lead to several recommendations for CW and other collaborative endeavors. Some recommendations target how individuals interact in the collaborative effort, while others focus at the organizational level.

#### ***Power of informal networking***

As shown above, passive involvement, such as reading and informal conversation, leads to more perceived benefits of collaboration, to systems thinking, and to regional perspectives. Respondents indicated that more networking enhanced an individual's sense of involvement with the larger CW effort. At meetings, one often sees the reluctance of participants to return to an agenda from a coffee break—those breaks may be doing a lot more than just providing caffeine and sugar.

Because it appears that passive involvement is one of the key hurdles to engaging people in collaborative efforts and promoting a common understanding of ideas, efforts should be made to enhance opportunities for this type of interaction. Providing longer breaks, more scheduled networking events (events with no formal agenda) and opportunities for informal conversations (i.e. just encouraging people to communicate with peers) are several recommendations.

#### ***Create lots of opportunities***

Along the same lines as increasing opportunities for informal networking is the recommendation to involve more people more often. While it is very important to get the organizational leadership on board (or at least appear to be on board) with the project goals, it is not enough. Both organizational learning and ecosystem management need coordinated action on many fronts, and require high participation levels.

The number of people per organization involved in CW predicted the number of benefits of collaboration seen by the respondents. In other words, the more people involved from a single organization or agency, the more the organization was thought to benefit from the collaborative endeavor. Therefore, it is not enough to involve a single point person. Efforts should be made to involve individuals from a variety of departments from within an organization. Involving many from a single organization not only accrues more benefits to the organization (so they are likely to keep participating) but also increases the chances of passive involvement within the organization. There are more people with whom to share CW experiences.

#### ***Lead the way—perception of leadership***

The results of this study show the importance of leadership support (or at least the perception of leadership support). Strong perceived leadership support for CW led to respondents seeing greater benefits and fewer costs to collaboration. Likewise, perceived leadership support predicted all three levels of involvement, and was the strongest predictor of passive and integrative involvement. The more an organization's leadership was perceived as supportive of CW, the more that the

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organization's participants could freely collaborate and work with others in open dialogue and other processes that promoted learning. Thus, even if an organization's leadership does not have the time to be actively involved in CW or another collaboration, if they are supportive of the collaborative goals then this support should be made widely known in order to promote involvement by other members of the organization. For example, the executive director of at least one CW member organization rarely attends consortium meetings but encourages his staff to participate as it helps them to achieve organizational goals. Each organization will have different constraints on the extent to which it is able to participate in various CW activities. However, to the extent that the consortium can help a member organization achieve a particular objective, staff of that organization should be encouraged and rewarded for seeking collaborative solutions.

### *Develop feelings of personal responsibility*

Feelings of personal responsibility to find solutions to conservation challenges turned out to be the biggest predictor of how respondents felt about adaptive management, regional perspectives, and systems thinking. When people feel personally responsible they may tend to seek new and creative solutions.

Feelings of personal responsibility are likely related to a number of factors: childhood experiences, field of expertise, management responsibilities, and innate character. Obviously, some of these are easier to influence than others. The message here, however, is to try to heighten personal responsibility among individuals. Within the organizational and collaborative setting, one way to do this is to share power and decision-making authority. Often people in CW talk about "building ownership;" this is the same idea. Increasing an individual's attachment to a larger problem or a shared goal will help to bring the individual and subsequently their organization into the collaborative work. Survey results showed that the more open the organization's decision-making processes were, the more involved its participants were at the active and integrative levels. In other words, the more the planning process for a specific strategy can be opened up to a variety of participants, the more likely it is that those participants will actively engage in the process and work towards its success. Having people actively engaged in planning strategy builds feelings of personal responsibility to ensure success of that strategy.

### **Conclusion**

While there are many ways to involve individuals and organizations in collaborative projects, this study provides some insights on how various factors lead to adoption of a common strategy. In summary, the greater number of people involved from a single organization in the collaborative effort, the more likely the strategy will be adopted by the organization. Informal networking and discussion are good ways to involve people, as is promoting the leadership's support for an idea or effort.

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### Literature cited

- Christensen, N. L., A. M. Bartuska, J. H. Brown, S. Carpenter, C. D'Antonio, R. Francis, J. F. Franklin, J. A. MacMahon, R. F. Noss, D. J. Parsons, C. H. Peterson, M. G. Turner, and R. G. Woodmansee. 1996. The report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management. *Ecological Applications* 6(3): 665-691.
- Cortner, H. J. and M. A. Moote. 1999. *The Politics of Ecosystem Management*. Island Press, Washington, D.C.
- Cortner, H., M. Wallace, S. Burkew, and M. Moote. 1998. Institutions matter: the need to address the institutional challenges of ecosystem management. *Landscape and Urban Planning* 40: 159-166.
- Grumbine, E. 1994. What is ecosystem management? *Conservation Biology* 8(1): 27-38.
- Gunderson, L. H., C. S. Holling, and S. S. Light, eds. 1995. *Barriers and Bridges to the Renewal of Ecosystems and Institutions*. Columbia University Press, New York, NY.
- Leemans, R. 1999. Modeling for species and habitats: new opportunities for problem solving. *The Science of the Total Environment* 240:51-73.
- Myers, N. 1998. Global biodiversity priorities and expanded conservation policies. Pages 273—285 in G. M. Mace, A. Balmford, and J. R. Ginsberg, eds. *Conservation in a Changing World*. Cambridge University Press, New York, NY.
- Slocombe, D. S. 1998. Defining goals and criteria for ecosystem-based management. *Environmental Management* 22(4): 483-493.
- Yaffee, S. L. 1999. Three faces of ecosystem management. *Conservation Biology* 13(4): 713-725.

# Chicago vs. The Asian Longhorned Beetle: A Portrait of Success

Thomas Dilley, USDA Forest Service

Judy Antipin, USDA Forest Service

*As we become a more global society, one of the drawbacks is the increase in opportunity for invasion of foreign species into the region's ecosystem. Thomas Dilley and Judy Antipin offer a potential blueprint for combating exotic insect infiltration into our landscape.*

The principle objective in conducting and publishing this case study of the Asian longhorned beetle infestation in Chicago is to offer state and local government officials and interested community members a blueprint for recognizing and effectively dealing with invasive/exotic insect pest emergencies. The experience of the past decade shows that appearances of these unwelcome and dangerous tree pests are on the rise. Urban and suburban forests have so far borne the brunt of this onslaught, but without diligent campaigns of detection and eradication, all of the Nation's forests are at risk.

## Background

Since 1996, communities in and around New York City, New York; Chicago, Illinois; Jersey City, New Jersey; and Toronto, Canada have lost thousands of trees to an unwelcome hitchhiker from China called the Asian longhorned beetle. The insect's scientific name is *Anoplophora glabripennis*, and in China it is known as the "Starry Sky Beetle," because of the distinctive white markings on its large, glossy black body. On the North American continent, its long, curved antennae, similar in shape to the horns on some cattle species, have earned it the title of Asian longhorned beetle, or ALB (Figure 1).

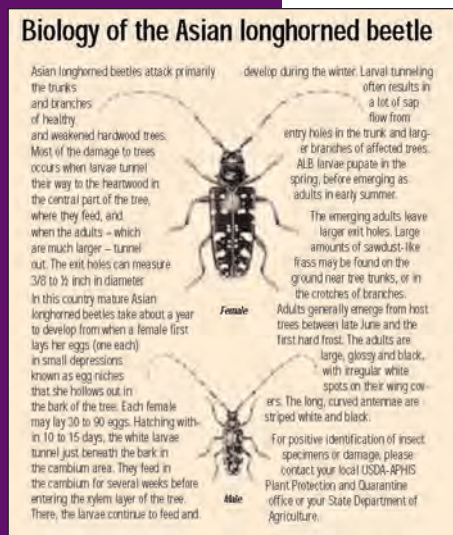


Figure 1. Illustration of a male and female Asian longhorned beetle

ALB first arrived in the United States in solid wood packing materials from China, probably sometime in the last 15 years. Beginning in the early 1990s, regulatory officials first intercepted the beetle at warehouses and other ports of entry across the country. In 1996, the first active infestation of ALB was discovered in Brooklyn, New York, and shortly thereafter on Long Island. ALB has since been found in three of the five boroughs of New York City. Chicago was the site of the second known ALB infestation, in 1998, followed by Jersey City, New Jersey, in 2002, and Toronto, Canada, in 2003. Most recently, in the late summer of 2004, more than 400 trees in Carteret, New Jersey, were found to be riddled with the uniquely round exit holes made by adult ALB as they emerge from trees beginning in the late spring or early summer. Quarantine and eradication programs are ongoing in each of these areas. ALB infestations have also been found on the European continent, first in Austria in 2001-02, and more recently in Germany.

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In China, the beetle is a major threat to that country's poplar trees, but in North America their main hosts are members of the maple family, followed by elm, birch, ash, willow, and poplar. The tree species preferred by the Asian longhorned beetle comprise nearly half of the hardwood tree cover in the United States, and the continued spread of ALB could have enormous economic and environmental consequences. A study by United States Department of Agriculture (USDA) Forest Service researchers in 2001 concluded that the "potential national urban impact of ALB is a loss of 34.9 percent of total canopy cover, 30.3 percent of tree mortality (1.2 billion trees) and value loss of \$669 billion" (Nowak et al. 2001).

There is no "cure" for ALB once the insects have infested a tree. To prevent spread of ALB, affected trees are cut down, chipped, and the chips burned. In the urban/suburban communities where the beetle has so far appeared in this country, tree loss has been high, creating a decline in the aesthetic and environmental benefits provided by mature trees. Tree replanting efforts are ongoing and are focused on species resistant to the beetle, but these young trees will take many years to mature.

Early detection of the Asian longhorned beetle is critical to contain its spread. Professional arborists and others who have contact with trees routinely are ideally suited to be part of the first line of defense in the battle to detect and eradicate this exceptionally dangerous tree pest. Because the main entry into this country has been in solid wood packing materials, the USDA issued a ruling in 1998 that wood packing materials from China or Hong Kong must be treated with preservatives, heat treated, or fumigated before shipping to the United States.

Building on the early detection/warning theory, Chicago has become the site of a demonstration volunteer project funded by Animal and Plant Health Inspection Service (APHIS). The project utilizes community residents and De Paul University students to survey and inspect selected trees in the 43rd and 44th Wards of Chicago for signs of ALB infestations. If this project is successful it may be expanded to other geographical areas and other invasive pests as well.

The discovery of ALB in Chicago in 1998 resulted in the removal of over 1500 trees and provided evidence that green industry professionals, private and public, can play an important role in the detection of ALB, possibly reducing the number of trees that may have to be harvested. In July of that year, Barry Albach, Skokie Park District, accepted some firewood from a fellow worker just before the Fourth of July holiday weekend. He put the wood in the back of his closed-bed pickup and a few days later found unfamiliar beetles flying around inside. In a 2003 interview for a case study of the Chicago Asian longhorned beetle program, Albach described his reaction: "I've seen lots of bugs but I never saw this one before, so I did an Internet search and punched 'beetle' into Yahoo search engine. The first hit to show up was a picture of the Asian longhorned beetle, along with a pest alert. It still didn't dawn on me that it was that serious but as I read further it said to call the Department of Agriculture. They were a little skeptical of me, but as we talked further about what I found, they were prompted to come out and take a look at it for themselves" (Antipin and Dilley 2004).

## Method

While individual efforts such as these are critical and should be applauded, they do not fully address the issue of the beetles already in this country and ongoing efforts to

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eradicate them. Human intervention has spread current infestations beyond their original boundaries, so human intervention will again be needed to resolve issues related to these invasive insects. In an effort to address this issue and determine the elements of a successful invasive intervention and treatment program, Antipin and Dilley (2004) completed a case study entitled, "Chicago vs. The Asian Longhorned Beetle: A Portrait of Success." They interviewed 23 key respondents including community residents and local, state, and federal partners involved with all the aspects of the Chicago ALB program. Based upon the responses, the authors identified several categories of key variables that appear to be critical for implementing a successful control program.

The interviews were conducted either at work sites or residences, depending on individual circumstances. We chose our respondents contingent on their direct involvement with the Asian longhorned beetle issue, either at the professional—or nonprofessional level. We conducted the sessions using an open-ended format including a conscious effort directed at reducing leading and/or biased questions. We attempted to reduce any negative or positive feedback to avoid biasing the next question or response the person would give. After completing the interviews with 23 respondents, we developed a matrix consisting of 13 common theme categories. These theme areas were then put into a matrix and scored by the number of occurrences per theme category per interviewee. The variables were chosen by initially reading all of the interviews and withholding selection of individual common response categories (CRCs) until the second review. As the transcripts were read the second time, we began to identify common topics that emerged from the interviews and sorted these out into more specific themes that we could compartmentalize and evaluate.

## Results

Figure 2 includes all of the categories of variables identified from the survey. For purposes of this article, we will address the top seven variables that were most critical to the program.

The factors most cited as critical to a successful program were public outreach and media coverage. Sixty-five percent of the respondents stated that from the very beginning, the ALB team adopted a policy that allowed for large-scale public and media access to information. This approach gave the public two avenues of information. The team was careful to convey consistent messages between the information in the media and at public meetings. The core message was that the city, state, and federal government were devoting all available resources to the eradication of ALB in Chicago, and that residents would not be saddled with the cost of removal or restoration. Local media gave the ALB eradication effort top coverage in the beginning, and followed up with regular ongoing coverage. Just as important was the fact that the coverage was positive. Two newspaper reporters commented that the "open door" policy set by the ALB team contributed to positive coverage, because it convinced them that there was nothing to hide. The local media realized the danger posed by the beetle and assumed a role of public outreach and education.

Political support was cited 60 percent of the time as an important contributing factor of success. Virtually all of the respondents working on the ALB team mentioned the strong, visible support of Chicago Mayor Richard Daley as crucial to the success of the program. The Mayor's first press conference set that tone, and also gave the ALB



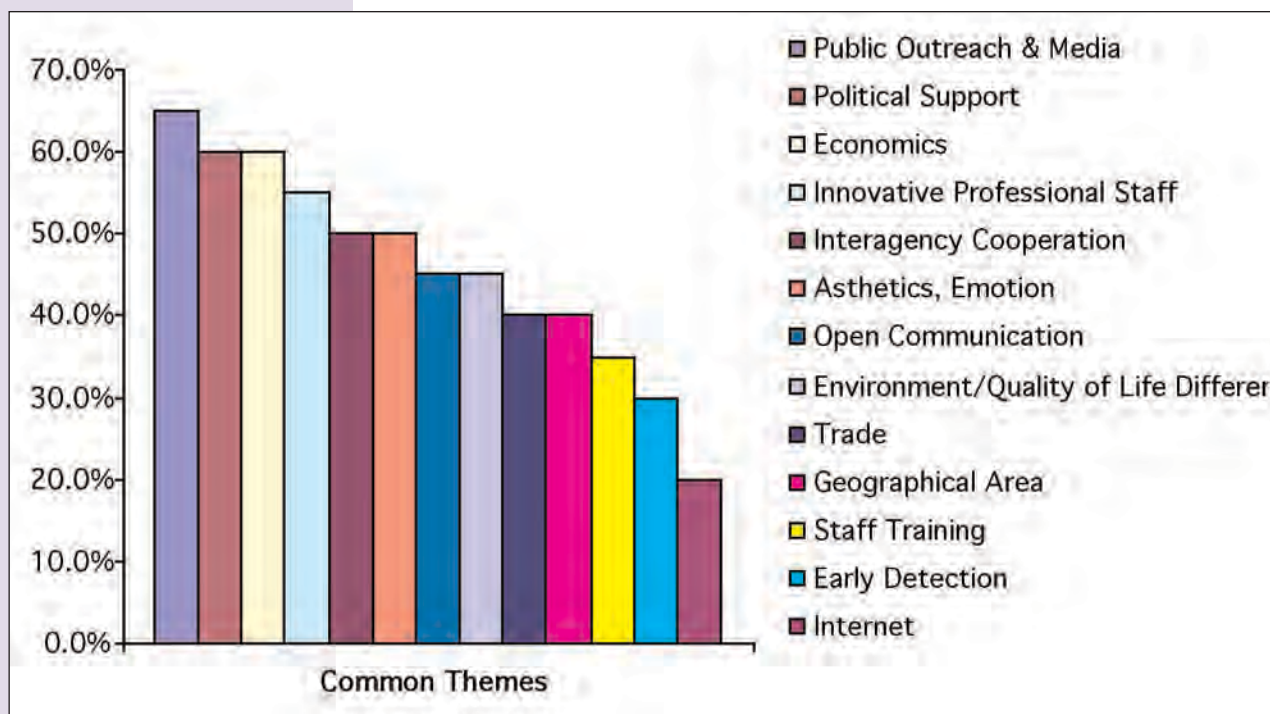


Figure 2. Common themes as identified by 23 interviewees

team members the knowledge that he recognized their expertise and fully expected them to be successful. With that support, city agencies, local elected officials, and city employees responded promptly and gave their efforts the highest priority, as dictated by the Mayor.

The Chicago program had an advantage that many other programs do not—it was contained within the city of Chicago, and therefore did not cross any municipal or political boundaries. Local elected officials, such as the state representative and alderman, supported the Mayor's position and acted as "ex officio" members of the ALB team.

Kenneth Knauer (USDA Forest Service State & Private Forestry, Northeastern area) noted, "The lesson we learned there is that we have to have support from the top. The political infrastructure has to be behind the intervention against these exotic invasive pests or we will just not stop them. I think the message to the general public is that once these pests occur, your help is needed in making sure that the politicians and your representatives are sensitized both to the opportunity to be responsive and to the impacts of the damage that might occur if we don't intervene quickly."

Financial considerations (economics) scored a 60 percent rating and were rated with the same importance as political support. The concerns about property devaluation and the fact that residents were assured they would not have to assume the tree removal or restoration costs figured greatly in their responses.

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The presence of an innovative professional staff ranked at the 55 percent level and was cited as another major factor. Several respondents mentioned that surveys were conducted from the ground initially, in accord with longstanding protocol, then moved to bucket trucks, and finally to using smokejumpers as climbers in the off-season. These innovations were suggested during problem-solving sessions that included APHIS and USDA Forest Service personnel as well as city and state officials.

The interviewees (50%) identified the seamless integration of staff from local, state, and federal agencies as important in presenting a unified front and promoting the same messages. The team operated from a single office in the core area. One respondent noted that if visitors walked through the office, they would see a team, rather than individuals serving the causes of different agencies.

The values of aesthetics and emotion also ranked at 50 percent with half of the respondents identifying the aesthetic value of trees and the emotional pain associated with their loss, either to themselves or to residents. One interviewee, a singer-songwriter, wrote a song describing the cutting down of the trees in Ravenswood and used it in a subsequent album.

Finally, 45 percent of the respondents suggested that continued open communication among team members and with the media served to keep the public informed of progress in eradicating the beetle and restoring the community's trees.

## Conclusions

We believe the study shows that in order to effectively combat invasive species at a community scale a cooperative working relationship must thrive between agencies, municipalities, and the general public. The Chicago situation further illustrated how important it was to have leadership (initially from the mayor's office in this instance) in affecting a quick response to this issue. Support from the top is critical, which then filters down through the political infrastructure. We also believe that early detection is critical. This case study dealt with an existing infestation in which early detection was not discussed, but it is easy to understand that education and early detection are extremely important to combat future invasive species.

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*Judy Antipin is a Public Affairs Specialist on the staff of the Forest Health Unit, Northeastern Area, USDA Forest Service, in Newtown Square, Pennsylvania.*

*For more information and ALB resources, visit [www.na.fs.fed.us/spfo/alb/index.htm](http://www.na.fs.fed.us/spfo/alb/index.htm) or [www.aphis.usda.gov/lpa/issues/alb/index.html](http://www.aphis.usda.gov/lpa/issues/alb/index.html)*

## Literature Cited

Nowak, D.J., J.E. Pasek, R.A. Sequeira, D.E. Crane, and V.C. Mastro. 2001. Potential Effect of *Anoplophora glabripennis* (Coleoptera Cerambycidae) on Urban Trees in the United States. *Journal of Economic Entomology* 94:116-122.

Antipin, J. and T.E. Dilley. 2004. Chicago vs. the Asian Longhorned Beetle: A Portrait of Success. U.S. Department of Agriculture: MP-1593.

*Wonder no longer about the state of natural areas in the Forest Preserve District of Cook County. Deborah Antlitz reveals the condition of the preserve's holdings as well as actions resulting from the study's findings.*

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## The Ecological Condition and Management Needs of Natural Areas in the Forest Preserve District of Cook County

Deborah Antlitz

Forest Preserve District of Cook County

The Forest Preserve District of Cook County (FPDCC) is among the oldest and largest systems of land preservation in the Chicago Wilderness (CW) region. Founded upon the ideal of early twentieth century visionaries, the District today protects over 68,000 acres of open space—11% of the land in one of the Midwest's most highly urbanized counties.

Our Forest Preserves are a refuge for a rich diversity of plants and animals that once thrived in pre-pioneer Illinois—native species which increasing development has banished from much of the prairie state they once called home. Within Cook County preserves, the last remnants of natural communities such as woodlands and savannas, prairies and sedge meadows are permitted to thrive among us, along with their rich diversity of wildflowers and trees, butterflies and songbirds, river otters, foxes, deer, and other delights of the natural world. Today's citizens and visitors to Cook County are greatly enriched by the natural heritage bequeathed to us by the District's founders.

In the past few decades, conservationists nationwide have become increasingly aware of the need to actively manage natural areas within the context of their increasingly urbanized surroundings. No longer part of a robust natural landscape, the preserves of today are surrounded by an urban environment often hostile to many of the preserve's living things. Isolated from each other by roads and development, fragmented natural areas in Cook County are susceptible to a host of threats. Among these threats are polluted run-off from surrounding roads and parking lots, altered natural hydrology, the introduction of invasive non-native species, the loss of large predators such as wolves which once controlled deer populations, and the loss of sweeping wildland fires that once shaped the landscape. All of these conditions disrupt former natural processes to which our native plants and animals had adapted over thousands of years. When the disruption becomes too great, species may die out. The fragmented landscape makes it difficult for some animals or plant seeds to recolonize and heal disrupted natural areas. As species die out, biological diversity declines until the entire community may collapse. Natural areas

management seeks to counterbalance these harmful side effects of increasing urbanization. By controlling invasive species, restoring balanced populations and community structure, and returning fire processes, managers mitigate some of the new challenges confronting our remnant communities, thus allowing them to thrive and flourish among us.

### Ecological Assessment

In 2003 the FPDCC conducted the first in-house ecological assessment of its holdings. The study was designed with two purposes in mind. First, we wanted to identify the ecological condition of FPDCC holdings. Second, we wanted to identify and quantify significant ecological threats to the natural holdings. Quantification is an important step toward gathering the resources needed to recover, rescue, and maintain the health of the priceless natural remnants.

We first mapped the District's open lands using Geographic Information System (GIS) software. This software also helped to randomly generate 150 survey stations within Forest Preserve District holdings, and provided global positioning system (GPS) coordinates so that each random station could be precisely located in the field. At each monitored station we measured plant diversity, tree coverage and density, shrub cover, and ground layer vegetation.

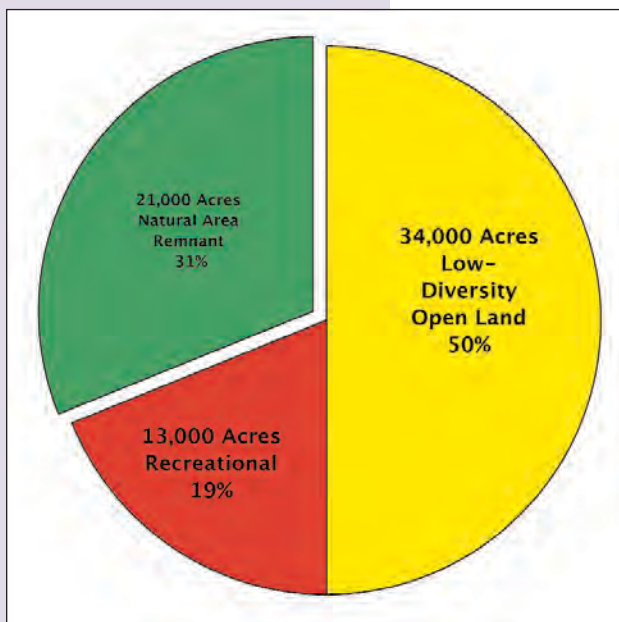


Figure 1: The District's 68,000 acres are comprised of 19% recreational facility (including fishing lakes), 50% low-diversity open space, and 31% (21,000) of remnant natural communities.

### Findings

Our 2003 Ecological Assessment identified 21,000 acres of the FPDCC that contain irreplaceable natural communities of significant ecological importance (See Figure 1). These lands are the remnants of the former Illinois landscape—sedge meadows and marshes, prairies and savannas, woodlands and forests. These natural remnants harbor the majority of the Forest Preserve's 1,000+ native plant species, and therefore are of the highest priority for land management and natural community preservation.

The study also revealed that of the 21,000 acres of irreplaceable natural communities, 76% show signs of significant community decline that portends a loss of native species. For these areas to recover and thrive, it is crucial to identify and counteract the forces driving community decline.

Within wooded communities, the study found increasing community decline proportional to each community's historic fire dependence. Regular fire events were an important force





Figure 2: Photograph of a healthy savanna community. In the absence of fire, tree canopy cover increases until native understory plants can no longer survive in the increasing shade.

shaping the pre-pioneer landscape. The sun-dappled savannas and woodlands depended on fire to maintain their delicate balance of partly shaded/partially sunlit structure (Figure 2). The long-term absence of fire brings a closing of canopy structure, reduction of sunlight, and a shift away from those conditions to which the remaining wildflowers and grasses are adapted. While in the past such shifts might have led to the succession of one natural community by another, such succession is difficult in today's fragmented landscape.

As light-adapted species decline and die out, the fragmented landscape offers few native species to fill the community void. Instead, opportunistic non-native weeds or bare ground begin to dominate the ground layer. As shown in Figure 3, the greater the shift in conditions, the greater the loss of species. Most heavily impacted by these shifts are the highly fire dependent savanna and open woodland communities. If these open, sun-dappled, wildflower-rich communities are to be preserved and restored, it is important to reintroduce an appropriate fire regime through prescribed burning. A prescribed burning of 5,000 acres a year is estimated to be needed in order to meet the needs of the District's declining natural areas.

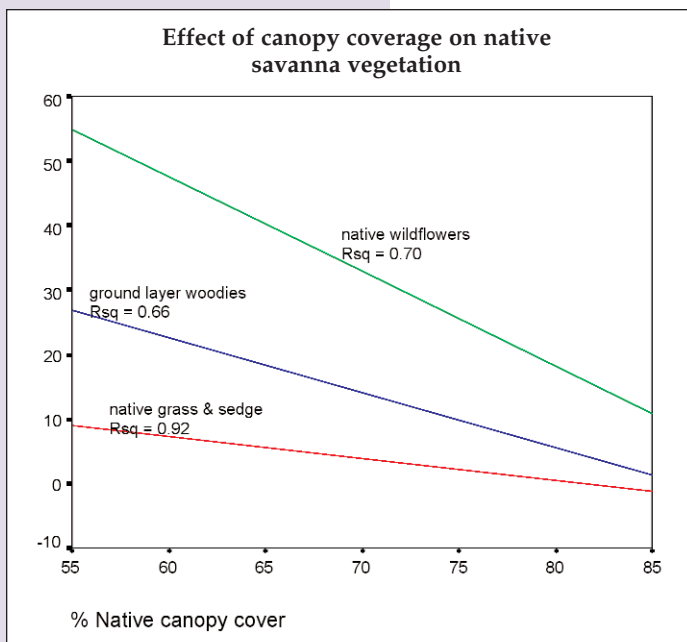


Figure 3: With an increase in savanna canopy cover, the coverage of native grasses and wildflowers declines.

Especially thick and overgrown natural areas will require the physical thinning of woody growth. Clearing of brush is indicated for 10,000 acres of declining natural area, while clearing of saplings and young trees is indicated for 13,000 acres. The study estimated larger trees may need to be cleared on 6,000 acres of remnant prairie, savanna, and open woodland in order to preserve the diverse native plants and animals dependent on these open communities.

Some non-native species so alter the community that they pose a high risk to native species. The study found there to be a need to control buckthorn on at least 9,000 acres and garlic mustard on 10,000 acres of declining natural area.

Wetlands within the Forest Preserves have been heavily impacted by surrounding land

use changes that have affected drainage patterns, often increasing surface run-off, siltation rates, and water pollution. Of the wetlands surveyed, 82% were highly disturbed, virtual monocultures of reed canary grass or cattails. Reed canary grass, a highly invasive, non-native grass species, threatens the ecological health of 1,400 acres of wetland community. Thickets of shrubs, such as the non-native glossy buckthorn, impact an estimated 500 acres of sedge meadow and fen habitat. Purple loosestrife had a significant presence in 450 wetland acres. Apart from the highly impacted wetlands, the study estimates that approximately 500 acres of quality, relatively intact and diverse wetlands could be helped by managing adjacent upland communities and maintaining vigilant control of potentially invasive species.



*Figure 4: This Nature Preserve prairie was heavily threatened by dogwood encroachment.*



*Figure 5: Prescribed fire in the same area has controlled the dogwood and allowed for native prairie grasses to thrive.*

High deer populations can substantially impact native wildflowers. While the study did not quantify deer populations or deer browsing levels, there is an identified need to assess browsing impacts and maintain appropriate deer populations on the 21,000 acres of species-rich natural communities, and particularly on the 16,000 acres which are showing signs of significant decline.

### **Outcomes**

Since this study began, the FPDCC has taken important strides toward meeting its ecological management needs. Natural areas management is the key focus of the District's newly formed Department of Resource Management, which

supports and directs three trained and certified crews to undertake restoration throughout the county. The District's Ecology Section has developed a sweeping, county-wide approach to land management planning and prioritization. This includes a county-wide burn priority plan, a county-wide approach to natural community mapping, and the development of community-based best management practices.

In addition to its own

resources, the District collaborates with a host of conservation partners on over a dozen large-scale restoration projects. These

partnerships have generated over 4.7 million dollars toward restoration goals. Among the District's most enduring partners are over 70 volunteer groups, supported by the District's newly-established Volunteer Resource Center.

By collaborating toward a common goal, citizen volunteers, government agencies, Chicago Wilderness partners and the Forest Preserve District have an excellent chance of preserving, protecting, reviving and restoring our priceless natural heritage for generations to come.

### Further Reflections

The monitoring protocols and established monitoring stations have been useful for documenting the positive effects of management. While station selection was computer-generated and random, some sampling stations did fall within existing management areas. Repeated sampling of these stations in 2004 has documented that prescribed fire is restoring diversity to a previous cattail

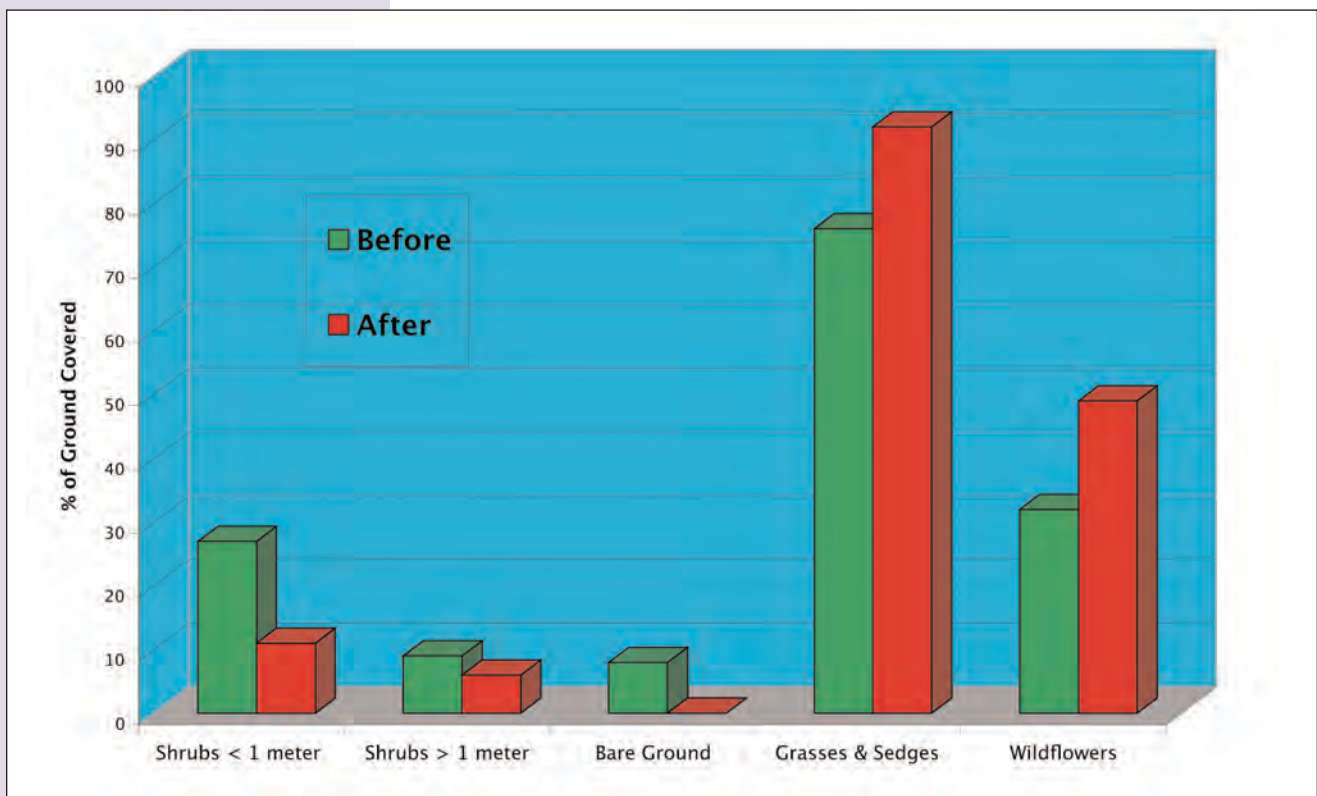


Figure 6: : *Groundcover percentage by vegetation type before and after prescribed burning.* Prescribed fire has reduced shrub encroachment, and enhanced the coverage of native grasses and wildflowers, as shown by before and after monitoring.



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monoculture, controlling dense incursions of shrubs in remnant prairie, and revitalizing the coverage of native grasses and wildflowers (see Figures 4 and 5). Changes in the vegetation pictured in Figures 4 and 5 are illustrated graphically in Figure 6.

The protocol provides detailed information with a wealth of analytical potential. The interplay between canopy coverage, shrub density, woody composition, species richness and understory cover can be examined and evaluated with changing management actions such as clearing, deer control, or fire. It works well in small management units where a representative macroplot will suffice to characterize the community. In larger units the macroplot can be used to evaluate trends and key factors.

The sampling protocol requires specialized equipment and can be time consuming for an individual. Monitoring may require 4-6 hours for a solo monitor. Fortunately, the various components of the protocol lend themselves to division among participants. When delegated among a team, the protocol can be completed quickly. People with basic knowledge of trees and general plant identification can quickly learn the protocols for coverage and tree composition through on-site training. Inexperienced participants can find a role in plot and transect layout, note-taking, tree measurement, and equipment management, while also enjoying the opportunity to learn from experienced monitors. All or part of the protocol can be conducted at a session. Some tasks require specialized equipment like a densitometer or DBH tape (for measuring tree diameters), while others can be completed with a simple PVC frame, compass and tape reel. Where equipment is available to willing monitors, the sampling stations can provide useful ecological data while providing opportunities for learning and participation to a variety of people.

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## Book Review

### *The Future of Life*

E.O. Wilson, Alfred A. Knopf

New York, 2001

Reviewed by Henrietta Saunders

*"For the naturalist every entrance into a wild environment rekindles an excitement that is childlike in spontaneity, often tinged with apprehension—in short, the way life ought to be lived, all the time."*

E.O. Wilson

*The Future of Life*

Maybe it's irreverent, but I think of E.O. Wilson as a friendly grandfather figure. So what if he is one of the foremost biologists of our day and two-time Pulitzer Prize winner? I recently heard him speak when he accepted the Chicago Horticulture Society's Hutchinson Prize, and I got the impression that it would be nice to sit together chatting over a cup of coffee. As I read his views in *The Future of Life*, I wanted to share in Wilson's optimism that this world can be saved if we take the right steps. I wanted to trust his experience and wisdom, so much greater than my own, as he led me to consider the worldwide environmental crisis in a new light. I recommend his informative and encouraging book to everyone, not just those who are already committed to nature.

*The Future of Life* invites conversation. It is packed with facts, figures, and anecdotes that illustrate the need to save our biosphere. From a scientific perspective, Wilson likens every species and ecosystem to a living library containing irreplaceable information gathered over millennia. He bemoans the loss of biological riches as he also begs that we catalog and classify more. From an economic perspective, he outlines the "services provided" by watersheds and lakes that we simply could never afford to replace. Wilson also includes a chapter entitled "How Much is the Biosphere Worth?" that roams from global warming to zebra mussels and purple loosestrife in assessing the costs of imbalance. Using a moral perspective, he makes the case that all nature is a gift that should be cared for. From a practical perspective, Wilson cites international examples of successful conservation-oriented partnerships uniting the scientific community, governments and private interests. He shows how these win-win situations can directly benefit human beings as they also serve other purposes.



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An interesting aspect of the book is that while explaining these important issues from his global vantage point, Wilson is generally able to maintain a personal tone that engages the reader. Additionally, he appeals to both traditional conservatives and development advocates with ideas designed to attract their support.

The body of the book starts with an overview of the biosphere. Self-described as a man who is “spoiled by the richness of invertebrates,” Wilson gives us beautiful examples of ecosystems and organisms great and small. He points out the huge amount of classification work still left to do, recognizing that we have barely begun to explore life on Earth. From the story of the exceedingly rare and shy Sumatran Rhino, to the bacteria inside our mouths, to extremophiles that have been found living 600 feet beneath glacial ice in Antarctica, he cites wonder after wonder. It’s hard not to read and gasp aloud at the same time, because the wonders he describes are so marvelous. This litany of miracles is made more real because the author has seen them with his own eyes.

After this awe-inspiring start, Wilson poses the problem that our collective behavior, specifically wasteful consumption and overpopulation, has resulted in humans becoming the great planetary killers. He uses the curious word “bottleneck” to refer to the situation, reflecting his opinion that there is a way through and out of our biological crisis, while acknowledging that it will require commitment, creativity and care. Wilson re-frames the arguments between environmentalists, “people firsters,” economists, and other interested parties in a slightly clumsy dialog. He finds common ground among opposing views on ecological issues, and asks us to refashion our thinking so that economic progress and conservation can become one and the same goal. He describes the problem in terms of trying to find ways to shift to sustainability, recognizing that economic development and technological innovations are both needed and are here to stay.

Wilson suggests that sustainability requires that the standard of living for the poorest people on Earth be improved. Many of these people live in places that boast the richest biodiversity. In fact, across hotspots in Ecuador, Atlantic Brazil, West Africa, the Philippines, India, and elsewhere, only two percent of our world’s land surface serves as home to half of its plant and animal species. Wilson would have scientific teams focus more directly on recognizing and knowing all types of hot spots so that they can be more effectively protected through a variety of conservation measures. He supports the development of biogenetically engineered crops to help solve shortages of food among the poor. He makes an effective argument about the need for further bioprospecting for medicines among the thousands of species we still know little about. He encourages finding ways to make conservation profitable whenever possible.

Upon reflection, I wish that Wilson would call more urgently for the wasteful nations (especially our own) to reduce the environmental footprint we make. Yet instead of offering much criticism, he focuses on the positive. One of the greatest of these positives is the tendency worldwide for women to have fewer children as they become educated and economically secure. By improving the standard of living for women, problematically high reproductive rates will be reduced as smaller families are planned. Other positive trends cited by Wilson include the tendency of organized religion toward greater involvement in environmental stewardship, the ability of governments and nongovernmental organizations to collaborate on individual

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projects, and the development of still greater scientific understanding of what the natural world offers. Wilson clearly believes that a global environmental ethic is on the rise and the race is on to get effective solutions in place. I fear that he is overly optimistic, but find myself wanting to believe.

There is a 12-point list of initiatives at the back of the book in a chapter called "Solutions." It includes a call to save frontier forests and to cease logging of old-growth forests. The specifics provided in this list make a concise ending to a very wide-ranging book.

*Henrietta Saunders is a homeschool mom and a frequent volunteer (along with her children) for various CW projects. She can be reached at [hankandboys@sbcglobal.net](mailto:hankandboys@sbcglobal.net)*

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## Web Site Review

### Web Resources for Invasive Plant Species

Robert Sullivan

Argonne National Laboratory

#### Introduction

In this issue, rather than reviewing a single Web site, we will look at several sites devoted to a particular topic of concern to the Chicago Wilderness (CW) community—invasive plant species. Along with a discussion of the basic purpose and features of the various sites, we'll compare the information provided by each of the sites on three species of particular concern in the Midwest: purple loosestrife (*Lythrum salicaria*), buckthorn (*Rhamnus cathartica* or *Frangula alnus*), and garlic mustard (*Alliaria petiolata*). The comparison should help highlight the strengths and weaknesses of particular sites and give readers an idea of the types of information about invasive plant species that they can expect to find on the Web.

In reviewing the sites, I looked for several types of information that CW members (i.e., environmental professionals) would likely need:

- General information about invasive plant species, including links to other resources;
- Descriptive information about specific invasive plant species including: habitat, geographic distribution, and photos/drawings;
- Information on control methods;
- Information about regulations and other governmental rules and designations regarding invasive plants (e.g., state listed noxious weeds).

I was shocked at getting no less than 873,000 (no, that's not a typo) Google™ search returns on the phrase “invasive species.” This suggests a global level of concern about invasive species, as well as the enormous amount of information available on the Web concerning this issue. Restricting the search term to “invasive plants” generated more than 178,000 returns; I then selected several of the top returns from this list that featured invasive plants in the Midwest. I also consulted with members of the CW *Journal* Editorial staff on sites they or their colleagues use; no doubt I missed a number of good Web sites. With that caveat, we'll look first at what I think is a great starting point for anyone seeking information about invasive plant species: the Federal government's “official” invasive species site, *Invasivespecies.gov* (<http://www.invasivespecies.gov>).

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### *Invasivespecies.gov*

According to the home page, *Invasivespecies.gov* is “the gateway to Federal efforts concerning invasive species.” While it does not have an extensive list of invasive plant profiles, it does provide many useful resources, including extensive links to agencies and organizations interested in the prevention, control, or eradication of invasive species; terrestrial and aquatic invasive plant databases; listserves (e-mail discussion groups); frequently asked questions (FAQs); federal and state regulations, etc. There are literally thousands of invasive-species-related links on this site. Although many links concern non-plant invaders and other regions of the country, CW members will find much of use here. Other resources available include a manager’s toolkit with information about control of invasive species; vectors and pathways; educational resources; and the National Invasive Species Council, a Federal inter-Departmental council that helps to coordinate and ensure complementary, cost-efficient, and effective Federal activities regarding invasive species. Try <http://www.invasivespecies.gov/geog/state/il.shtml> to get an extensive list of invasive species links for Illinois.

The species profiles on *Invasivespecies.gov* include the scientific name, common name, and photo that are commonly found on invasive species Web sites. Beyond these items, however, the profiles provide very little information directly. What they do provide is an extensive and very useful categorized list of species-specific links. In the case of garlic mustard, 32 links are provided to federal government, state government, university/academic, and organization resources. Buckthorn and purple loosestrife, however, are not listed at all. While *Invasivespecies.gov* is an excellent gateway to invasive species information, it is currently rather a poor resource for plant profiles.

### **Global Invasive Species Database**

A better site for information about specific invasive plants is the *Global Invasive Species Database* (<http://www.issg.org/database/welcome/>), developed by the World Conservation Union Invasive Species Specialist Group as part of the global initiative on invasive species led by the Global Invasive Species Programme. The *Global Invasive Species Database* is a Web-enabled database of 242 (currently) invasive species worldwide including plants and animals. Thus it has relatively few plant species of concern in the Midwest, but does provide detailed information about the plants it includes. The database is easy to use, allowing searching by taxonomic classification, common or scientific name, country, habitat, or life form. While there was no entry for buckthorn, I easily located material on loosestrife and garlic mustard by specifying “herb” and “wetland” and “forest” as habitats, respectively. The return included several pages of information, including a detailed ecological description, photos (for loosestrife only), management information and links, distribution information (accurate only for garlic mustard), a good list of references, and contact links for experts willing to provide advice about a particular species. I liked the extensive species descriptions and resource information provided by the *Global Invasive Species Database* and look forward to its expansion to include more species. As an aside, I e-mailed the site to inform them about the error in the distribution information for purple loosestrife and provided some links to support my claim. I received a polite response the following day informing me that the database was updated with the correct information.

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### **Wisconsin DNR *Invasive Species* Web Site**

Closer to home, the Wisconsin Department of Natural Resources's (DNR's) *Invasive Species* Web site (<http://dnr.wi.gov/org/land/er/invasive/index.htm>) provides detailed information about selected invasive plants (both native and nonnative) common to Wisconsin (therefore presumably to most of the CW region). Included are detailed fact sheets on purple loosestrife, buckthorn, and garlic mustard. Information includes photos, descriptions, distribution, and control methods. Other resources include a good invasive species photo gallery and information for the public about identifying invasive plants.

### ***Invasive.org***

The *Invasive.org* Web site (<http://www.invasive.org/>) is a joint project of The University of Georgia's Bugwood Network, USDA Forest Service, and USDA Animal and Plant Health Inspection Service—Plant Protection and Quarantine (APHIS PPQ) program. The site is billed as a resource for invasive and exotic species and lists profiles for 274 weed species. While the site provides useful informational links for some species, the coverage is hit-and-miss. Only two information links were listed for buckthorn, and no informational links were provided for either purple loosestrife or garlic mustard beyond links to the USDA NRCS—PLANTS Database (see below) and the Integrated Taxonomic Information System (ITIS), which are standard for all listed species. What *Invasive.org* does provide for all species are high-quality photos, typically between one and six images per species. Conveniently, images are offered at several different resolutions for use in print or PowerPoint-type presentations. A powerful image search tool provides easy access to other images. Additional resources include a limited set of links and publications.

### ***USDA Plants Database (Invasive Section)***

My personal favorite is the Invasive section of the USDA Plants Database ([http://plants.usda.gov/cgi\\_bin/topics.cgi?earl=plant\\_profile.cgi&symbol=ALPE4](http://plants.usda.gov/cgi_bin/topics.cgi?earl=plant_profile.cgi&symbol=ALPE4)). The database contains a wealth of information on many aspects of invasive and introduced species and far surpassed the other sites in the number of plant profiles. Each plant profile contains taxonomic information, related taxa, plant characteristics, distribution maps (often to the county level), noxious weed information, wetland indicator status, links to other species accounts and images, and related Web sites. No less than 18 species of buckthorn are listed (not all invasive) and 13 species of loosestrife. Garlic mustard was listed as well. Linked to the profiles were 11 photos/drawings of buckthorn and 19 photos/drawings of loosestrife (but only two of garlic mustard). A number of the links were not working when I reviewed the site, and it provides little information on control methods for invasive species. Otherwise the *USDA Plants Database* is an excellent information and image resource—for all plants, not just invasives.

### ***The Nature Conservancy's Invasive Species Initiative Web site***

For those interested primarily in control of invasive plant species, The Nature Conservancy's *Invasive Species Initiative* Web site (<http://tncweeds.ucdavis.edu/index.html>) is a gold mine. While not the most elegant site, it contains much useful information on various control strategies, including chemical, mechanical, and biological control methods. Resources include control info on individual species (along with plant descriptions and photos), the detailed *Weed Control Handbook*,



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reviews of weed control tools, information on adaptive management strategies, case studies, links to listserves, outreach materials, and an extensive list of links. There is also a small section intended for public consumption that provides basic information on invasives. Of the sites reviewed, the *Invasive Species Initiative* Web site provides the best general information about the invasives problem.

### Other Sites

Space constraints preclude detailed review of additional sites, but three sites worth mentioning in passing include:

- The US Geological Survey's Non-indigenous Aquatic Species Web site (<http://nas.er.usgs.gov/>), which features (among other things) links to more than 240 invasives databases;
- Midwest Invasive Plant Network (<http://www.mipn.org/>), an organization dedicated to eradication of invasive plants in the Midwest; and
- The New Invaders Watch List (<http://ctap.inhs.uiuc.edu/ctapwebtest/ews/home.html>), a partnership of government, non-profit, and volunteer organizations dedicated to the early detection and control of new exotic invasive plant and insect species in the CW region (Web site currently under development).

### Summary

A vast amount of information about invasive plant species is available on the Web. Although I have looked at just a few sites, interested readers should have a good starting point. Several of these sites have extensive links to other Web resources, particularly *Invasivespecies.gov*. No individual site excelled in providing all the types of information that I sought, and readers may find that they need to "shop around" to get all the information they seek; fortunately, there are plenty of resources out there. Of the sites reviewed, the *USDA Plants Database* is probably the best source for descriptive information about invasive plants in the United States, while The Nature Conservancy's *Invasive Species Initiative* Web site provides the best information on control methods. Both the *USDA Plants Database* and the *Invasive.org* Web site are good sources for photos. Finally, for readers who are most interested in invasive animals or other non-plant species, all of the sites reviewed, with the exception of the *USDA Plants Database*, include information about animal, insect, and other non-plant invasive species.

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*Do you have important research or a great success story that you believe your Chicago Wilderness colleagues would find interesting and useful? These guidelines explain what we're looking for and how to submit an article.*

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## Chicago Wilderness Journal Guidelines to Authors

### About the *Chicago Wilderness Journal*

#### **Mission of the *Chicago Wilderness Journal*:**

1. Facilitate the sharing of results and lessons learned from member-initiated projects and activities, including coalition-funded projects, team activities or the work of individual member organizations that would be useful to the wider membership;
2. Through easily consumable articles discuss practical implications, interpret data, and/or make recommendations about issues within the areas of science, land management, sustainability, education, and communication in the Chicago region;
3. Foster a sense of community among Chicago Wilderness members and improve members' ability to communicate with diverse audiences.

#### **This journal is:**

- A forum for sharing important results and lessons learned through biodiversity conservation work,
- An interdisciplinary publication that features a mix of articles in each issue from the fields of science, land management, education, communication, and sustainability,
- An online journal, published three times a year, guided by an editorial board made up of Chicago Wilderness members and coalition staff.

#### **This journal is not:**

- A peer-reviewed journal,
- A forum of advocacy or political positions,
- A newsletter with event announcements,
- A means of presenting biodiversity issues to the general public.

### What we're looking for in an article

Submissions will be considered from the volunteers and employees of Chicago Wilderness member organizations, and from participants in Chicago Wilderness Teams and projects. Articles should report on the results of a Chicago Wilderness project, workshop, roundtable, or the results of such work performed by an individual Chicago Wilderness member organization. While the emphasis of this publication is on Chicago Wilderness members and affiliates, submittals from outside the membership that are relevant to the Chicago Wilderness audience will also be considered. The topic should

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pertain to biodiversity conservation in this region. Articles should emphasize the lessons learned and interpretation of data, rather than methodology or simply reporting of results.

Questions to answer in the article include:

- Why did you undertake the project and what did you do?
- What did you learn from the experience? What do your results tell you?
- What are the practical or applied implications of the work – both in your field and in other fields?
- Based on what you learned what do you recommend to Chicago Wilderness members?

Note that articles don't necessarily need to tell a success story; if valuable lessons were learned from an unsuccessful project, please consider submitting an article.

## Target audience

The target audience for this journal is the volunteers and employees of Chicago Wilderness member organizations, and participants in Chicago Wilderness Teams and projects. To meet the needs of this broad audience, articles should:

- Emphasize practical implications,
- Be easy to read and interesting, not overly technical and full of jargon,
- Be short but refer to additional sources of information for interested readers,
- Help readers feel connected to other Chicago Wilderness members,
- Offer readers information and resources that will help them carry out their jobs.

## Article format

Please submit your article as a Microsoft Word or WordPerfect file. Articles should be three to five pages in length (approximately 450 words per page if there are no pictures or graphics; 250 words per page if graphics are included). Pictures and graphics are welcome and encouraged, but the editorial staff will make final selections! Graphics files can be submitted at 72 dpi, actual size or larger. JPG files are the preferred format for graphics. The journal can accommodate sidebars, so please indicate if there are quotes or charts that you would like set out from your article.

### All articles must include the following components:

- A short abstract of several sentences that will quickly capture the reader's attention,
- A description of the work you did and why you did it,
- Results and implications for Chicago Wilderness partners.

Beyond these requirements, articles may follow a variety of outlines as suggested by these examples:

Traditional scientific research format:

- Abstract
- Objectives
- Methods
- Results and Discussion
- Conclusion/Recommendations/Implications
- References

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Report on outcome of a workshop:

- Abstract
- Rationale for workshop; reasons to learn more about topic
- Main points made at workshop
- Insights gained from talks and discussions
- Conclusions and final recommendations

Description of the development of educational tool or product:

- Abstract
- Rationale for project
- Brief description of final product (e.g. curriculum, model policy)
- Lessons learned from development process
- Recommendations to others attempting similar work
- Recommendations on use of product

## Submission procedures

Authors can submit either an article or a query to Elizabeth McCance at [emccance@chicagowilderness.org](mailto:emccance@chicagowilderness.org). Queries should include a thorough abstract of the intended topic. Articles and all accompanying graphic files should be submitted electronically to Elizabeth. Be sure to include the author's contact information. Submissions can also be saved on a disc and mailed to Elizabeth at 8 South Michigan Ave., Suite 900, Chicago, IL 60603.

Although articles will be accepted on an ongoing basis for consideration in all upcoming issues, a rough schedule of deadlines follows:

- For March issues: first drafts will be due the second Friday of the preceding December,
- For July issues: first drafts will be due the second Friday of the preceding April,
- For November issues: first drafts will be due the second Friday of the preceding August.

Authors are welcome to submit articles that have already been published, as long as the article contains specific implications for Chicago Wilderness, and the author observes copyright law and has obtained the appropriate permissions for reprinting. If your submission has been published elsewhere, please indicate where and when it was published so we can note this in the journal.

The journal's editorial board recommends that if possible, authors should work with their internal PR departments for assistance in translating specialized information into material that is accessible to a more general audience. In addition, members of the journal's editorial board will partner with authors to adapt the style and format of articles to be most useful to the broad Chicago Wilderness audience.

For more information, contact Elizabeth McCance at (312) 580-2138.

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## About the *Chicago Wilderness Journal*

The *Chicago Wilderness Journal* is published by the Chicago Region Biodiversity Council (Chicago Wilderness) on its member web ([www.chicagowilderness.org/members](http://www.chicagowilderness.org/members)) site three times per year, in March, July and November.

An editorial board made up of scientists, sustainability professionals and communication specialists from Chicago Wilderness member organizations guides the production of each issue in accordance with the mission of the journal and the goals of Chicago Wilderness.

Board members are:

- Kristopher Lah, U.S. Fish and Wildlife Service
- Cathy Maloney, Prairie Club
- William Peterman, Chicago State University
- Robert Sullivan, Argonne National Laboratory

Support is provided by the following Chicago Wilderness staff members:

- Catherine Bendowitz
- Irene Hogstrom
- Elizabeth McCance
- Chris Mulvaney
- Michael Pond

### Mission of the *Chicago Wilderness Journal*:

1. Facilitate the sharing of results and lessons learned from member-initiated projects and activities, including coalition-funded projects, team activities or the work of individual member organizations that would be useful to the wider membership;
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3. Foster a sense of community among Chicago Wilderness members and improve members' ability to communicate with diverse audiences.

For information on how to submit articles or queries, please refer to the Guidelines to Authors posted on the journal's home page. For other inquiries about this publication, please contact Elizabeth McCance at [emccance@chicagowilderness.org](mailto:emccance@chicagowilderness.org).

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