

Plants of Concern: Standardized Rare Plant Monitoring Using Trained Volunteers

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**Chicago Botanic Garden
Report to Chicago Wilderness
On Plants of Concern:
Standardized Rare Plant Monitoring Using Trained Volunteers**

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PLANTS OF CONCERN: CONCEPT AND OBJECTIVES

Plants of Concern (POC) was launched in 2001. This long-term rare plant monitoring initiative is unique to the region in its use of standardized monitoring protocols. The program has now completed seven years of monitoring and has accumulated a substantial base for gathering long-term data on a significant number of species and Element Occurrences.

POC addresses the following needs, as presented in the Chicago Wilderness (CW) Biodiversity Recovery Plan: to document the locations of rare species, to provide long-term monitoring of the status of rare species populations, and to track their response to management. POC data provide managers with the scientifically-acquired data needed to address management problems on their sites and can be used to understand the status of individual Element Occurrences (EOs) as well as multiple populations of a species across the region. On a regional scale it builds the basis for collaboration in adapting, developing, and implementing management strategies that will ensure the presence of these species on a sustainable and stable basis. This long-term monitoring will allow CW to determine at regular intervals the status of rare plant populations in relation to a monitoring baseline and management practices.

In Chicago Wilderness, 2006: *The State of Our Chicago Wilderness. A Report Card on the Ecological Health of the Region*, POC was cited as playing a key role in measuring the status of rare plants. “The most notable progress toward the Biodiversity Recovery Plan goals for endangered and threatened species is the development of a region-wide monitoring program and common database for rare species ... Plants of Concern.”

Species monitored by POC have been selected largely from the 1999 *Chicago Wilderness Biodiversity Recovery Plan's* species priority list because they are state endangered or threatened and are considered by regional land managers and ecologists to be rare and significant within the CW region. The non-listed species monitored by POC are “species of concern” that represent individual landowners’ choices of the rare species that they wish to track at the county level. This list has been distributed to the Advisory Group, and landowners are encouraged to create new monitoring assignments to track these rare species in their areas.

The geographic area covered by POC since 2001 has been the six counties of NE Illinois, with sites in NW Indiana added in 2006 and 2007 and in SE Wisconsin in 2007. It is the hope of CW and the POC program to see implementation, if not administration, of POC protocols in all areas included in CW. (See Map, Attachment 1.)

POC incorporates the following five interrelated elements, all equally important to its success. Through them POC is becoming recognized as a unique, viable, long-term monitoring program:

- Monitoring rare plants, particularly state-listed species, using an expanded census protocol over time to discern population trends within a management context (see Level 1 form, Attachment 2). Selected species have been targeted for more intensive demographic monitoring (Level 2). Since 2004, a modified Level 2 program has continued, much of it through research projects coordinated by CBG researchers assisted by volunteers.
- Using Advisory Group approved standardized protocols throughout the region to gain uniform data on a regional basis.
- Monitoring rare species in relation to management activities reported by monitors and land managers to form a feedback loop for short and long-term adaptive management responses (Attachment 3).
- Training volunteers as citizen scientists to significantly leverage agency resources for monitoring rare species and to create an informed conservation constituency.
- Working collaboratively with public and private landowners, land managers, and agencies, through an Advisory Group (Attachment 4), to generate a shared approach to regional monitoring.

SUMMARY: CUMULATIVE MONITORING RESULTS 2001 – 2007

In 2007, the project’s seventh year, POC again saw increases in the number of species, sites monitored, and landowner involvement. Retention of Element Occurrences (EOs) was high, with 62% of EOs (listed and non-listed) monitored in previous years also monitored in 2007. In 2007, 44 new EOs were monitored. Element occurrences of the 111 listed species monitored by POC in the six NE Illinois counties represent approximately 50% of the listed EOs in the region, as recorded by the Natural Heritage Database. The following graph and table are detailed in the remainder of the report and in Attachments 6-8. *(Note: The statistics in the following figures, tables and attachments were derived from the POC database for analysis on several different dates starting 2/1/08 and may reflect some minor discrepancies in numbers.)*

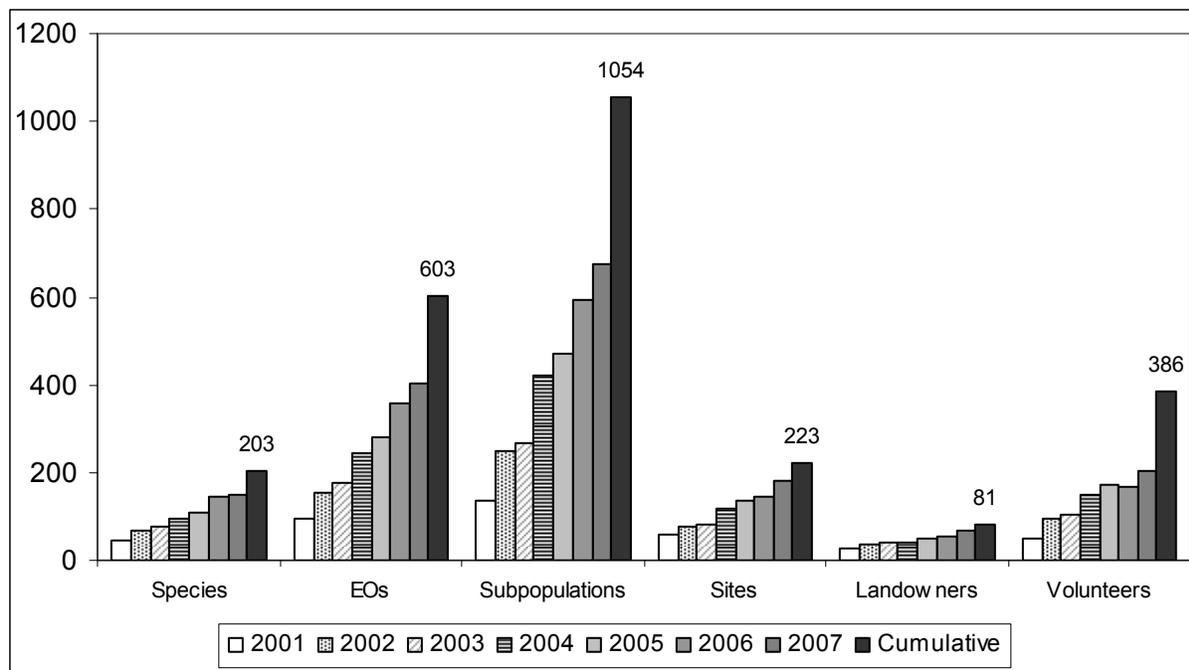


Figure 1. POC accomplishments and participation for all years, 2001-2007. Includes IN and WI.

Table 1.

	2001	2002	2003	2004	2005	2006	2007	Cumulative
Species	45	68	77	95	108	145	149	203*
Eos	97	155	178	244	282	357	401	603
Subpopulations**	136	248	266	420	472	595	673	1054
Sites	57	75	82	117	135	147	179	223
Landowners	27	34	39	43	50	55	67	81
Volunteers	50	95	103	151	172	167	202	386

* Includes 111 listed and 92 rare, non-listed species (Attachment 5).

**A subpopulation is defined as a grouping of a species within the same EO that is tracked separately because it is located more than 50 meters from another grouping or because the grouping is within a different management unit or habitat.

In each annual report, numbers reported in previous reports may shift slightly because of late submission and data entry. These will be included in subsequent reports.

Listed Species monitored in multiple counties (see Attachment 8 for a breakdown of listed and non-listed species and number of EOs monitored for each).

Species monitored across multiple IL counties are the basis for a regional assessment of species status.

1 species monitored in 6 counties
0 species monitored in 5 counties
11 species monitored in 4 counties
16 species monitored in 3 counties
43 species monitored in 2 counties
118 species monitored in 1 county

Note: In addition, 17 POC species were monitored in WI in 2007 in three counties and 4 species in IN in 2006 and 2007 in two counties expand the range of species monitored within CW.

2001-2007 cumulative EOs monitored (listed and non-listed), by IL county:

Cook County: 150
DuPage County: 124
Kane County: 52
Lake County: 170
McHenry County: 49
Will County: 41

Volunteer statistics

Number of cumulative volunteers by county: 2001-2007 (some monitors have assignments in more than one county).

Cook:	147	Lake:	105
DuPage:	38	McHenry:	58
Kane:	53	Will:	51

New volunteers in 2007 (total: 83; 4 monitored in two counties)

Cook: 35; DuPage: 3; Kane: 11; Lake: 7; McHenry: 15; Will: 15. (IN: 1; WI: 7)

Average: 13.8 volunteers per IL county.

Volunteers monitoring for 7 years: 18
Volunteers monitoring for 6 years: 18
Volunteers monitoring for 5 years: 23
Volunteers monitoring for 4 years: 31
Volunteers monitoring for 3 years: 53
Volunteers monitoring for 2 years: 64
Volunteers monitoring for 1 year: 181

Volunteer retention from 2006 to 2007: 53% (124 of 233)

Volunteer retention from 2001 to 2007: 62% (146 of 233 volunteers who monitored in 2007 have monitored at least one or more previous years)

Of interest is that 113 volunteers who monitored in 2007 had monitored in three or more preceding years. 125 volunteers have monitored three or more years throughout the program.

Volunteer hours in the field in 2007	1544.13
Volunteer hours in workshop training in 2007	445
Volunteer hours in office support in 2007	307

THE VOLUNTEER COMPONENT OF POC

The role of the volunteers in POC cannot be overstated. They are the backbone of the program and it could not function without them. All the major agencies recognize the importance of volunteers in greatly leveraging their resources for monitoring and management work. At this point, each major agency has one or two staff, usually a volunteer coordinator and/or ecologist, assigned to work with POC in recruitment, training, and other forms of assistance.

Recruitment

Volunteers were recruited through word of mouth, (agency volunteer coordinators, current POC monitors, et al.), articles in stewardship newsletters, staff presentations and information booths at stewardship conferences (notably the Chicago Wilderness Wild Things Conference). The workshops were listed on the POC website and promoted through an email newsletter to POC volunteers. (See Attachment 13 for a sample email newsletter distributed by Marian Hofherr, Volunteer Coordinator.)

On September 30, POC held a volunteer appreciation event in partnership with the Chicago Wilderness Habitat Project. Approximately 45 people attended the event at Salt Creek Park. Certificates of appreciation were presented to outstanding POC volunteers along with tote bags and POC magnets for everyone who attended.

Training

Volunteer training occurred in two different formats: 5 ½ hour workshops and in-field training. Four workshops were offered, one each in Cook, McHenry and DuPage Counties, and one in Wisconsin. Seventy-two (72) prospective and some returning volunteers were introduced to POC program objectives and trained in field monitoring techniques for Level 1 protocols. Representatives from county agencies presented information about rare plants to be monitored in their counties; guided volunteer assignments; and discussed the relationships between monitoring and management and the benefits of POC to their work. The sensitivity and confidentiality of rare plant locations was stressed in all the training, and new volunteers were required to sign a Confidentiality Form. In the field, POC program staff, interns, land managers, site stewards, or experienced volunteer monitors provided new monitors with additional field assistance on protocols and an orientation to sites and populations.

Volunteer retention is important for ensuring continuity of monitoring and consistent application of protocols. Retention rates from year to year have held fairly high, as reported above. Agency staff also contributes to continuity and consistency. Since 2001, POC has worked with many of the same staff from the major agencies. Where there has also been turnover, the new staff has been assigned to take on POC responsibilities. It is clear there will continue to be a high level of staff involvement working with the volunteers, as each year new volunteers need support in the field. However, as they are trained they become more self-sufficient and also can mentor recruits.

2007 Plants of Concern Volunteer Monitor Survey

In October 2007, Monitor Surveys were sent to 350 Plants of Concern volunteers on the POC active list either by email or post (Attachment 10). This survey was to assess the progress of the program, volunteer satisfaction/dissatisfaction and to provide information that would lead to overall improvement of the program for the future.

Of the 350 surveys sent, 28 responses were received with an 8% response rate. 5-10 % is the norm for response to a survey such as this one. The 28 responses reflect a 14% response from the 202 active volunteers in 2007.

Respondents all agreed that:

- POC Workshops provided adequate training for their work in the field
- Monitoring forms were clear and easy to understand.
- All benefited from their experience as “Citizen Scientists”

Suggestions included that a section on associate plant identification be included in the spring Workshop agenda. This will prove difficult due to the vast subject matter and the time constraints of the Workshop. The POC staff is researching how this information could be provided to the volunteers in an appropriate and helpful manner.

The predominant concern was with the POC website and the ease and confidence in the online submission process. Steps have already been taken to improve this process and provide the volunteers with a smooth monitoring form submission experience.

LEVEL 1 MONITORING DATA

Database, Data Submission, Storage, Reporting and Confidentiality

All Level 1 monitoring data are entered into the CBG-housed Access database developed and managed by Conservation Data Manager Bianca Rosenbaum. Because of the sensitive nature of the data on listed species, the Access database is restricted to a few personnel and volunteers. Volunteers must submit field/paper copies of their monitoring forms, but also have the option of submitting reports through an online form on a secure POC website. This option saves hours of manual data entry. Individual volunteers can access their assigned monitoring reports only by means of a password. Monitoring reports are reviewed both by landowners, who have access to their own site reports, and POC staff for accuracy. After data entry and analysis are completed, Access-based reports are submitted to the Illinois Natural Heritage Database, to landowners for their sites, and to the Nature Preserves Commission for nature preserve sites.

Level 1 protocols were essentially finalized by 2002, having been evaluated by the Advisory Group after the first year of monitoring. In subsequent years, only minor modifications were made (Attachment 2).

Through Level 1 work, POC is gathering census data about the status of individual populations, such as numbers of individuals and area covered by populations, as well as a record of the threats and invasives impacting populations. Monitors record observable management activities that have taken place within the previous year; some monitors are also volunteer stewards or land managers and can provide management information from their own records.

Results, Data Analysis and Discussion

The Level 1 analysis below reflects information based on subpopulation reports entered in the database through February 1, 2008. Each EO may have one or multiple subpopulations, defined as separate groupings of plants spaced at least 50m apart, or distinguished from each other by habitat, management applications, or other factors. For each category of analysis, only reports with data were included in the percentages given. Forms with no data (NA) for a particular field were excluded from the percentages given in the analysis, but, where possible, the % of the total forms that were excluded due to a NA answer is included.

It is important to note that in the analyses presented below, data for each year are not based on the equivalent set of populations monitored. Each year new populations and subpopulations are added to the program, and previously monitored populations/subpopulations may not be monitored again. Increases and decreases in values do not reflect the changes within the same set of populations. The overall value of the data is to show general levels of threats, management activity, and recruitment throughout the POC populations. More

accurate assessment of change is possible when the analysis is applied to the same group of populations over time. Examples of this kind of analysis are included here, identified as “trends,” and track the same subset of subpopulations, those with 5 to 7 years of data.

Ecological Threats

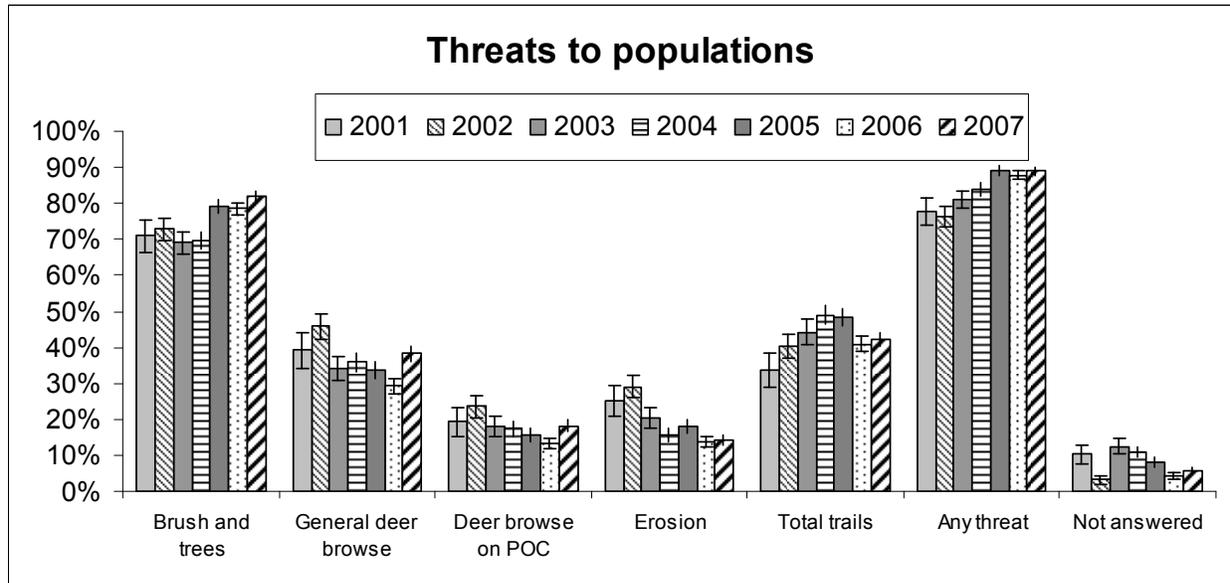


Figure 2. The percent of subpopulations in each year with a given threat present.

Only unauthorized trails were noted in 2001, so there is no value for authorized trails in 2001. Because some 2001 responses were ambiguous, they are lumped in total trails for the graph. In 2001 and 2002, no distinction was made between brush encroachment less than or greater than 1 meter in height, so the two categories are combined here. The ‘Not answered’ columns indicate the percent of reports for which no answer was given for this section.

The analysis of threats presented here does not reflect the percent impact or magnitude of each threat recorded by monitors, but only the presence of the threat. The trend in the percent impact is presented below.

As shown in the above graph, the percent of populations that were impacted by at least one ecological threat (invasive brush and trees, deer browse, erosion and trails) was: 78% in 2001; 76% in 2002; 81% in 2003; 84% in 2004; 89% in 2005; 88% in 2006; 89% in 2007; and a cumulative 89% over all 7 years. These numbers are fairly consistent over time, with a slow increase over the years. The importance of recording threats to populations has been increasingly stressed in POC training.

The monitoring form includes a prompt to record other threats not pre-listed. The most common threats added to the list are (in descending order of prevalence) trampling (by humans, deer, dogs, etc.), trash, mowing, and browse (such as by insects or small mammals).

Brush and tree encroachment, which can include native species, such as *Cornus racemosa*, continues to be the most widespread threat to monitored populations, followed by trails and deer browse on all species within the population area. Overall, considering that the set of monitored occurrences is not the same from year to year, the relative percent of subpopulations impacted by each of the recorded threats seems relatively consistent from year to year.

To get a clearer picture of the trends in threats over the years, a linear trend test was conducted on those 186 subpopulations with at least 5 years of data (not necessarily 5 consecutive years) on the magnitude of the threats to the subpopulations. On the forms, monitors pick a range of magnitude of impact. The choices are: 0%, 1-25%, 26-50%, 51-75%, and 76-100%. For invasives, the analysis tracks the number of invasive species present in a subpopulation each year, rather than the percent of the population affected.

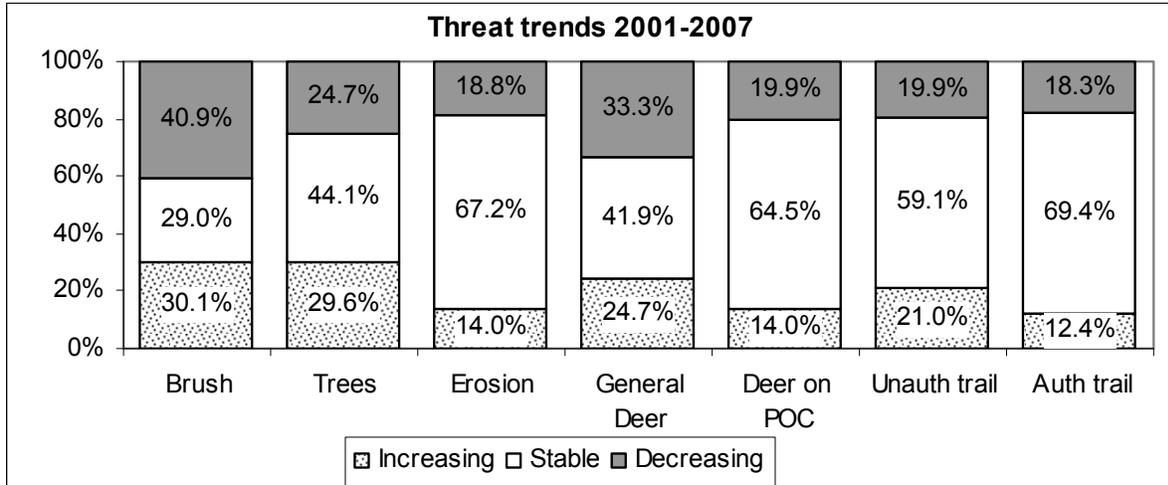


Figure 3. Trends in threat levels for subpopulations with at least 5 years of data between 2001-2007.

The trends in threat levels present a somewhat similar picture to the analysis of percent of subpopulations impacted (Figure 2), with many of the threats having a significant percent with a stable trend in the threat levels over the years. However, there are still significant proportions of the analyzed subpopulations with either increasing or decreasing trends in threat levels, with the most dramatic being the percentage of populations with an increasing number of invasive species over the years.

Invasive species

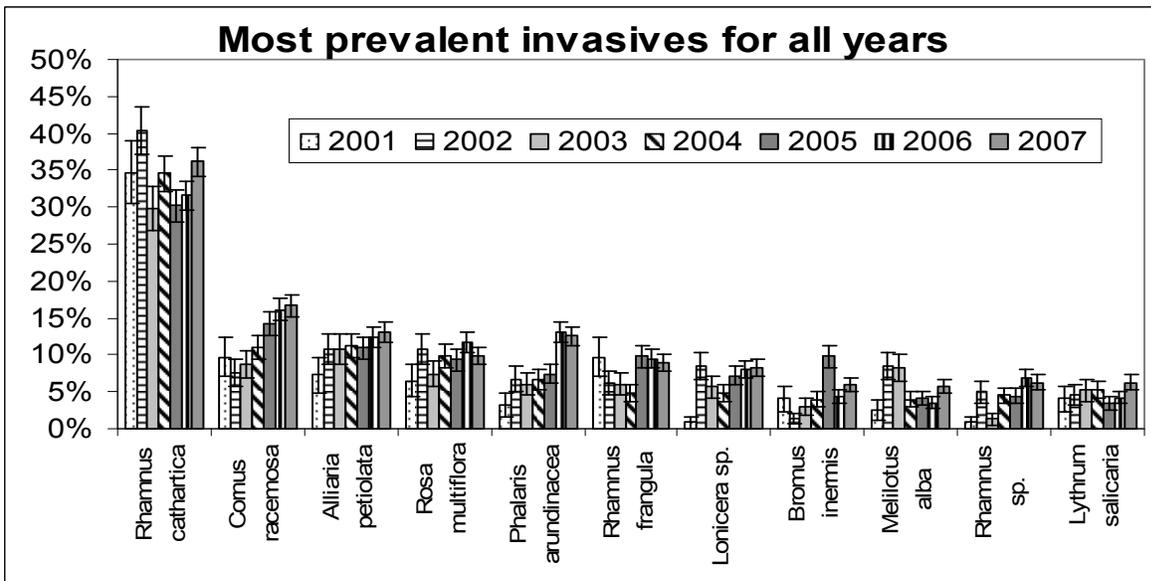


Figure 4. Top 10 most prevalent invasive plant species documented by POC monitors from all years. Percentages are based on the total number of subpopulations with reports submitted.

Monitors have identified 204 different species as invasive plants over seven years, many with a minor or contextual presence (Attachment 11). Of all monitored subpopulations, 94% had at least one invasive species present in 2007. As with threats, this analysis does not look at the magnitude of the impact on the individual subpopulations, but just at the percent of subpopulations impacted to any degree.

Monitors occasionally record plants by genus only, if they are unsure of the species (e.g., *Rhamnus* sp.). In order to incorporate these unidentified species with their identified conspecifics, the invasive list was collapsed for analysis to an invasive genera list by combining the individual species of each genus (e.g., *Rhamnus cathartica*, *Rhamnus frangula*, and *Rhamnus* sp. were combined into *Rhamnus spp.*) There are 29 genera for which we have at least 5 years of monitoring data. 34.5% of these genera are increasing annually in the number of subpopulations in which they are found, while 55.2% are decreasing and 10.3% are stable.

<i>Acer</i>	<i>Carduus</i>	<i>Euonymus</i>	<i>Lotus</i>	<i>Populus</i>	<i>Solidago</i>
<i>Achillea</i>	<i>Celastrus</i>	<i>Fraxinus</i>	<i>Lysimachia</i>	<i>Prunus</i>	<i>Sonchus</i>
<i>Agropyron</i>	<i>Chrysanthemum</i>	<i>Glechoma</i>	<i>Lythrum</i>	<i>Rhamnus</i>	<i>Sporobolus</i>
<i>Ailanthus</i>	<i>Cirsium</i>	<i>Gleditsia</i>	<i>Melilotus</i>	<i>Rhus</i>	<i>Taraxacum</i>
<i>Alliaria</i>	<i>Cornus</i>	<i>Helianthus</i>	<i>Morus</i>	<i>Robinia</i>	<i>Trifolium</i>
<i>Ambrosia</i>	<i>Coronilla</i>	<i>Hesperis</i>	<i>Oenothera</i>	<i>Rosa</i>	<i>Typha</i>
<i>Andropogon</i>	<i>Daucus</i>	<i>Hieracium</i>	<i>Pastinaca</i>	<i>Rubus</i>	<i>Ulmus</i>
<i>Arctium</i>	<i>Dipsacus</i>	<i>Hypericum</i>	<i>Phalaris</i>	<i>Rumex</i>	<i>Verbascum</i>
<i>Berberis</i>	<i>Elaeagnus</i>	<i>Ligustrum</i>	<i>Phragmites</i>	<i>Salix</i>	<i>Viburnum</i>
<i>Bromus</i>	<i>Elymus</i>	<i>Lonicera</i>	<i>Poa</i>	<i>Solanum</i>	<i>Vitis</i>
					<i>Xanthium</i>

Figure 5. Table of invasive genera recorded by POC for at least 5 years.

If the data are approached from the other side and analyzed from the perspective of the monitored subpopulations instead of the invasive species themselves, 68.3% of the subpopulations with five or more years of data (186 subpopulations) have an increasing number of invasive species present, and 31.7% have a decreasing number of invasive species present (0% are unchanging). The percent of subpopulations with no recorded invasive species is declining each year, from 30% in 2001 to 10% in 2007, although it is difficult to determine why. A variety of factors are probably contributing to the apparent increase in presence and prevalence of invasive species, including the expansion of POC monitoring into less managed and lower-quality areas, the spread of invasive species throughout the Chicago region, a growing awareness of invasive species among the general population and among our monitors, and a broadening definition of what constitutes an ‘invasive species.’

Reproduction

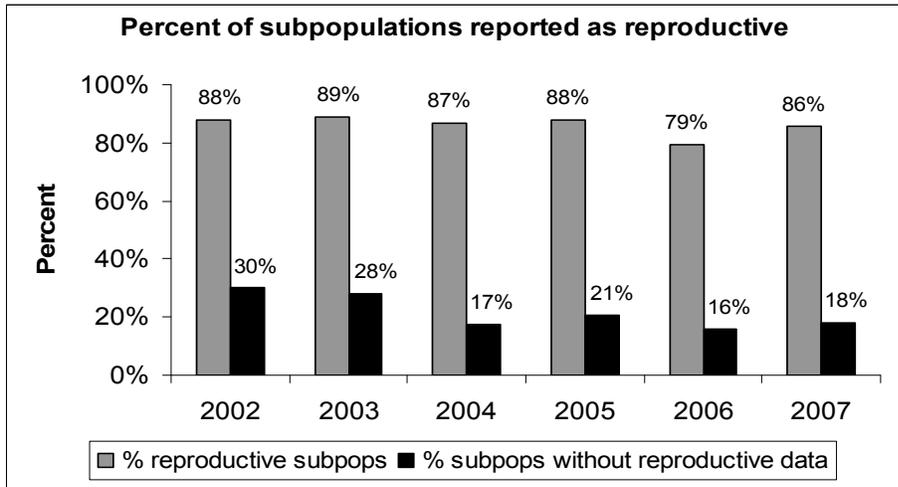


Figure 6. The percent of subpopulations reported as reproductive (i.e. flowering and/or fruiting) for all years. Percents are based on those reports that have a designation given for reproductive status (not NA). The black bars show the percentage of reports with reproductive status NA.

The percents are based on presence of flowers and/or fruits at monitored subpopulations. 2001 forms did not include fields for flowering and fruiting and could not be analyzed in a similar way. These numbers are based only on forms with positive response to flowering and fruiting: 70% of all monitored subpopulations in 2002; 72% in 2003; 83% in 2004; 79% in 2005; 84% in 2006; and 83% in 2007.

A large percentage of monitored subpopulations are reproductive – that is, having plants bearing flowers and/or fruits. Monitors ideally make their observations during flowering time, but in some instances this is not feasible and fruit presence is recorded. With annual species it is not unusual to find plants in both flower and fruit at the time of monitoring. Level 1 numbers do not reflect full reproductive status of populations, i.e., whether fruits are produced (for most reports), whether seed is viable, and whether juvenile recruitment is taking place. Annuals, which are reproductive every year, are included in the percentages above. About 10% of all subpopulations are designated as annuals each year, as 19 of the 196 POC species (9.6% of the species) are annuals. The percent of non-annual reproductive subpopulations is: 75.6% in 2002, 75.4% in 2003, 74.3% in 2004, 77.5% in 2005, 68.5% in 2006, and 77.8% in 2007.

Management

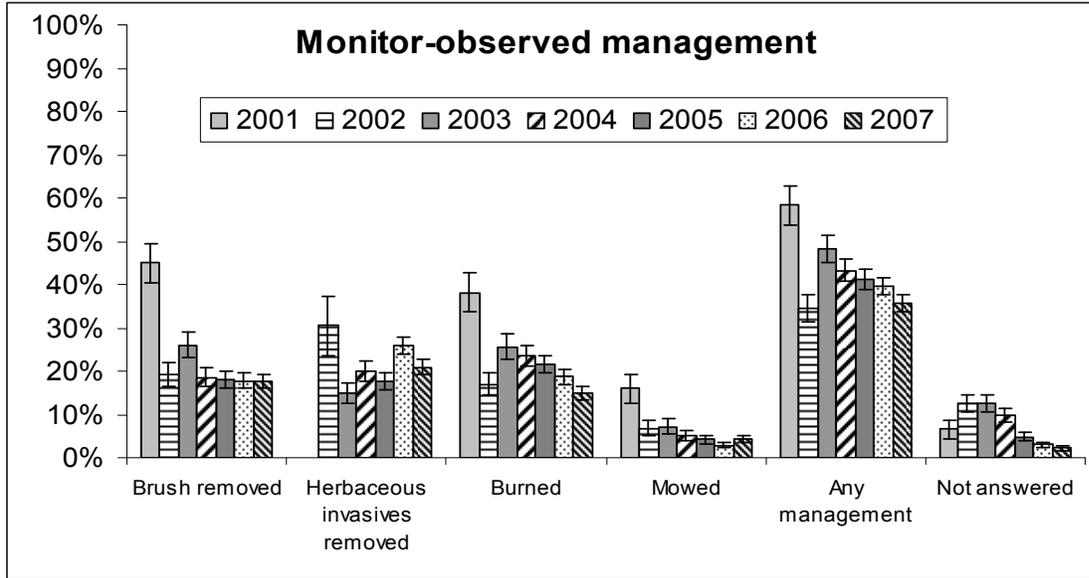


Figure 7. Management observed by monitors for all years. These percentages include only those reports for which a “yes” or “no” answer was given for each management activity, as observed or known by the monitor. Reports with blanks or “don’t know” were excluded from the management percents. Invasive removal was not recorded in a field in 2001, although it was mentioned in the notes section on the forms. The ‘Not answered’ columns indicate the percent of reports for which no answer was given for this section.

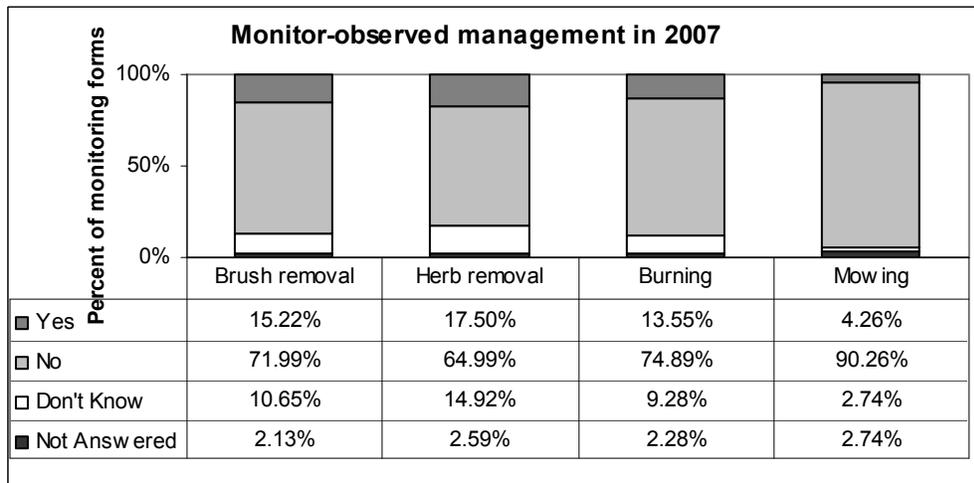


Figure 8. Monitor-observed management for 2007, including all reports.

Evidence of Management

Based on monitors’ observations (that were answered “yes” or “no,” not unknown or left blank), 35% of POC populations showed evidence of management activity in 2007 (out of 658 reports). Only 2% of the monitoring forms submitted were left blank in the Land Management section. It is worth noting that a significant number of monitors are also staff, stewards or restoration volunteers at the sites they monitor, and as a consequence are knowledgeable about the management activities on-site, often through direct participation.

In addition to answering Yes, No or Don't know for the given management techniques, monitors are asked to report on the percent of the subpopulation affected by the management technique (for example, if a prairie is burned, was the whole monitored subpopulation burned, or only 50% of it?). However, monitors seldom record this percentage. Data analysis from land managers' reports will provide additional information about actual known management within monitored populations.

Overall, after a notable decrease in percentages from 2001 to 2002, levels of management for all activities appear relatively stable, despite the changing set of subpopulations monitored each year. With further investigation we may find that, in 2001, volunteers were largely assigned to known species locations at sites that were under an active management schedule.

Brush removal is the most frequently reported management activity, followed closely by burning. It should be noted that brush removal or burning within the same population is seldom done annually, so these seemingly somewhat low percentages may in fact reflect a multi-year cycle for a given activity. Mowing was high in 2001 possibly because monitors considered mowing for trail or roadside maintenance to be a management strategy. However, this type of activity usually poses a threat to the population. We have since stressed in training that mowing to control invasives or brush, or as a substitute for burning, is what is intended in this question. Other management activities recorded in an open-ended question without quantification include deer culling and drain tile removal or other hydrological changes.

Land Management Reports from Land Managers

In conjunction with the Level 1 monitoring forms, since 2002 POC has asked the land managers of the sites monitored to complete forms detailing the types of management that take place on site (Attachment 3). This form provides more detailed information than volunteers can be expected to provide about current and past management of the specific areas where populations occur. While land managers report about activities in the area or management unit where the populations occur, they may or may not know precisely how management affects specific population areas. Therefore, the two reports serve to complement each other. General site management information and land use history are also requested on the Land Management form.

Although all submitted Land Management reports have been entered into the database, POC has not conducted a comprehensive analysis of them, mainly due to time constraints, the emphasis given to analysis of monitoring reports, and low return rates (under 40% to date). In 2007 POC staff began a concerted effort to gather Land Management reports from managers and have offered alternate methods of completing the information on the form, including an Excel spreadsheet or an Access database format. This effort is being met with a high level of cooperation on the part of managers and POC will be in a position to conduct an in-depth analysis of the management data during the current year. Among the most important questions POC can explore by comparing monitoring and land management reports are definitive confirmation of management activities within populations such as burning, brush removal, herbaceous invasive removal and mowing so that we can begin to correlate management with population trends.

Despite the low submission rate, we are still building up a valuable management record. On the form we ask for site history, including land use history before the site became a natural area, management history since it began, information about adjacent land use, and whether any native species were introduced to the site. These historical aspects do not change year to year, so we are accumulating more data in these categories every year. We also ask annual questions about the precipitation regime (e.g. flooding or drought) and site management in the past year, to record site level burning, mowing, invasive species management, and deer removal. We hope that as data accumulates we will be able to construct a picture of the cycles of land management so that we can compare with the population cycles of the plants we monitor and try to uncover the influence of management on the plants of concern.

In addition, management responses to POC monitoring are already becoming apparent in observational ways. Some examples are presented:

* Rob Sulski, POC monitor and steward at Glenbrook North H.S. Nature Preserve, has planned some of his management activities such as brush clearing and invasive species removal around the populations of three rare plants he monitors. Starting with the higher quality areas with the rarest plants gives his work a focus and benefits the entire plant community. Burning, on the other hand, is site-based.

* At Somme Prairie Grove, Cynthia Gehrie volunteered to take on management of the location where her monitored species is located, to include brush and herbaceous invasive species removal. In large sites like this one, the microhabitats that are home to rare plants can easily give precedence to larger site management priorities. Having a dedicated caretaker for a rare population leverages the steward's and land manager's resources.

* At Lyman Woods in DuPage County, Forest Preserve staff were able to use the monitoring coordinates for all the locations of a listed sedge on site when, in October 2006, they met with consultants planning to do stream stabilization and clearing in the area. They wanted to know about any listed species that occurred on site. Because plants were not visible at that time of year, staff used the maps and GPS points collected earlier as part of POC and they were able to mark all the plant locations so that they could be protected (email correspondence from Scott Kobal, DuPage County FPD).

* At West Branch Forest Preserve in DuPage County, brush clearing was done around a population of a listed species, mainly for the benefit of the monitored species but also to help the overall ecology of the small prairie area where the plant occurs. Brush was cut and/or basal bark herbicided in winter 2005-2006. The management was initiated for this disturbance dependent species because of the data that had been obtained during previous POC monitoring showing woody plants increasing and the listed plant population getting very small. As a result the population increased to more than 100 plants in 2006 and 2007, up from 24 in 2004 (email correspondence from Scott Kobal, DuPage County FPD).

A 2/13/08 comment from a land manager/ecologist with one of the large Forest Preserve Districts sums up the links POC hopes to make between monitoring and management: "Having the trend analysis query [from the database] is great! I've made some recommendations & inquiries based on past and current POC monitoring, and forwarded them on to FPD staff to look into. No doubt about it, we need more good data like this to help steer & give impetus to important ecology-based management!"

Population Analyses: Added Approach to Level 1 Analysis begun in 2006

Types of Analyses

With the long term data that POC is collecting, there are several questions that the program hopes to investigate. In general, POC wishes to know how rare plant populations are changing over time and what are the important factors determining rare plant population trends. These questions can be viewed from a regional, species, community type, and/or element occurrence basis. Each of these foci can reveal interesting trends. Ultimately, POC hopes to help land managers determine best management practices for rare species populations both on a regional scale and within individual populations. To this end, two types of analysis were conducted this year: linear trend analysis and population viability analysis.

Linear Trend Analysis

The linear trends of each subpopulation's counts were analyzed. In essence, a line is drawn through the counts of each subpopulation across the years and the slope observed. If the line is horizontal or rising, the subpopulation is stable or increasing. If the line is declining, the subpopulation is decreasing. The trend line is the product of a linear regression, which fits a straight line to the given population values. It does not originate from the first data point or terminate in the last data point of the set because it draws one straight

line factoring in all of the data points in the set through the middle of them. This trend line is a model of the relationship between the data points. Below (Figure 7) is an example showing the linear trend for an *Ammophila breviligulata* subpopulation, where the trend line goes between the data points, highlighting the slope in population counts from 2001-2007 to show that as the number of individuals rises, the line slants upward from left to right.

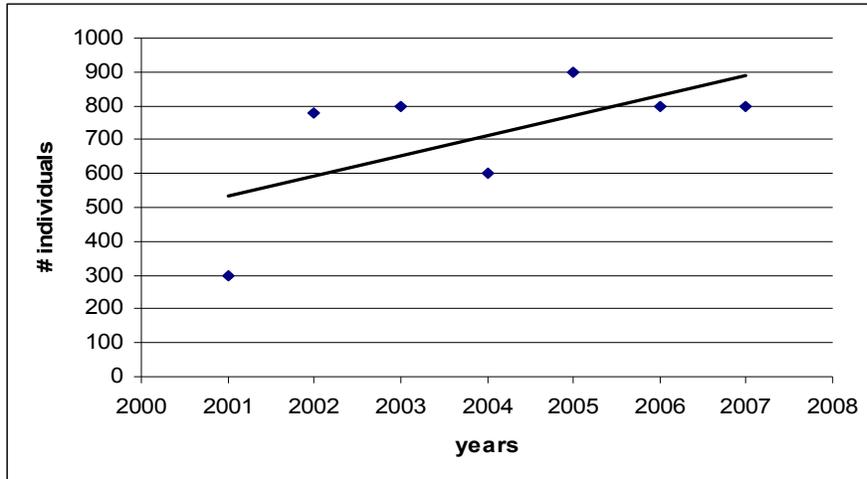


Figure 7. Graph of linear trend analysis for *Ammophila breviligulata* at Site A.

The data used for the linear trends are only for subpopulations that were monitored for five or more years. Plant counts were used when available, but if a population was estimated, the mean of the estimation was used (*i.e.*, if estimated at 101-200 plants, 150 is the count). These data incorporate 186 subpopulations or 18% of our total data set. 50% of the subpopulations analyzed are increasing in numbers, 4% have stable population counts, and 46% have declining numbers.

This analysis is similar to what was included in the 2006 report. In last year's report, we included a list of species that the analysis indicated were on the rise or on the decline across the region. No list is included this year, as further data has proven to us that it is still too early to make firm regional population trend predictions using this method. Further data from linear trend analyses for specific subpopulations with sufficient data sets (five years or greater) are available upon request.

Population Viability Analysis (PVA)

A population viability analysis is useful for looking at individual element occurrences or subpopulations because it predicts the probability of extinction of an individual population. These data can be used to infer what element occurrences are doing well and which are doing poorly. The benefits of this type of analysis are that we can look at an individual population. The drawback is that the analysis is slightly more complicated and requires a long-term set of data. In order to make solid predictions, at least ten years of data are needed. At present, POC only has 45 subpopulations that have been monitored for all seven years.

Two populations are selected below to display the *kind* of analysis that POC will be able to conduct in the next few years. The following graphs are by no means a prediction of extinction or survival, but they merely are best guesses based on only seven years of data. It is also important to note that PVAs rely upon several assumptions that must be tested because this is only a sample set. In future analyses POC will be able to make these determinations and then choose the best way to examine the data. The major assumption of this analysis is that it only relies upon population counts. It does not factor in the seed bank or any sort of stochastic events. It does not factor in intervention of management, or impact of threats, but assumes a trend isolated from other influences. It looks at current trends and makes a prediction of the viability of that

population in the future. Managers can pay close attention to declining populations and their actions to remove threats and stimulate healthy conditions can help reverse the trend.

Two specific subpopulations of *Cypripedium candidum* and *Viola conspersa* were chosen because they were either clearly increasing or decreasing across the years at their respective sites.

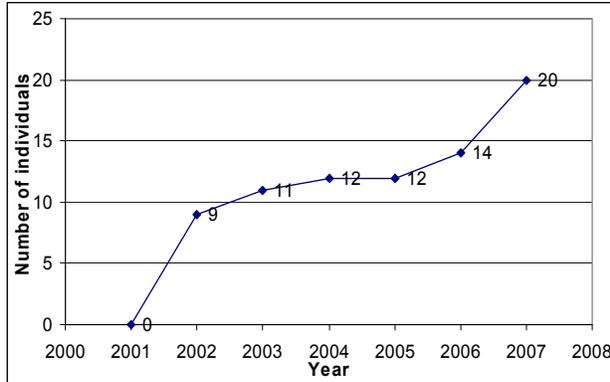


Figure 8 – Plant counts of *C. candidum* at site #1.

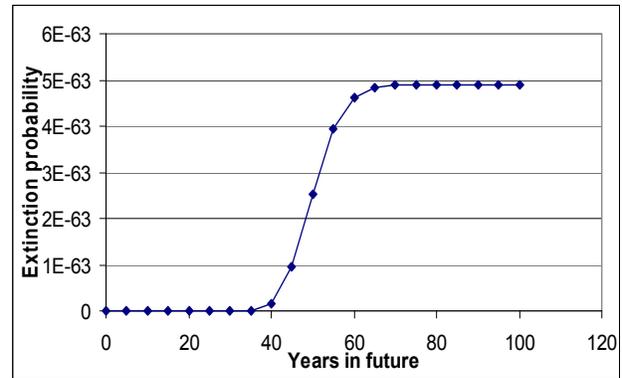


Figure 9 – Population Viability Analysis of *C. candidum* at site #1.

We know from the linear trend test that *Cypripedium candidum* is increasing across the region. POC monitors this species in 88 separate subpopulations. This species has been doing especially well at site #1 (Figure 8). The PVA for *C. candidum* (Figure 9) shows that there is only a 4.9×10^{-63} chance that this population will go extinct within the next 100 years given current trends (on Figure 9, the notation is 5E-63, which is scientific notation for 5×10^{-63}).

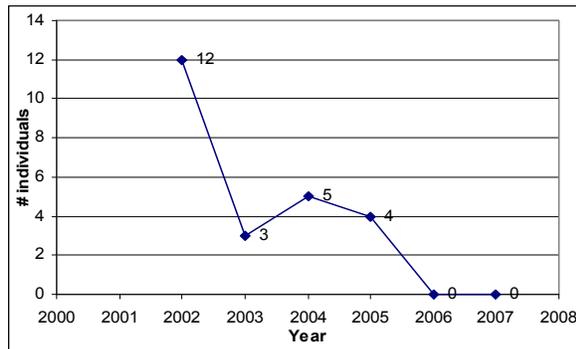


Figure 10 – Plant counts of *Viola conspersa* at site #2.

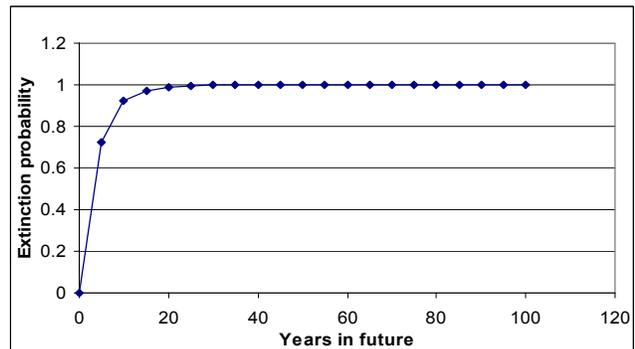


Figure 11 – Population Viability Analysis of *Viola conspersa* at site #2.

We know from the linear trend test that *Viola conspersa* is faring moderately well across the region. POC monitors 58 subpopulations of *V. conspersa*. Approximately half of the subpopulations are increasing while the others are decreasing. However, at site #2, the population is not doing very well (Figure 10). The PVA for *V. conspersa* (Figure 11) shows that there is a 100% chance (a probability of 1) that this population will go extinct within the next 100 years given current trends.

Other Research/Level 1

With a growing Level 1 data set and the involvement of Chicago Botanic Garden in graduate programs at Northwestern University, the University of Illinois at Chicago and Loyola University, the potential is growing for attracting graduate students and other researchers to assist with data analysis and gain more information from the data than current POC staff have the resources to undertake. An example of this is the work of Diane Huebner, Northwestern University graduate student who is doing genetic work on *Cakile edentula* to determine whether the individuals we are monitoring on our lakeshore sites are the native (to the region) *C. edentula var lacustris* or the maritime adventive *C. edentula var. edentula* that may have made their way into the

Great Lakes through the St. Lawrence Seaway. In a preliminary analysis she is finding a mix of the two species at Illinois sites. Another example is the work of Kate Bradley, a contract researcher for the Wisconsin DNR, who studied the impacts of the invasive weevil *Rhinocyllus conicus* introduced to control the invasive *Carduus nutans* on native thistles, including our monitored *Cirsium hillii* populations. Her results showed the weevil to be moving into native thistle populations in Wisconsin and into NE Illinois *Cirsium hillii* population areas as well as into an Illinois nursery population of the federally endangered *Cirsium pitcheri*.

CBG geneticist, Jeremie Fant and colleagues studied the genetic structure of POC-monitored populations of *Ammophila breviligata*, with funding assistance from the Chicago Park District. The resultant article has been accepted by *Restoration Ecology* (see Publications under Product 8).

LEVEL 2 DEMOGRAPHIC MONITORING UPDATE

Level 2 demographic monitoring of four species (*Viola conspersa*, *Cypripedium candidum*, *Cirsium hillii* and *Tomanthera auriculata*), initiated in 2001, was partly discontinued in 2005 after a seed viability study was completed and upon discussion with the Advisory Group. However, that year some Level 2 monitoring took place through related projects, such as Pati Vitt's *Viola conspersa* and *Tomanthera auriculata* research and Jeremie Fant's *Cirsium hillii* genetic studies. In 2006 and 2007, several populations of all four species were monitored at Level 2. This further research activity demonstrates the ripple effect Plants of Concern has had in stimulating additional work on species for which a large amount of data is already available. It builds on that data and increases its power and value. Program staff believe that ongoing Level 2 work, guided by researchers and assisted by volunteers, can result in a long term data set, relatively rare in ecological studies, that provides significant population dynamics information not available through Level 1 work. Researchers from universities, graduate and post-doctoral students, as well as CBG staff, can be attracted to this work.

Examples of more recent studies that have built on Level 2 demographic data include:

Dr. Jeremie Fant's (CBG) genetic work on *Cirsium hillii* for a 2005-2006 grant from Chicago Wilderness was discussed in the POC report to CW for 2006. He adapted and published his report in the *Chicago Wilderness Journal* in March 2007.

Steve Kroiss, former POC intern/research assistant, is conducting a matrix analysis of *Cypripedium candidum* populations studied in POC for his PhD work at Washington University in St. Louis, under the direction of Dr. Tiffany Knight. In particular he is exploring the probability of future extinction risk of the populations, which size stages of the plant contribute most to population growth rate, and how management influences population growth rates.

Dr. Brenda Molano-Flores (Illinois Natural History Survey) is combining data derived from POC Level 2 *Tomanthera auriculata* monitoring with her work on reproductive ecology, population genetics and host-plant determinations on that species. She will present, as co-author with POC's Susanne Masi, at the BSA conference in July, 2008: "Rare Plant Conservation in USDA Forest Service Lands," as part of a symposium, Pollination to Population Structure – How Understanding Reproductive Biology Can Inform Conservation of Rare Plants.

PROGRAM EVALUATION

POC met or greatly exceeded nearly all the goals and objectives and delivery of products as outlined in the grant proposal and listed below. Most have already been discussed in detail in the preceding text.

Objective 1: Collect standardized monitoring data on rare plant populations on formerly monitored and additional occurrences to report on a cumulative 42% of NE Illinois EOs. The POC Advisory Group and

individual agencies will determine specific monitoring goals, as well as a prioritized list of other rare and indicator species to be monitored, in conjunction with the Regional Monitoring Program.

POC collected standardized monitoring data on 149 species in 401 occurrences, including an additional 44 occurrences (a 12.3% increase) from 2006, with increases in five out of six counties. POC now monitors approximately 45% of the Illinois listed EOs in NE Illinois. The POC Advisory Group reviewed the species list at its December meeting and individual agencies met with POC staff in winter 2007 to determine agency specific monitoring goals. The Regional Monitoring Program has not developed a list of indicator species to be monitored, but supported POC in its present program at its 10/24/06 meeting.

Table 2.

	Cook	DuPage	Kane	Lake	McHenry	Will
2006	106	73	23	100	27	26
2007	120	72	29	102	42	27
Percent change:	13.2%	-1.3%	26%	2%	55.5%	3.8%

Level 2 demographic data was collected on Viola conspersa, Cypripedium candidum, Cirsium hillii and Tomanthera auriculata on several of the formerly monitored plots for each species. All data has been entered into Excel spreadsheets or an Access database for future analysis.

Objective 2: Organize three or four volunteer training workshops.

Four training workshops were held: Morton Arboretum (DuPage County); Volo Bog (Lake County); Ryerson Woods (Lake County) and Lulu Lake (Wisconsin). A total of 72 volunteers attended.

Objective 3: Recruit and train an increased number of volunteers (an average of 5 per county) in conjunction with landowners.

83 new volunteers were recruited and subsequently conducted monitoring in 2007, an average of 13.8 per county. All but DuPage County (3 new volunteers) recruited more than 5 volunteers. DuPage County is meeting the majority of its rare plant monitoring goals through current volunteer and staff efforts.

In addition the volunteer retention rate from 2006 was 53% and 125 POC volunteers had monitored three or more years. 113 of the volunteers in 2007 had monitored three or more years. This level of retention increases data reliability.

Objective 4: Continue collaboration with public and private landowners to place volunteer monitors on their sites.

In 2007 POC worked with 69 public and private landowners where active monitoring took place.

Objective 5: Continue collaboration with IDNR (Regional Biologists, Natural Heritage Database, Nature Preserves Commission)

POC continues to have a strong partnership with IDNR. Six IDNR personnel are on the Advisory Group (Attachment 4). Regional Biologists, Deb Nelson, Brad Semel and Dan Kirk, have provided information and guidance for sites under their purview; 2007 monitoring reports were submitted to the Natural Heritage Database in March 2008; the Nature Preserves Commission issued permits for 2007 monitoring and reports were submitted to the Commission (reporting and permitting takes place in April and May of each year). In addition, the Illinois Endangered Species Protection Board is represented on the Advisory Group. Susanne Masi, an IESPB member, presented the POC program and findings at the Board's February 2007 meeting.

Objective 6: Convene an annual meeting of the Advisory Group to plan program direction.

An Advisory Group meeting was held on December 6, 2007. (See Attachment 9 for Minutes). In addition, POC has continuous contact with agencies and other landowners, many on the Advisory Group, through winter planning meetings and ongoing contact during the field season. Agency staff also participated in the training workshops.

Objective 7: Submit a summary report to CW in March 2008, including analysis of monitoring data, and as appropriate, share data with state agencies and landowners, highlighting management impacts on populations or concerns resulting from the absence of management.

The summary report to CW is hereby submitted, with detailed discussion. Agencies and other landowners receive monitoring reports each year as part of the reporting cycle. All major NE Illinois agencies have received the 2007 monitoring reports and other agencies and landowners will have reports by the end of March 2008. This summary report will be shared with all members of the Advisory Group.

Objective 8: Continue discussions and resource sharing with appropriate partners in CW areas of Wisconsin and Indiana to replicate a POC program following 2006 pilot programs in those areas; store monitoring data from these pilots in the POC master database.

2007 was a very active year for POC programs in both Indiana and Wisconsin, following up on pilots in 2006.

In Indiana, Naida Lehmann again monitored two sites owned by the Shirley Heinze Foundation on whose board she is a member. In her new position on the faculty at St. Mary's College in South Bend is teaching a rare plant monitoring course, planning to use her students in the POC monitoring program. David Hamilla and Barbara Plampin worked with the Indiana Dunes National Lakeshore (Dan Mason) and secured contractual funding to monitor 24 species at 13 sites as part of the National Lakeshore's own monitoring program. The relevant data will also be submitted to the POC database. When all reports are submitted from Indiana, POC will provide to CW a complete listing of sites, species and volunteer data. POC is still exploring monitoring at IN DNR and TNC sites in NW Indiana.

In Wisconsin, POC staff presented a training workshop to 13 potential volunteers at Lulu Lake, a TNC site in Walworth County. The workshop was organized by Eric Howe, TNC's site steward. At Chivaukee Prairie, Lori Artiomow took on coordinating leadership for monitoring there. In addition to recruiting volunteers who helped survey species locations, through the Chivaukee Prairie Preservation Fund headed by POC volunteer Pam Holy, she received a \$5000 Citizen-Based Monitoring Partnership Program Grant from Wisconsin DNR to establish a pilot program at Chivaukee Prairie. Lori will coordinate with Eric Howe to grow the POC program in Wisconsin from this excellent start.

In all, for the Wisconsin 2007 program (all entered on the POC database and included in the general analysis), 17 species in 31 subpopulations were monitored at 5 sites by 7 volunteers.

Objective 9: Hire photographer Carol Freeman to create a photo gallery of rare plant images in electronic and paper formats for educational and outreach purposes.

See Attachment 11 for Carol Freeman's report for 2007. Freeman has attended most POC workshops to explain her goals to volunteers and has provided images for the POC website and other POC publications and posters. She attended the Advisory Group meeting to present her program and goals.

PROGRAM PRODUCTS

Product 1: Monitoring Results: standardized Level 1 monitoring data on rare plant populations (location – including GPS coordinates, size, threats, management) for formerly monitored and additional occurrences.

Accomplished. See Objective 1 above.

Product 2: All field data entered and analyzed on the Access database.

Accomplished. All field data that was received was entered and analyzed on the Access database. The details are discussed in this report.

Product 3: Three field training workshops.

Accomplished. Four training workshops were held. See Objective 2 above.

Product 4: Advisory Group meeting to evaluate, plan and implement program.

Accomplished. See Objective 6 above.

Product 5: List of monitored species reviewed to include: listed species, rare species of special concern, and indicator species identified by the Regional Monitoring Plan. All monitored species reviewed for potential rotational monitoring.

Accomplished, except for the Regional Monitoring Plan input. See Objective 1 above. At agency meetings in Winter 2007, all species were reviewed for appropriate rotational monitoring.

Product 6: Images of between 10 and 15 POC-monitored species captured, processed and made available on the POC website and POC outreach materials and articles.

Accomplished. See Objective 9 above and Attachment 11.

Product 7: Involvement and inclusion of POC in the CW Regional Monitoring Plan. PI will collaborate with the RMP Work Plan and will report and seek guidance from the Advisory Group on POC's role within the broader Regional Monitoring effort.

Not Accomplished. POC PI, S. Masi, was listed as a collaborator in the RMP Work Plan. In 2006 she participated in an interview with the RM contracted staff, Susan Ask, who also attended the 2006 POC Advisory Group meeting. Masi participated in a Regional Monitoring Meeting in 10/06 designed to further the Plan. At that meeting POC was acknowledged as an important component of the RM program; however, she has seen no final report from the RM Work Plan and no action taken regarding choice and monitoring of indicator plant species.

Product 8: Public Communication: the broader public will be made aware of the importance of monitoring, the POC project, and the training workshops through promotion in the Garden's membership publication, Garden Talk, as well as through the PR vehicles of CBG, Audubon- Chicago Region, and presentations to volunteer and professional groups. Articles will be submitted to volunteer newsletters, the Chicago wilderness Journal, and local newspapers.

Accomplished. Highlights of the extensive public communication and outreach for Plants of Concern are presented here, starting with a discussion of the POC website. Several are also included as attachments.

1. Plants of Concern Website

The POC web site (www.plantsofconcern.org) was created in late 2003. Conservation Data Manager Bianca Rosenbaum manages the web site design and content. The intent of the web site is many-fold. It is a way to spread word about rare plants and the POC program, recruit new volunteers, and provide news and monitoring resources such as downloadable forms, form submittal, and plant information to monitors.

In 2007, from January to December, the website averaged 630 visitors per month, for a total of 6933 visits, compared with only 2383 visits in 2006, and increase of more than 290%. The highest traffic month is May, the beginning of the monitoring season, with 990 visitors.

There are eight sections on the web site:

- **Home (home page)** contains introductory paragraphs about the POC program.
- **About POC** lists background information about the program, its goals and achievements and statistics from previous years.
- **News** posts newspaper articles about the program as well as announcements of events, such as workshops, plant outings and meetings.
- **Staff and Volunteers** lists the entire POC staff and their contact information.
- **Forms & Protocols** lets monitors download up-to-date monitoring forms, land management forms, and guidelines and instructions on GPS usage, pacing and population estimation guidelines. The Plants of Concern Volunteer Manual is also available for download in this section.
- **Plant Resources** includes the Plants of Concern Species List, Species Bloom Times Table, and the Plants of Concern Plant Gallery, comprising individual web pages for each plant monitored by POC. These web pages contain photos of the species by Carol Freeman and volunteers and links to various plant resources.
- **Funders** provides a list of partner websites and programs that have funded POC.

- **View and submit Forms** allows monitors the opportunity to view and submit their monitoring forms on line, as well as allows Land Managers to view all the monitoring forms pertaining to all the sites they manage. In 2007, 34% of all forms were submitted on line for a total of 233 on-line submissions, more than double last year's on-line submissions.

Website goals for future development include completing the Species Pages for POC-monitored plants, beginning to build the Invasive Species Plant Gallery, and beginning to build more detail staff and volunteer pages. Land Management reports will also be viewable on-line.

2. Publications

- Bradley, K.L. 2007. Quantifying the spatial distribution, abundance, and host use of the invasive insect, *Rhinocyllus conicus*, across Wisconsin and the greater Chicago area.
- Unpublished report to the Bureau of Endangered Resources, WI Dept. of Natural Resources (POC *Cirsium* populations were involved in the study).
- Cole, M. 2007. Natural Heritage Volunteers. *Outdoor Illinois*, May. (Includes discussion of POC.)
- Dolgan, R. 2007. Marram Grass: builder of the dunes. *Chicago Wilderness Magazine*, Fall. p. 26 (includes POC monitoring)
- Havens, K. P. Vitt, j. Schwarz, B. Orr and T. Crimmins. 2007. Chicago Botanic Garden's conservation and outreach efforts on climate change. *Botanic Garden (BG) Journal*. Vo. 4, Number 2, July 2007. Pp. 13-16. (includes a discussion on POC)
- Huebner, D. 2007. Northwestern joins Plants of Concern. *The Habitat Herald*. April 2007. p.6.
- Fant, J. B., S. Masi, J.M. Keller and R. Mann. 2007. Investigating the reproductive health of Hill's Thistle (*Cirsium hillii*) populations in the Chicago Region. *Chicago Wilderness Journal*: Vol. 5, Number 1, March 2007.) Pp. 29-40.
- Fant, J. 2008, R.M. Holstrum, E. Sirkin, J.R. Etterson, and S. Masi. Genetic structure of threatened native populations and propagules used for restoration, in a clonal species, *Ammophila breviligulata* (American beachgrass). *Restoration Ecology*. In press.
- Freeman, C. December 2007. *In Beauty, I Walk*, 2008 calendar by Carol Freeman Photography A statement by Susanne Masi for POC appears on the back cover of the calendar.
- Kapler, E. 2007. Discovering rare plants at Midewin with Plants of Concern. *Prairie Telegraph*, January-February. P. 9.
- Kapler, E. 2007. Deer browse on Midewin's Rare Plants. *Prairie Telegraph*. Pp. 2-3.
- Masi, S. 2007. Plants of Concern: Volunteers Help Land Managers Track Rare Plants. *Illinois Audubon*, Number 302, Fall 2007, Pp. 22-23. (Attachment 12).
- Teaming Up with Volunteers - Midewin volunteer recruitment brochure was redesigned and distributed CBG Midewin Research Assistant, Emily Kapler.

3. Presentations and Posters on Plants of Concern

- Masi, S. February 16, 2007. Presentation at the Endangered Species Protection Board meeting, Springfield, IL.
- Masi, S, S. Kroiss, E. Hudson. March 3, 2007. Poster, Booth and Panel at Wild Things, Chicago Wilderness Stewardship Conference, Northeastern Illinois University, Chicago, IL.
- Masi, S. March 15, 2007. Presentation at Midewin Lecture Series, Midewin National Tallgrass Prairie, Wilmington, IL.
- Masi, S. May 17, 2007. Presentation at National Grassland Managers Meeting, Joliet, IL.
- Masi, S. and S. Kroiss. July 7-11. Poster at Plant Biology & Botany Conference, 2007. Chicago, IL
- Masi, S. August 6, 2007. IL Nature Preserves Commission field trip, Montrose Dune, Chicago, IL.
- Masi, S. and A. Kelly. August 29, 2007. Presentation to CW Science and Natural Resource Management Team, Chicago Botanic Garden, Glencoe, IL.

- Masi, S., E. Kapler and S. Kroiss. Posters at Janet Meakin Poor Research Symposium, Chicago Botanic Garden, Glencoe, IL.
- S. Masi, A. Kelly and E. Kapler. November 1, 2007. Presentation at Ravine Symposium Workshop, Chicago Botanic Garden, Glencoe, IL.

Other promotion and outreach efforts included email “newsletters”, mailings and announcements in stewardship newsletters such as The Habitat Herald, Gatherings Online (VSN), McHenry County Volunteer Newsletter, and Grounds Cover (CBG). (See Attachment 13 for a representative POC email newsletter.)

4. POC also has active links to the following regional projects and research: The Habitat Project (Audubon-Chicago Region); New Invaders Watch List (The Nature Conservancy and the Forest Preserve District of Lake County); Chicago Wilderness Science Agenda; Chicago Wilderness Natural Resources Management Team and the Carol Freeman Photography Endangered Species Project.
5. Additional grants that fund POC’s efforts demonstrate its benefit and credibility to the region: CorLands (2004); Illinois Wildlife Preservation Fund (2004-2008); C2000 (2006 and 2007) and the Chicago Park District (2004). In addition, a comprehensive monitoring program built on POC protocols and experience has been in place at Midewin National Tallgrass Prairie since 2004 through funding from the USDA Forest Service and the National Fish and Wildlife Foundation (2006 and 2007). CorLands funds in 2004 also partly funded the Midewin program.

Other evaluation: POC was further evaluated through a 2007 Volunteer Survey. See discussion on p.6 and Attachment 10 for the Volunteer Survey Form.

CONCLUSION AND FUTURE DIRECTIONS

As the above discussions demonstrate, Plants of Concern continues to grow and show its strength as a viable program that provides essential data on rare plants to land managers and engages trained volunteers to make a meaningful contribution to the regional understanding of biodiversity, its status, and its threats. Three dedicated staff (Coordinator, Program Assistant/Volunteer Coordinator and Research Assistant) manage the program. However, the Program Assistant/Volunteer Coordinator position was significantly reduced for 2008 due to lack of projected funding from C2000. A second nine-month Research Assistant worked exclusively in 2007 at Midewin National Tallgrass Prairie on POC-based monitoring and studies and related activities. The work initiated in 2005 with Indiana and Wisconsin to export the program to the Chicago Wilderness regions of those states has borne fruit and those programs have shown substantial growth under good local leadership. POC will continue to collaborate with them and share expertise and a central database, but as they grow they will become increasingly self-sufficient. Finally, discussions have been initiated with Illinois DNR regarding exporting the program to other urban areas of the state.

As Citizen Science becomes more prominent on the national level, POC is being recognized as a successful and established monitoring program. Susanne Masi was invited to participate in a Citizen Science Symposium to take place in August 2008 at the Ecological Society of America annual meeting.

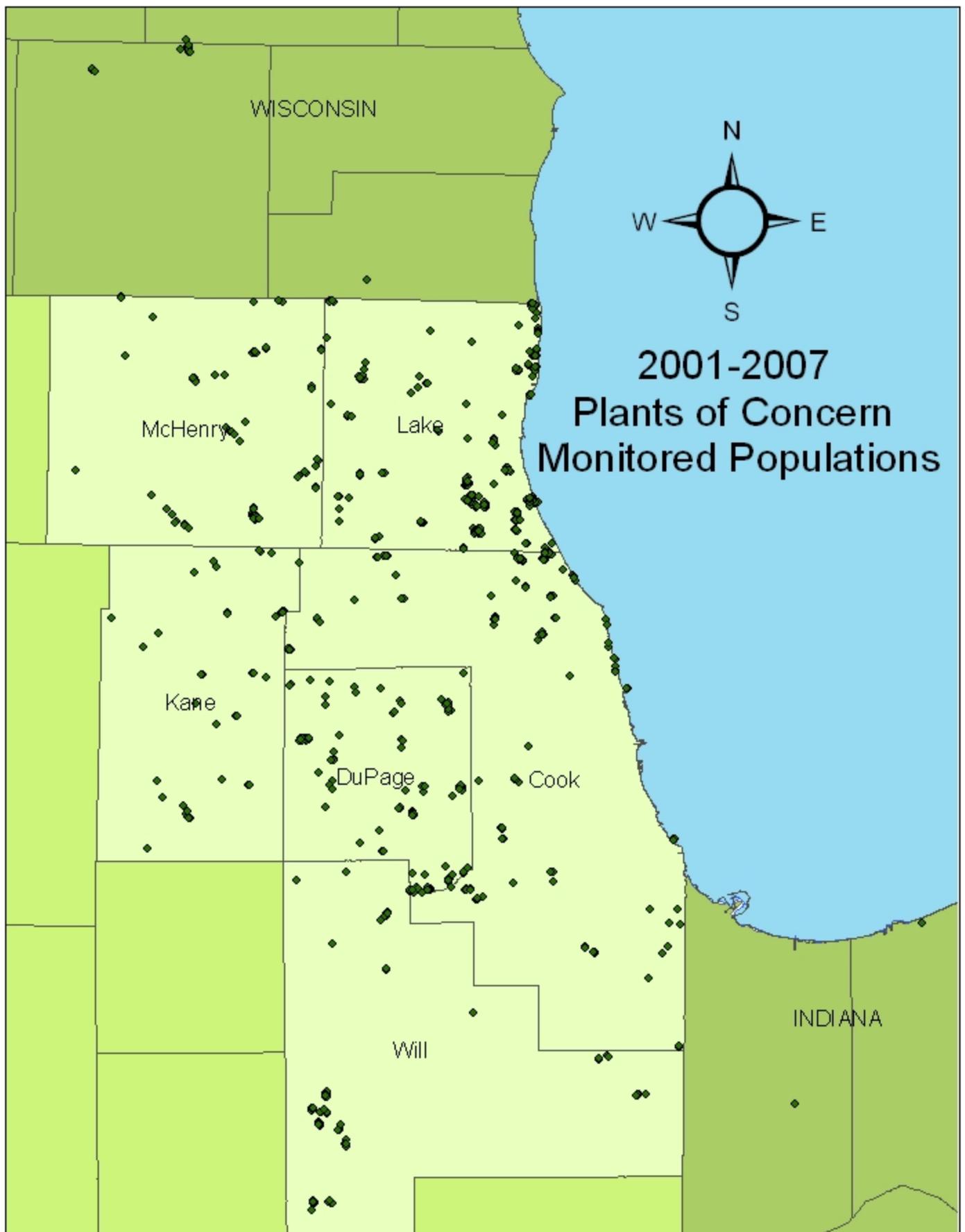
Another new project that will involve POC is the North Shore Ravine Restoration Plan, a joint project of Openlands, Lake Forest Open Lands Association, Lake Forest Garden Club, Lake Forest College and the Chicago Botanic Garden. A symposium, “Romancing the Ravines: Protecting Lake Michigan’s Ecological Jewels,” will be held April 24, 2008, as a follow-up to a multidisciplinary assessment of ravine issues and ecology. POC participated in the technical team to assess the rare plants that occur in two of the ravines, will present at the Symposium, and will initiate rare plant monitoring with newly recruited volunteers and students from these groups. A special monitor training workshop for this purpose is planned for March, 2008.

At present the POC data reservoir is very large, with seven years of monitoring data in an Access database format. These data can be mined for far more analysis than POC staff can provide directly with the resources available. The exploration of these data has great potential to benefit land managers as they make decisions to protect and manage rare plant populations as a parallel effort to managing communities. POC will continue to be a resource for attracting researchers to further tap into the data and is already working individuals from several institutions, as described in this report. As discussed in this report, Research spin-offs by CBG scientists and others are already building on the work done by POC. These opportunities can be made more widely available in order to maximize the benefits of POC, which are only possible with a stable long-term monitoring program.

Overall, one of the greatest benefits of POC is the collaboration between the many agencies and their volunteers in monitoring rare species. In addition to six forest preserve districts and IDNR, 74 other landowners have been involved in the program since 2001, many of whom would not have the resources to engage in a rare plant monitoring program.

ATTACHMENTS

1. GIS map of POC monitored subpopulations
2. Level 1 monitoring form
3. Level 1 land management form
4. Advisory Group listing
5. Plants of Concern Species List
6. Plants of Concern 2001-2007. Species, Status, County, Element Occurrences (Excel)
7. Plants of Concern 2001-2007. County, Site, Landowner & Element Occurrences (Excel)
8. Plants of Concern 2001-2007: Species Monitored by Six NE IL County Frequency – A Regional View (Excel)
9. Advisory Group Minutes: December 13, 2007 Meeting
10. Volunteer Survey Form
11. Carol Freeman Photography Report
12. Masi, S. 2007. Plants of Concern: Volunteers Help Land Managers Track Rare Plants. *Illinois Audubon*, Number 302, Fall 2007, 22-23.
13. Volunteer Email Newsletter., November 2007. Marian Hofherr.



Note: Most points represent multiple subpopulations and element occurrences.



Plants of Concern Monitoring Form - 2007

LEAD MONITOR'S NAME: _____

MONITORING DATE: _____

Use one form for each subpopulation. Subpops are separated by at least 50 meters between the closest plants in each group. Monitor within 10 days of previous year's monitoring date. Refer to the last recorded monitoring report. Complete every blank. If there are no changes in GPS, associates, or directions, write "Same as last report". Review the guidelines in the Volunteer Manual.

SECTION 1: GENERAL SPECIES AND SITE IDENTIFICATION

GENUS: _____
SPECIES: _____
VARIETY: _____
SITE NAME: _____
SUBPOPULATION #: _____

EOR #: _____
COUNTY: _____
LAND OWNER: _____
MANAGER: _____

PLANTS IN SUBPOP FOUND? Yes No*

* If plants are **not** found, go to Sections 4, 5, 6 and 7 for information on the area searched.

SECTION 2: GPS

WHICH COORDINATE SYSTEM ARE YOU USING?

- Degree Decimal (e.g. dd.ddddd N) ☆
- Degree Minute Second (e.g. dd°dd'dd.dd" N)
- UTM (e.g. dddddd)
- Minute Decimal (e.g. dd°dd.ddd)

WHICH DATUM?

- NAD 27 ☆
- WGS-84 (NAD-83)

☆ POC preferred

	LATITUDE	LONGITUDE	ACCURACY (m)
CENTER:	°N	°W	
NORTH:	°N	°W	
SOUTH:	°N	°W	
EAST:	°N	°W	
WEST:	°N	°W	

GPS unchanged since last report?

- Yes
- No

If "No" or if new subpop, record GPS.

SECTION 3: POPULATION INFORMATION

DISTANCE COVERED BY POPULATION IN METERS:

E-W: _____

N-S: _____

TODAY'S SOIL CONDITION?

- Flooded
- Saturated
- Moist, well-drained
- Dry

TOTAL NUMBER?*

- #: _____
- < or = 100
 - 101-200
 - 201-400
 - 401- 800
 - >800

COUNT ESTIMATED?

- Yes
- No

PLANT DISTRIBUTION?

- Uniform
- Random
- Clustered

GROWTH FORM?

- Stems
- Clumps
- Rosettes
- Other: _____

REPRODUCTIVE STATE?

- Flower
 - Fruit
 - Flower & Fruit
 - Vegetative
- % Reproductive: _____

JUVENILES PRESENT?

- Yes
- No
- Annual
- Don't know how to identify

* Count or provide a number as close as possible, or select a range. See population estimation exercise in the Volunteer Manual.

SECTION 4: ASSOCIATE SPECIES INFORMATION

ASSOCIATES - list **dominant native** species. List additional ones if you prefer. Write "same as last report" if no change.

Trees:

1. _____
2. _____
3. _____

Shrubs:

1. _____
2. _____
3. _____

Herbaceous Plants:

1. _____
2. _____
3. _____
4. _____
5. _____

SECTION 5: THREATS TO THE POPULATION

DEGREE OF THREATS - Check all that apply, including if none

Invasive brush encroachment < 1 m tall	<input type="checkbox"/> 0%	<input type="checkbox"/> 1-25%	<input type="checkbox"/> 26-50%	<input type="checkbox"/> 51-75%	<input type="checkbox"/> 76-100%
Invasive brush/tree encroachment > 1 m tall	<input type="checkbox"/> 0%	<input type="checkbox"/> 1-25%	<input type="checkbox"/> 26-50%	<input type="checkbox"/> 51-75%	<input type="checkbox"/> 76-100%
Deer browse (% of stems of study species)	<input type="checkbox"/> 0%	<input type="checkbox"/> 1-25%	<input type="checkbox"/> 26-50%	<input type="checkbox"/> 51-75%	<input type="checkbox"/> 76-100%
Deer browse (% of stems of all plants)	<input type="checkbox"/> 0%	<input type="checkbox"/> 1-25%	<input type="checkbox"/> 26-50%	<input type="checkbox"/> 51-75%	<input type="checkbox"/> 76-100%
Erosion (% of area with visible signs)	<input type="checkbox"/> 0%	<input type="checkbox"/> 1-25%	<input type="checkbox"/> 26-50%	<input type="checkbox"/> 51-75%	<input type="checkbox"/> 76-100%
Other: _____	<input type="checkbox"/> 0%	<input type="checkbox"/> 1-25%	<input type="checkbox"/> 26-50%	<input type="checkbox"/> 51-75%	<input type="checkbox"/> 76-100%
Other: _____	<input type="checkbox"/> 0%	<input type="checkbox"/> 1-25%	<input type="checkbox"/> 26-50%	<input type="checkbox"/> 51-75%	<input type="checkbox"/> 76-100%
Other: _____	<input type="checkbox"/> 0%	<input type="checkbox"/> 1-25%	<input type="checkbox"/> 26-50%	<input type="checkbox"/> 51-75%	<input type="checkbox"/> 76-100%

Are there any **authorized** trails that impact the population? Yes No % of impact: _____

Are there any **unauthorized** trails that impact the population? Yes No % of impact: _____

OTHER THREATS - If you notice an immediate threat to the population contact the landowner or POC

INVASIVE SPECIES - % of invasion of exotic or native plants

Species:

- | | | | | | |
|----------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|
| 1. _____ | <input type="checkbox"/> 1-20% | <input type="checkbox"/> 21-40% | <input type="checkbox"/> 41-60% | <input type="checkbox"/> 61-80% | <input type="checkbox"/> 81-100% |
| 2. _____ | <input type="checkbox"/> 1-20% | <input type="checkbox"/> 21-40% | <input type="checkbox"/> 41-60% | <input type="checkbox"/> 61-80% | <input type="checkbox"/> 81-100% |
| 3. _____ | <input type="checkbox"/> 1-20% | <input type="checkbox"/> 21-40% | <input type="checkbox"/> 41-60% | <input type="checkbox"/> 61-80% | <input type="checkbox"/> 81-100% |
| 4. _____ | <input type="checkbox"/> 1-20% | <input type="checkbox"/> 21-40% | <input type="checkbox"/> 41-60% | <input type="checkbox"/> 61-80% | <input type="checkbox"/> 81-100% |
| 5. _____ | <input type="checkbox"/> 1-20% | <input type="checkbox"/> 21-40% | <input type="checkbox"/> 41-60% | <input type="checkbox"/> 61-80% | <input type="checkbox"/> 81-100% |

SECTION 6: MANAGEMENT WITHIN THE SUBPOPULATION IN THE PAST YEAR

BURNING

- Yes
- No
- Don't Know % population affected: _____

EVIDENCE:

- Ash
- No leaf litter/duff
- Other: _____

BRUSH OR INVASIVE TREE REMOVAL

- Yes
- No
- Don't Know % population affected: _____

EVIDENCE:

- Freshly cut stumps
- Recent brush piles in vicinity
- Other: _____

HERBACEOUS INVASIVE REMOVAL

- Yes
- No
- Don't Know % population affected: _____

EVIDENCE:

- Piles of stacked up plants
- Brown and dying plants
- Other: _____

MOWING***

- Yes
- No
- Don't Know % population affected: _____

EVIDENCE:

- Cut stems
- Fresh clippings
- Other: _____

*** Include a "Yes" response for mowing only if mowing is done as a management practice. Mowing roadsides or trails is not a management tool and should be included in threats section.

OTHER MANAGEMENT WITHIN OR AFFECTING THE POPULATION AND % OF POPULATION AFFECTED:

SECTION 7: DIRECTIONS TO POPULATION AND NOTES

Give detailed directions for **new subpopulations** or **changes** in directions. Include: nearest town, route number, parking, major trail, and walking directions. Sketch a simple location map and outline of the population within the site; use landmarks. Use back if needed.

DIRECTIONS:

NOTES:

MONITOR NAME	HOURS

MONITOR NAME	HOURS

Submit original form to POC, send a copy to the Land Manager, and keep a copy for your records. See guidelines for submission procedures. In addition, on-line submission is encouraged at <http://www.plantsofconcern.org>.



Plants of Concern Land Management Form - 2007

PERSON COMPLETING FORM: _____

DATE SUBMITTED: _____

LEAD MONITOR'S NAME: _____

DATE POPULATION MONITORED: _____

If you previously completed a Land Management Form for the EOR, or for its subpopulations, only fill in the current year's information in Section 3, 4 and 5. Use one form for each monitoring form you receive from the monitor, including for subpopulations. You may include more than one species (list all species) per form if they occur in the same management location. Please review the Guidelines.

SECTION 1: GENERAL SPECIES AND SITE IDENTIFICATION

GENUS: _____

EOR #: _____

SPECIES: _____

COUNTY: _____

VARIETY: _____

LAND OWNER: _____

SITE NAME: _____

MANAGER: _____

SUBPOPULATION #: _____

OTHER SPECIES AND SUBPOPULATIONS INCLUDED: _____

HABITAT/COMMUNITY TYPE (CW CLASSIFICATION): _____

SECTION 2: POPULATION INFORMATION

IS THIS POPULATION:

- Naturally occurring
- Introduced through restoration
- Don't know

IF INTRODUCED, INTRODUCED FROM:

- Seed
- Plant
- Seed & plant

Year Introduced: _____

Source: _____

SECTION 3: ASSOCIATE SPECIES INFORMATION

WERE ANY ASSOCIATES INTRODUCED THROUGH RESTORATION?

- Yes
- No
- Don't know

ASSOCIATES INTRODUCED THROUGH RESTORATION & YEAR:

SECTION 4: RAINFALL

WAS THE POPULATION EXCESSIVELY DRY IN THE PAST YEAR?

- Spring Year: _____
- Summer Year: _____
- Fall Year: _____
- Winter Year: _____

WAS THE POPULATION EXCESSIVELY WET IN THE PAST YEAR?

- Spring Year: _____
- Summer Year: _____
- Fall Year: _____
- Winter Year: _____

WAS THE POPULATION FLOODED DURING THE GROWING SEASON?

- Spring Year: _____
- Summer Year: _____
- Fall Year: _____

SECTION 5: MANAGEMENT WITHIN THE MONITORED SUBPOPULATION

Submit historical information only once. If historical information was previously submitted, include only management occurring within the past year since last monitoring date. Use back if more space is needed.

BURNING						
DATE (dd/mm/yy)	% INTENSITY			% AREA AFFECTED		
	1-33	34-66	67-100	1-33	34-66	67-100
	<input type="checkbox"/>					
	<input type="checkbox"/>					
	<input type="checkbox"/>					
	<input type="checkbox"/>					

MOWING (for community management; not for trail maintenance)						
DATE (dd/mm/yy)	% INTENSITY			% AREA AFFECTED		
	1-33	34-66	67-100	1-33	34-66	67-100
	<input type="checkbox"/>					
	<input type="checkbox"/>					
	<input type="checkbox"/>					
	<input type="checkbox"/>					

INVASIVE BRUSH OR TREE REMOVAL OR HERBICIDING							
DATE (dd/mm/yy)	SPECIES	% REMOVAL INTENSITY			% HERBICIDING INTENSITY		
		1-33	34-66	67-100	1-33	34-66	67-100
		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					

HERBACEOUS INVASIVES REMOVAL OR HERBICIDING							
DATE (dd/mm/yy)	SPECIES	% REMOVAL INTENSITY			% HERBICIDING INTENSITY		
		1-33	34-66	67-100	1-33	34-66	67-100
		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					

DEER REMOVAL		
DATE (dd/mm/yy)	% TOTAL POPULATION REMOVED	SIZE OF AREA INVOLVED (ACRES)

OTHER MANAGEMENT BEING CONDUCTED WITHIN THE POPULATION, DATES AND DEGREE TO WHICH IT AFFECTS POPULATION:

SECTION 6: MANAGEMENT THROUGHOUT THE SITE

GENERAL MANAGEMENT RELEVANT TO SITE HISTORY AND INCLUDING MOST CURRENT DATA:

SITE CURRENTLY MANAGED?

- Yes
- No
- Don't Know

Year active management began: _____

- | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| BURNING? | INVASIVE BRUSH OR TREE REMOVAL? | HERBACEOUS INVASIVES REMOVAL? | MOWING? | HYDROLOGICAL MODIFICATIONS? |
| <input type="checkbox"/> Yes |
| <input type="checkbox"/> No |
| <input type="checkbox"/> Don't Know |

OTHER MANAGEMENT BEING CONDUCTED WITHIN THE SITE:

SECTION 7: SITE HISTORY OF LAND USE AS IT MAY AFFECT THE POPULATION

- | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|--------------|
| PLOWING/AGRICULTURE: | GRAZING: | TILING/DITCHING: | OTHER: |
| <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | _____ |
| <input type="checkbox"/> No | <input type="checkbox"/> No | <input type="checkbox"/> No | _____ |
| <input type="checkbox"/> Don't Know | <input type="checkbox"/> Don't Know | <input type="checkbox"/> Don't Know | _____ |
| Years: _____ | Years: _____ | Years: _____ | Years: _____ |
| | | | _____ |

SECTION 8: NOTES

NOTES ON ADJACENT LAND USE THAT MIGHT AFFECT THE MONITORED SUBPOPULATION:

ANY OTHER ADDITIONAL COMMENTS:

Please check to see that the monitoring form is completely filled in. Submit within 3 weeks of receiving the monitoring form, or by September 30th if you received the monitoring forms in September. FPD agencies may submit all forms together in conjunction with their internal reporting schedule. An Excel or Access format for submission is available from Bianca Rosenbaum, brosenbaum@chicagobotanic.org, as an alternative. See guidelines for more complete instructions.

Please return this form and any changes in the monitoring form to Susanne Masi, smasi@chicagobotanic.org.

ATTACHMENT 4

Plants of Concern Advisory Group Listing

Debbie Antlitz (FPD – Cook County)
Cindy Hedges (FPD – DuPage County)
Scott Kobal (FPD – DuPage County)
Julia Bourque (FPD – Kane County)
Matt Williamson (FPD – Kane County)
Ken Klick (FPD – Lake County)
Laurie Boldt (CD – McHenry County)
Juanita Armstrong (FPD – Will County; replacing Rebecca Key)
Becky Schillo (Chicago Park District, Volunteer Coordinator; replacing Zhanna Yermakov)
Rebecca Grill (Highland Park Park District)
Glen Kruse (Division of Natural Heritage)
Tara Kieninger (IDNR, Natural Heritage Database)
Jeannie Barnes (IDNR, Natural Heritage Database)
Brad Semel (IDNR, Division of Natural Heritage; replacing Deb Nelson)
Ben Dolbeare (Illinois Natural History Survey)
Kelly Neal (Illinois Nature Preserves Commission)
Kim Roman (Illinois Nature Preserves Commission)
Dan Gooch (Illinois Endangered Species Protection Board)
Stephen Packard (Audubon – Chicago Region)
Karen Tharp (The Nature Conservancy)
Eric Ulaszek (Midewin National Tallgrass Prairie, National Forest Service)
Lori Artiomow (Wisconsin POC)
Pati Vitt (CBG)
Jane Balaban (Volunteer)
Mary Borecki (Volunteer)
Gail Kushino (Volunteer)

ATTACHMENT 5

Plants of Concern Species List 2001-2007

Illinois

Listed Species

Agalinis skinneriana (2004)	Juncus alpinoarticulatus (2002)
Amelanchier interior (2001)	Juniperus communis (2002)
Amelanchier sanguinea (2001)	Lathyrus ochroleucus (2001)
Ammophila breviligulata (2001)	Lechea intermedia (2002)
Aristolochia serpentaria (2006)	Lespedeza leptostachya (2004)
Asclepias lanuginosa (2002)	Liatris scariosa var. nieuwlandii (2004)
Asclepias meadii (2002)	Lycopodium clavatum (2001)
Asclepias ovalifolia (2005)	Malvastrum hispidum (2004)
Aster furcatus (2001)	Menyanthes trifoliata (2004)
Beckmannia syzigachne (2004)	Minuartia patula (2001)
Betula alleghaniensis (2006)	Oenothera perennis (2001)
Bolboschoenus maritimus (2001)	Penstemon tubaeflorus (2004)
* Botrychium campestre (2007)	Plantago cordata (2002)
Cakile edentula (2001)	Platanthera clavellata (2003)
Calopogon tuberosus (2001)	Platanthera flava var. herbiola (2002)
Carex alata (2004)	Platanthera psycodes (2002)
Carex aurea (2001)	* Poa alsodes (2007)
Carex bromoides (2003)	Pogonia ophioglossoides (2001)
Carex brunnescens (2003)	Polygonatum pubescens (2002)
* Carex canescens (2007)	Populus balsamifera (2004)
Carex crawfordii (2004)	Potamogeton robbinsii (2002)
Carex cryptolepis (2001)	Ranunculus rhomboideus (2005)
Carex disperma (2003)	Rubus odoratus (2001)
Carex formosa (2004)	Rubus pubescens (2002)
* Carex garberi (2007)	Sarracenia purpurea (2004)
Carex intumescens (2001)	Scirpus hattorianus (2001)
Carex oligosperma (2002)	Scirpus microcarpus (2004)
Carex trisperma (2003)	Shepherdia canadensis (2001)
Carex tuckermanii (2001)	Silene regia (2001)
Carex viridula (2001)	Sisyrinchium montanum (2002)
Carex woodii (2001)	Sparganium emersum (2001)
Castilleja sessiliflora (2003)	Spiranthes lucida (2001)
Chamaedaphne calyculata (2002)	Stellaria pubera (2005)
Chamaesyce polygonifolia (2001)	Symphoricarpos albus var. albus (2002)
* Cimicifuga racemosa (2007)	Tetaneuris herbacea (2001)
Comptonia peregrina (2002)	Tofieldia glutinosa (2001)
Corallorhiza maculata (2003)	Tomanthera auriculata (2001)
Cypripedium candidum (2001)	Trientalis borealis (2003)
Cypripedium parviflorum var. makasin (2001)	Trifolium reflexum (2002)
Cypripedium reginae (2006)	Triglochin maritima (2004)
Dalea foliosa (2001)	Triglochin palustris (2001)
Dichanthelium boreale (2006)	Trillium cernuum (2004)
Drosera intermedia (2002)	* Trillium erectum (2007)
Drosera rotundifolia (2001)	Utricularia cornuta (2002)
Elymus trachycaulus (2001)	Utricularia intermedia (2001)
Epilobium strictum (2004)	Utricularia minor (2001)
Eriophorum virginicum (2006)	Vaccinium oxycoccos (2003)
Filipendula rubra (2002)	Valeriana uliginosa (2002)
Geranium bicknellii (2001)	Veronica scutellata (2001)
Helianthus giganteus (2004)	Viola canadensis (2006)
Hypericum adpressum (2005)	Viola conspersa (2001)

* New species for 2007

() Year species entered POC

Hypericum kalmianum (2002)

Isoetes butleri (2002)

Non-Listed Species

- Actaea rubra* (2004)
- Adiantum pedatum* (2003)
- Arabis hirsuta* (2006)
- Artemisia serrata* (2004)
- Asclepias exaltata* (2003)
- * *Asclepias hirtella* (2007)
- Asclepias perennis* (2006)
- Asclepias viridiflora* (2001)
- Baptisia leucophaea* (2003)
- Besseya bullii* (2006)
- Betula populifolia* (2004)
- Bidens discoidea* (2003)
- Callitriche heterophylla* (2006)
- Callitriche palustris* (2006)
- Carex crawei* (2002)
- * *Carex crus-corvi* (2007)
- Carex frankii* (2006)
- Carex leptalea* (2006)
- Carex pedunculata* (2006)
- Carex utriculata* (2006)
- Cassia hebecarpa* (2005)
- Cicuta bulbifera* (2006)
- Cirsium hillii* (2001)
- Cladium mariscoides* (2001)
- Collinsia verna* (2005)
- * *Cypripedium x andrewsii* (2007)
- Delphinium tricorne* (2004)
- Desmodium canescens* (2006)
- * *Desmodium cuspidatum* (2007)
- Diarrhena americana* (2003)
- Diervilla lonicera* (2006)
- Dirca palustris* (2002)
- Echinodorus cordifolius* (2005)
- Erigeron pulchellus* (2006)
- Eriophorum angustifolium* (2001)
- Erythronium americanum* (2006)
- Galium labradoricum* (2002)
- Gentiana flavida* (2006)
- Gentiana procera* (2006)
- Geum rivale* (2002)
- Geum triflorum* (2002)
- Goodyera pubescens* (2004)
- Gratiola quartermaniae* (2006)
- Hepatica nobilis* var. *obtusa* (2005)
- Hybanthus concolor* (2005)
- Hydrastis canadensis* (2004)
- Ilex verticillata* (2003)
- Iodanthus pinnatifidus* (2006)
- Jeffersonia diphylla* (2004)
- Juglans cinerea* (2003)
- Lonicera dioica* (2006)
- Lycopodium complanatum* var. *flabelliforme* (2004)
- * *Lysimachia hybrida* (2007)
- Mitella diphylla* (2003)
- Napaea dioica* (2006)
- Ophioglossum vulgatum* var. *pseudopodium* (2005)
- * *Orobanche uniflora* (2007)
- Oryzopsis racemosa* (2003)
- Panax quinquefolius* (2006)
- Parnassia glauca* (2006)
- Penstemon pallidus* (2006)
- Physocarpus opulifolius* (2003)
- Platanthera hyperborea* var. *huronensis* (2002)
- Platanthera lacera* (2005)
- Poa sylvestris* (2003)
- Polystichum acrostichoides* (2006)
- Prenanthes aspera* (2006)
- Psoralea tenuiflora* (2001)
- Pycnanthemum pilosum* (2006)
- Pyrola elliptica* (2004)
- Rhus vernix* (2006)
- Rudbeckia fulgida* var. *sullivantii* (2004)
- Sagittaria calycina* (2005)
- Salix candida* (2004)
- Silene virginica* (2005)
- * *Spiranthes ovalis* (2007)
- Thuja occidentalis* (2002)
- Trillium sessile* (2004)
- Valeriana edulis* var. *ciliata* (2006)
- * *Viola pallens* (2007)
- Viola striata* (2005)
- Zizania aquatica* (2005)

* New species for 2007

() Year species entered POC

Indiana

Listed Species

- Tomanthera auriculata (2006)
- Botrychium matricariifolium (2006)

Watch List

- Epigaea repens (2006)

Non-Listed Species

- * Jeffersonia diphylla (2007)

Wisconsin

Listed Species

- * Agalinis skinneriana (2007)
- * Aster furcatus (2007)
- * Besseyia bullii (2007)
- * Cypripedium calceolus var. pubescens (2007)
- * Cypripedium candidum (2007)
- * Gentiana flavida (2007)

Special Concern Species

- * Cypripedium parviflorum var. makasin (2007)
- * Gentiana procera (2007)
- * Orobanche uniflora (2007)
- * Penstemon pallidus (2007)
- * Triglochin maritima (2007)
- * Triglochin palustris (2007)

Non-Listed Species

- * Asclepias hirtella (2007)
- * Eriophorum angustifolium (2007)
- * Gentianopsis crinita (2007)
- * Platanthera lacera (2007)
- * Valeriana edulis var. ciliata (2007)

ATTACHMENT 6

Plants of Concern 2001-2007
Species, Status, County, Element Occurrences

Illinois

Species	Species Status	County	2001	2002	2003	2004	2005	2006	2007	Total EORs
Actaea rubra	Non-Listed	Cook				1			1	1
Actaea rubra	Non-Listed	Lake					1	1	3	3
Adiantum pedatum	Non-Listed	DuPage						3		3
Adiantum pedatum	Non-Listed	Kane					1		1	1
Adiantum pedatum	Non-Listed	Lake			1	1		1	1	1
Agalinis skinneriana	Listed	Lake				2	2	2	1	2
Amelanchier interior	Listed	Cook					3	1	3	3
Amelanchier interior	Listed	DuPage	2	2	2	2	2	1	3	4
Amelanchier interior	Listed	Kane		1	1				1	1
Amelanchier sanguinea	Listed	Cook	1		1	2	2	2	2	2
Ammophila breviligulata	Listed	Cook	3	3	4	5	5	4	5	7
Ammophila breviligulata	Listed	Lake					1	1		1
Arabis hirsuta	Non-Listed	DuPage						1		1
Aristolochia serpentaria	Listed	DuPage							5	5
Aristolochia serpentaria	Listed	Kane						1		1
Artemisia serrata	Non-Listed	Kane				1	1	1		1
Asclepias exaltata	Non-Listed	Lake			2	1	1	1	1	2
Asclepias hirtella	Non-Listed	DuPage							1	1
Asclepias lanuginosa	Listed	McHenry		1		1	1	1		1
Asclepias meadii	Listed	DuPage		1						1
Asclepias ovalifolia	Listed	Cook					1		1	1
Asclepias perennis	Non-Listed	Will						1		1
Asclepias viridiflora	Non-Listed	DuPage							2	2
Asclepias viridiflora	Non-Listed	Kane	3			2	1	1	2	3
Aster furcatus	Listed	Cook	2	1	1	1	2	1	2	2
Aster furcatus	Listed	Kane	2	2	1	2	2	2	2	2
Aster furcatus	Listed	Lake		2	2	2	3	2	2	3
Baptisia leucophaea	Non-Listed	Cook						1	1	1
Baptisia leucophaea	Non-Listed	Lake			1	1	1	1	1	1
Beckmannia syzigachne	Listed	Cook				1	2	2	2	2
Besseyia bullii	Non-Listed	Kane						1	1	1
Betula alleghaniensis	Listed	Lake						1		1
Betula populifolia	Non-Listed	Will				1				1
Bidens discoidea	Non-Listed	DuPage			1	1		2		2
Bolboschoenus maritimus	Listed	DuPage	1	1	1	1		2	3	3
Botrychium campestre	Listed	Kane							1	1
Cakile edentula	Listed	Cook	3	4	5	6	7	6	11	13
Cakile edentula	Listed	Lake	1	1			1	1		2
Callitriche heterophylla	Non-Listed	DuPage						2		2
Callitriche palustris	Non-Listed	DuPage						1		1
Calopogon tuberosus	Listed	Cook	1	1	1	1	1	6	4	6
Calopogon tuberosus	Listed	Lake			1	1	1	2	2	2
Calopogon tuberosus	Listed	McHenry			1	1	1		1	1
Carex alata	Listed	Will				1				1
Carex aurea	Listed	Cook		2	1	1	3	3	3	3
Carex aurea	Listed	Kane			1	1	1	1	1	1
Carex aurea	Listed	Lake	1	1	4	1	3	1	2	5
Carex bromoides	Listed	Cook				1	1	1	1	1
Carex bromoides	Listed	DuPage			1	1	1	1	1	1
Carex bromoides	Listed	Lake							2	2
Carex brunnescens	Listed	Lake			1			1	1	2
Carex canescens	Listed	Lake							1	1
Carex crawei	Non-Listed	Cook		1	1	1	2	2	2	2
Carex crawei	Non-Listed	Kane					1			1

Species	Species Status	County	2001	2002	2003	2004	2005	2006	2007	Total EORs
Actaea rubra	Non-Listed	Cook				1			1	1
Carex crawei	Non-Listed	Lake					1	1	1	1
Carex crawei	Non-Listed	Will				3	3	2	2	3
Carex crawfordii	Listed	Will				1				1
Carex crus-corvi	Non-Listed	DuPage							1	1
Carex cryptolepis	Listed	DuPage	1	1				1		1
Carex cryptolepis	Listed	Lake			1	1	1	2	2	2
Carex disperma	Listed	Lake			1		1			1
Carex formosa	Listed	Cook				2	1	2	2	2
Carex frankii	Non-Listed	DuPage						3	2	3
Carex garberi	Listed	Lake							1	1
Carex intumescens	Listed	Cook	1							1
Carex intumescens	Listed	Lake			1		1	1		1
Carex leptalea	Non-Listed	Lake						1		1
Carex oligosperma	Listed	Kane		1						1
Carex pedunculata	Non-Listed	Lake						1		1
Carex trisperma	Listed	Lake			1			1		1
Carex tuckermanii	Listed	DuPage	2	4	3	4	2	2	2	4
Carex utriculata	Non-Listed	DuPage						1		1
Carex viridula	Listed	Cook		1		1	2	2	2	2
Carex viridula	Listed	DuPage	4	4	3	2	1	2	1	5
Carex viridula	Listed	Lake			1			1	1	2
Carex viridula	Listed	Will			1	1	1	1	1	1
Carex woodii	Listed	Cook		1		1	1	1	1	1
Carex woodii	Listed	DuPage	3	6	3	5	3	5	2	7
Carex woodii	Listed	Lake			3	4	2	2	4	5
Cassia hebecarpa	Non-Listed	Cook					1	1	1	1
Castilleja sessiliflora	Listed	Lake			1					1
Chamaedaphne calyculata	Listed	Kane		1						1
Chamaedaphne calyculata	Listed	Lake			1			1		1
Chamaedaphne calyculata	Listed	McHenry						1	1	1
Chamaesyce polygonifolia	Listed	Cook	2	3	3	7	8	6	5	10
Chamaesyce polygonifolia	Listed	Lake		1			1	1		1
Cicuta bulbifera	Non-Listed	DuPage						2	1	3
Cimicifuga racemosa	Listed	Lake							1	1
Cirsium hillii	Non-Listed	DuPage	3	4	3	4	1	4	3	5
Cirsium hillii	Non-Listed	Kane	1	1	2	2	1	2	2	2
Cirsium hillii	Non-Listed	McHenry	1	1	1	1	1	1	1	1
Cirsium hillii	Non-Listed	Pike	1							1
Cirsium hillii	Non-Listed	Will	1	2	2	2	2	2	2	2
Cladium mariscoides	Non-Listed	Lake	1				1		1	1
Collinsia verna	Non-Listed	Kane					1			1
Comptonia peregrina	Listed	Cook						2	2	2
Comptonia peregrina	Listed	Kankakee		1						1
Corallorhiza maculata	Listed	Will			1		1			2
Cypripedium candidum	Listed	Cook	5	5	4	6	7	7	10	11
Cypripedium candidum	Listed	DuPage	2	4	2	4	3	3	4	5
Cypripedium candidum	Listed	Kane	3	2	2	3	2	2	3	3
Cypripedium candidum	Listed	Lake	2	2	4	3	4	2	3	5
Cypripedium candidum	Listed	McHenry		2	3	4	6	6	11	13
Cypripedium candidum	Listed	Will		1	1	1		1	1	1
Cypripedium parviflorum var. makasin	Listed	Lake	1	1	1	1	2	1	1	2
Cypripedium parviflorum var. makasin	Listed	McHenry							4	4
Cypripedium reginae	Listed	Lake						1	1	1
Cypripedium x andrewsii	Non-Listed	McHenry							2	2
Dalea foliosa	Listed	Cook		1			1	1	2	2
Dalea foliosa	Listed	DuPage	1	1		1		1		1

Species	Species Status	County	2001	2002	2003	2004	2005	2006	2007	Total EORs
Actaea rubra	Non-Listed	Cook				1			1	1
Dalea foliosa	Listed	Will				1			1	1
Delphinium tricornes	Non-Listed	Cook				1	1	1	1	1
Desmodium canescens	Non-Listed	DuPage						1	1	1
Desmodium cuspidatum	Non-Listed	DuPage							2	2
Diarrhena americana	Non-Listed	Cook					1	1	1	1
Diarrhena americana	Non-Listed	DuPage			1					1
Dichanthelium boreale	Listed	Cook						1	1	1
Diervilla lonicera	Non-Listed	Lake						1		1
Dirca palustris	Non-Listed	Kane		1	1		1	1	1	2
Drosera intermedia	Listed	Kane		1						1
Drosera intermedia	Listed	Will					1		1	1
Drosera rotundifolia	Listed	Lake	1	1	1	1	1	1	1	1
Drosera rotundifolia	Listed	McHenry							1	1
Echinodorus cordifolius	Non-Listed	Kane					1	1		1
Elymus trachycaulus	Listed	DuPage	1	1	1	1	1	1	1	1
Elymus trachycaulus	Listed	Lake							1	1
Epilobium strictum	Listed	Will				1	1			1
Erigeron pulchellus	Non-Listed	DuPage						2		2
Eriophorum angustifolium	Non-Listed	Kane	2			1	1		2	2
Eriophorum virginicum	Listed	Lake						1		1
Erythronium americanum	Non-Listed	DuPage						1	1	1
Filipendula rubra	Listed	Cook							1	1
Filipendula rubra	Listed	Lake		1	1	1	1	1	1	1
Filipendula rubra	Listed	McHenry						1	1	1
Galium labradoricum	Non-Listed	Lake		1	1			1	1	3
Gentiana flavida	Non-Listed	Cook						1	1	1
Gentiana flavida	Non-Listed	DuPage							1	1
Gentiana flavida	Non-Listed	Lake						2		2
Gentiana procera	Non-Listed	Lake						1	1	1
Geranium bicknellii	Listed	Lake	1	2	2	2	2	1	2	3
Geum rivale	Non-Listed	Kane		1	1					1
Geum triflorum	Non-Listed	Lake		1						1
Goodyera pubescens	Non-Listed	Kane				1	1	1		1
Gratiola quartermaniae	Non-Listed	Will						1	1	1
Helianthus giganteus	Listed	Cook				1				1
Hepatica nobilis var. obtusa	Non-Listed	Lake					1	2	4	5
Hybanthus concolor	Non-Listed	Cook					1	1	1	1
Hydrastis canadensis	Non-Listed	Cook				1	1	1	1	1
Hydrastis canadensis	Non-Listed	Kane					1	1		1
Hypericum adpressum	Listed	Will					1	1	1	2
Hypericum kalmianum	Listed	Cook						2	1	2
Hypericum kalmianum	Listed	Lake		1	3	2	2	3	1	4
Ilex verticillata	Non-Listed	DuPage			1	1			1	1
Iodanthus pinnatifidus	Non-Listed	DuPage						1	2	2
Isoetes butleri	Listed	DuPage		1		1	1	1	1	1
Isoetes butleri	Listed	Will			1	2	2	2	2	2
Jeffersonia diphylla	Non-Listed	Cook				1	1	2	2	2
Juglans cinerea	Non-Listed	DuPage				1		2	4	5
Juglans cinerea	Non-Listed	Lake			1	1	1	1	2	2
Juncus alpinoarticulatus	Listed	Cook						1	1	1
Juncus alpinoarticulatus	Listed	DuPage		1	1	1	1	2	2	2
Juncus alpinoarticulatus	Listed	Kane					1			1
Juncus alpinoarticulatus	Listed	Lake				1			1	2
Juniperus communis	Listed	Lake		1			1	1		1
Lathyrus ochroleucus	Listed	Cook					1	1	1	1
Lathyrus ochroleucus	Listed	DuPage					1		1	1
Lathyrus ochroleucus	Listed	Lake	2	4	2	6	6	4	7	9
Lathyrus ochroleucus	Listed	McHenry					1	1	1	1

Species	Species Status	County	2001	2002	2003	2004	2005	2006	2007	Total EORs
Actaea rubra	Non-Listed	Cook				1			1	1
Psoralea tenuiflora	Non-Listed	DuPage							1	1
Psoralea tenuiflora	Non-Listed	Kane	1			1	1	1	1	1
Psoralea tenuiflora	Non-Listed	Lake							1	1
Pycnanthemum pilosum	Non-Listed	DuPage						1		1
Pyrola elliptica	Non-Listed	Cook							1	1
Pyrola elliptica	Non-Listed	Lake				1	1	2		2
Ranunculus rhomboideus	Listed	Kane					1	1	1	1
Rhus vernix	Non-Listed	McHenry						2	2	2
Rubus odoratus	Listed	DuPage	1	1	1	1		1	1	1
Rubus odoratus	Listed	Kane		1	1	1	1	1	1	1
Rubus odoratus	Listed	Lake		1				1	1	1
Rubus pubescens	Listed	Cook			1	1	3	3	3	3
Rubus pubescens	Listed	Lake		1	2	1	1	1	1	3
Rudbeckia fulgida var. sullivantii	Non-Listed	Will				1	1	1	1	1
Sagittaria calycina	Non-Listed	Kane					1	1		1
Salix candida	Non-Listed	Kane				1			1	1
Sarracenia purpurea	Listed	Lake						1	1	1
Sarracenia purpurea	Listed	McHenry				1			2	2
Scirpus hattorianus	Listed	DuPage	2	2	1	1	1	2	2	2
Scirpus hattorianus	Listed	Lake		1	1	1	1	1	1	1
Scirpus microcarpus	Listed	Lake				1	1	3	3	3
Shepherdia canadensis	Listed	Lake	1	1	1		1	1		1
Silene regia	Listed	Cook		1	1	1	1	1	1	1
Silene regia	Listed	Kane	2			2	2	2	2	2
Silene virginica	Non-Listed	Cook					1		1	1
Silene virginica	Non-Listed	Lake						1	1	1
Sisyrinchium montanum	Listed	Cook			1	2	3	2	3	3
Sisyrinchium montanum	Listed	DuPage							1	1
Sisyrinchium montanum	Listed	Lake		1	1					1
Sparganium emersum	Listed	DuPage	1	2		2		1	1	2
Sparganium emersum	Listed	Kane			1		1		1	1
Spiranthes lucida	Listed	Cook	1	2	2	2	2	2	2	2
Spiranthes ovalis	Non-Listed	Cook							1	1
Stellaria pubera	Listed	Cook					1	1	1	1
Symphoricarpos albus var. albus	Listed	Kane		1	1				1	1
Tetranneuris herbacea	Listed	Cook						1	1	1
Tetranneuris herbacea	Listed	DuPage	1	1		1		1		1
Thuja occidentalis	Non-Listed	Kane		1						1
Thuja occidentalis	Non-Listed	Lake		1						1
Tofieldia glutinosa	Listed	Cook	1	1	1	1	1	1	1	1
Tofieldia glutinosa	Listed	Lake					1	1	1	1
Tomanthera auriculata	Listed	Cook	3	3	3	5	6	7	5	7
Tomanthera auriculata	Listed	DuPage	1	1	2	1	1	1	1	2
Tomanthera auriculata	Listed	Lake					1			1
Tomanthera auriculata	Listed	Will	2	3	3	4	4	4	4	4
Trientalis borealis	Listed	Cook						1	1	1
Trientalis borealis	Listed	Lake			1		1	2	1	2
Trifolium reflexum	Listed	Will		1	1	1	1	1	1	1
Triglochin maritima	Listed	Lake				1	2	2	2	2
Triglochin maritima	Listed	McHenry				1	1	1	1	1
Triglochin palustris	Listed	Cook	1	1	1	1	1	1	1	1
Triglochin palustris	Listed	Kane			1		1		1	2
Triglochin palustris	Listed	Lake						2	2	2
Triglochin palustris	Listed	Will				1	1			1
Trillium cernuum	Listed	McHenry				1	1	1	3	3
Trillium erectum	Listed	Lake							1	1
Trillium sessile	Non-Listed	Cook				1	1	1	1	1
Trillium sessile	Non-Listed	DuPage						1	2	2

Species	Species Status	County	2001	2002	2003	2004	2005	2006	2007	Total EORs
<i>Actaea rubra</i>	Non-Listed	Cook				1			1	1
<i>Utricularia cornuta</i>	Listed	McHenry		1	1	1	1	1	1	1
<i>Utricularia intermedia</i>	Listed	Cook	1	1	1	2	2	2	2	2
<i>Utricularia intermedia</i>	Listed	Kane			1					1
<i>Utricularia intermedia</i>	Listed	Lake			1	1	1	1	1	1
<i>Utricularia intermedia</i>	Listed	McHenry		1	1	1	1	1	1	1
<i>Utricularia minor</i>	Listed	Cook	1							1
<i>Vaccinium oxycoccos</i>	Listed	Lake			1			1		1
<i>Valeriana edulis</i> var. <i>ciliata</i>	Non-Listed	DuPage							1	1
<i>Valeriana edulis</i> var. <i>ciliata</i>	Non-Listed	Will						1	1	1
<i>Valeriana uliginosa</i>	Listed	McHenry		1	1		2	2	2	2
<i>Veronica scutellata</i>	Listed	Cook				1	2	2	2	3
<i>Veronica scutellata</i>	Listed	DuPage	2	4	2	4	1	3	1	6
<i>Veronica scutellata</i>	Listed	Lake		2	3	2	3	2	3	7
<i>Veronica scutellata</i>	Listed	Will			1		1	1	1	1
<i>Viola canadensis</i>	Listed	Cook						1	1	1
<i>Viola conspersa</i>	Listed	Cook	1	1	1	2	4	3	2	4
<i>Viola conspersa</i>	Listed	DuPage	1	1	1	1	1	1	1	1
<i>Viola conspersa</i>	Listed	Lake	4	6	8	7	7	7	7	9
<i>Viola conspersa</i>	Listed	McHenry			1		1	1	1	1
<i>Viola pallens</i>	Non-Listed	Lake							1	1
<i>Viola striata</i>	Non-Listed	Cook					1	1	1	2
<i>Zizania aquatica</i>	Non-Listed	Kane					1			1
		TOTAL:	96	153	178	244	281	354	392	584

Indiana

Species	Species Status	County	2001	2002	2003	2004	2005	2006	2007	Total EORs
<i>Botrychium matricariifolium</i>	Listed	Porter						1	1	1
<i>Epigaea repens</i>	Watch List	Porter						1		1
<i>Jeffersonia diphylla</i>	Non-Listed	Porter							1	1
<i>Tomanthera auriculata</i>	Listed	Lake						1		1
		TOTAL:	0	0	0	0	0	3	2	4

Wisconsin

Species	Species Status	County	2001	2002	2003	2004	2005	2006	2007	Total EORs
<i>Agalinis skinneriana</i>	Listed	Kenosha							1	1
<i>Asclepias hirtella</i>	Non-Listed	Kenosha							1	1
<i>Aster furcatus</i>	Listed	Walworth							1	1
<i>Besseyia bullii</i>	Listed	Waukesha							1	1
<i>Cypripedium calceolus</i> var. <i>pubescens</i>	Listed	Walworth							1	1
<i>Cypripedium candidum</i>	Listed	Walworth							1	1
<i>Cypripedium parviflorum</i> var. <i>makasin</i>	Special Concern	Walworth							1	1
<i>Eriophorum angustifolium</i>	Non-Listed	Kenosha							1	1
<i>Gentiana flavida</i>	Listed	Walworth							2	2
<i>Gentiana flavida</i>	Listed	Waukesha							1	1
<i>Gentiana procera</i>	Special Concern	Kenosha							1	1
<i>Gentianopsis crinita</i>	Non-Listed	Kenosha							1	1
<i>Orobanche uniflora</i>	Special Concern	Walworth							1	1
<i>Penstemon pallidus</i>	Special Concern	Kenosha							1	1
<i>Platanthera lacera</i>	Non-Listed	Kenosha							1	1
<i>Triglochin maritima</i>	Special Concern	Walworth							1	1
<i>Triglochin palustris</i>	Special Concern	Kenosha							1	1
<i>Valeriana edulis</i> var. <i>ciliata</i>	Non-Listed	Kenosha							1	1
		TOTAL:	0	0	0	0	0	0	19	19

ATTACHMENT 7

Plants of Concern 2001-2007
Counties, Sites, Landowners and Element Occurrences

Illinois

County	Site Name	Land Owner	2001	2002	2003	2004	2005	2006	2007	Total EORs
Cook	Bemis Woods	FPD Cook County					1	1	1	1
Cook	Bergman Slough	FPD Cook County				2	2	2	2	2
Cook	Black Partridge Fen	FPD Cook County					1	1	1	1
Cook	Black Partridge Woods	FPD Cook County					1	1	1	1
Cook	Bluff Spring Fen	FPD Cook County and City of Elgin	9	6	7	8	7	7	7	10
Cook	Brookfield Woods Prairie/Salt Creek Prairie	FPD Cook County					3	3	4	4
Cook	Bunker Hill Prairie and Savanna (Clayton F. Smith Woods)	FPD Cook County				1	1			1
Cook	Bunker Hill Prairie and Savanna (Sidney R. Yates Flatwoods)	FPD Cook County				1	1		1	1
Cook	Camp Sagawau	FPD Cook County				4	6	6	6	6
Cook	Camp Sagawau (CCC Quarry)	FPD Cook County				3	3	3	3	3
Cook	Cap Sauers Holdings	FPD Cook County					1		1	1
Cook	Chicago Ridge Prairie	Oak Lawn Park District	1	1	1	1	1	1	1	1
Cook	Deer Grove	FPD Cook County				1	3	2	3	4
Cook	Dixon Prairie, Chicago Botanic Garden	FPD Cook County/CBG	1	3	2	3	3	4	5	5
Cook	Dropseed Prairie	TNC				1	1	1		1
Cook	Edgebrook Woods	FPD Cook County				1	1			1
Cook	Gensburg Markham Prairie	TNC, Northeastern IL Univ, Nat'l Land Institute	1	1	1	1	1	2	1	2
Cook	Glenbrook North High School Prairie Nature Preserve	Glenbrook School District 225						3	2	3
Cook	Glencoe Botanical Area (Shelton Park)	Glencoe Park District				1				1
Cook	Glenview Naval Air Station Prairie	Village of Glenview		2	3	3	3	3	3	3
Cook	Harms Flatwoods	FPD Cook County					1	1	1	1
Cook	Harms Woods	FPD Cook County					1	1		1
Cook	Howard Street Beach	Chicago Park District							1	1
Cook	Jarvis Avenue Park Beach	Chicago Park District							1	1
Cook	Juneway Terrace Beach	Chicago Park District							1	1
Cook	Jurgensen Prairie	FPD Cook County						3	2	3
Cook	Kennicotts Grove	Glenview Park District	1							1
Cook	Kloempken Prairie and Savanna	FPD Cook County				1		1	1	1
Cook	Lake Ave. Woods East	FPD Cook County							1	1
Cook	Lake Cook Metra Station (Metra Prairie)	Deerfield Associates				1	1		1	1
Cook	Lloyd Park Beach Boat Launch	Village of Winnetka				1				1
Cook	Loyola Beach (Pratt Beach)	Chicago Park District	1	1	1	2	2	3	3	3
Cook	McCormick Woods	FPD Cook County					1		1	1
Cook	McDonald Woods East, Chicago Botanic Garden	FPD Cook County/CBG	1	1	2		2	2	2	2
Cook	McDonald Woods West, Chicago Botanic Garden	FPD Cook County/CBG	1			1	1		1	1
Cook	McDonald Woods, Chicago Botanic Garden	FPD Cook County/CBG	1	2	1	2	2	2	2	2
Cook	McMahon Fen	FPD Cook County							1	1
Cook	Miami Woods Prairie	FPD Cook County					1	1		1
Cook	Montrose Beach Dunes	Chicago Park District	3	3	3	4	5	6	6	6

County	Site Name	Land Owner	2001	2002	2003	2004	2005	2006	2007	Total EORs
Cook	Northwestern University North	Northwestern University						3	2	3
Cook	Northwestern University South	Northwestern University					1	2	1	2
Cook	Oakton Community College Woods	Oakton Community College				3	3	3	3	3
Cook	Paintbrush Prairie	TNC	1	1	1	1	1	1	1	1
Cook	Palatine Prairie	Palatine Park District + MWRD	1	1	1	1	1	1	1	1
Cook	Palos Fen	FPD Cook County							2	2
Cook	Plum Creek Preserve	FPD Cook County					1			1
Cook	Poplar Creek	FPD Cook County					2	2	3	3
Cook	Powderhorn Prairie	FPD Cook County					2	2	1	2
Cook	Private Property - Forest Park	Privately Owned						1	1	1
Cook	Rainbow Beach	Chicago Park District		3	2	3	3	3	3	3
Cook	Rogers Park Beach	Chicago Park District							1	1
Cook	Sand Ridge Nature Center	FPD Cook County						3	3	3
Cook	Sand Ridge Prairie Nature Preserve	FPD Cook County						3	3	3
Cook	Sante Fe Prairie	Civic Center Auth of I&M Canal Natl Herit Corridor	1	1	1	1	1	1	1	1
Cook	Sauganash Prairie Grove	FPD Cook County							1	1
Cook	SEPA Station - Calumet River	MWRD	1							1
Cook	Sheridan Lakeside Condominium Association Beach/Berger Park	Sheridan Lakeside Condominium Association and Owners/Chicago Park District	1		3	3	3			3
Cook	Somme Prairie Grove	FPD Cook County				4	6	4	6	6
Cook	Somme Prairie Nature Preserve	FPD Cook County				2	2	1	2	2
Cook	South Boulevard Beach	City of Evanston					2	2	2	2
Cook	St. Paul Woods	FPD Cook County					1	1		1
Cook	Superior Street Land and Water Reserve	Calumet Memorial Park District						1	2	2
Cook	Surfside Condominium Beach/Kathy Osterman Beach	Surfside Condominium Association/Chicago Park District	3	3	3	3	3			3
Cook	Theodore Stone Prairie	FPD Cook County						2	3	4
Cook	Thornton-Lansing Road Nature Preserve (Zanders)	FPD Cook County						3	2	3
Cook	Tower Road Park Beach	Village of Winnetka				3	3		3	3
Cook	Watersmeet	FPD Cook County					2	2	2	2
Cook	Wayside Woods Prairie	FPD Cook County					1	1		1
Cook	William Powers Conservation Area (Wolf Lake)	IDNR		3	1	1	3	3	3	3
Cook	Wolf Road Prairie	Village of Westchester	1	1		1	1	1	1	1
DuPage	Belmont Prairie	Downer's Grove Park District	2	2	2	2				2
DuPage	Big Woods Forest Preserve	FPD DuPage County				2			1	2
DuPage	Blackwell Forest Preserve	FPD DuPage County	1	2	2	3	1	4	3	4
DuPage	Brush Hill Forest Preserve	FPD DuPage County							2	2
DuPage	Churchill Woods	FPD DuPage County	1			1	1	1	3	4
DuPage	Des Plaines Riverway	FPD DuPage County				1		2	2	3
DuPage	East Branch Forest Preserve	FPD DuPage County						1		1
DuPage	East Branch Forest Preserve (East Branch Marsh)	FPD DuPage County		2	2	2	1	1	1	2
DuPage	Fischer Woods	FPD DuPage County	1	2	7	7	3	5	7	8
DuPage	Fullersburg Woods	FPD DuPage County	3	3	3	3	3	2	3	3
DuPage	Goodrich Woods	FPD DuPage County						2	2	2

County	Site Name	Land Owner	2001	2002	2003	2004	2005	2006	2007	Total EORs
DuPage	Greene Valley	FPD DuPage County						3	3	4
DuPage	Hawk Hollow	FPD DuPage County	1	1	1	1		2	1	2
DuPage	Hickory Grove	FPD DuPage County							1	1
DuPage	Hidden Lake	FPD DuPage County		1		1		1		1
DuPage	James Pate Philip State Park	IDNR		1		1		3	1	3
DuPage	Knoch Knolls Park	Village of Naperville							1	1
DuPage	Lyman Woods	FPD DuPage County	3	3	1	1	1	5	5	8
DuPage	Mallard Lake	FPD DuPage County	1	1				2	1	2
DuPage	Maple Grove	FPD DuPage County		2	2	2	2	3	2	4
DuPage	McDowell Grove	FPD DuPage County						1	1	1
DuPage	Meacham Grove	FPD DuPage County		1		1		1		1
DuPage	Pratts Wayne Woods	FPD DuPage County	2	3	2			2	2	5
DuPage	Pratts Wayne Woods (Brewster Creek)	FPD DuPage County	1	1		1				1
DuPage	Saint James Farm	FPD DuPage County						1		1
DuPage	Swift Prairie (Swift Road Meadow)	FPD DuPage County		1	1	2	1	2	3	4
DuPage	Timber Ridge	FPD DuPage County	1	1	1	1	1	4	2	5
DuPage	Warrenville Grove Forest Preserve	FPD DuPage County		1	1	1	1	1	1	1
DuPage	Waterfall Glen	FPD DuPage County	5	9	1	8	4	12	7	17
DuPage	West Branch Forest Preserve	FPD DuPage County	1	1	1	1	1	1	1	1
DuPage	West Chicago Prairie	FPD DuPage County	2	3	2	3	2	3	5	8
DuPage	West DuPage Woods	FPD DuPage County	2	1	2	1	2	1	2	4
DuPage	West DuPage Woods (Elsens Hill)	FPD DuPage County	2	1	1	1	1	1	4	4
DuPage	Willowbrook Wildlife Center	FPD DuPage County							2	2
DuPage	Wood Dale Grove	FPD DuPage County	2	2	2	2		2		4
DuPage	Wood Ridge	FPD DuPage County						4	3	6
Kane	Almon Underwood Forest Preserve	FPD Kane County	1						1	1
Kane	Big Rock	FPD Kane County						1		1
Kane	Bliss Woods Forest Preserve	FPD Kane County				1	3	2		3
Kane	Brunner Woods	Privately Owned					1	1		1
Kane	Burlington Prairie	FPD Kane County	1	1	1	1	3	1	1	3
Kane	Burnidge Forest Preserve	FPD Kane County				2	2	2		2
Kane	Campton Hills Land and Water Reserve	St. Charles Park District	1		1	1	1	1	1	1
Kane	Dick Young Forest Preserve	FPD Kane County					3	2		3
Kane	Dick Young Forest Preserve (Nelson Lake Marsh)	FPD Kane County			3	1	1	1	1	3
Kane	Dixie Briggs Fromm Nature Preserve	Dundee Township		1	1	1	1	2	2	2
Kane	Fox River Bike Trail and Trout Park	FPD Kane County/City of Elgin	1	1	1	1	1	1	1	1
Kane	Freeman Kame	FPD Kane County	1			3	1	1	4	4
Kane	Hannaford Forest Preserve	FPD Kane County	1			1	1	1	1	1
Kane	Helm Road Woods (Barrington Hills Botanical Area)	FPD Kane County/ComEd	1	1		1	1	1	1	1
Kane	Jon Duerr Forest Preserve	FPD Kane County							1	1
Kane	LeRoy Oakes Forest Preserve	FPD Kane County	2			2	1	2	3	3
Kane	LeRoy Oakes Forest Preserve (Murray Prairie)	FPD Kane County	2			2	2	2	2	2
Kane	McLean Road Fen	FPD Kane County					1		1	1
Kane	Meissner-Corrn (Russell Fen)	FPD Kane County	2	1	1	1	2	1	2	2
Kane	Mooseheart Ravine	Loyal Order of Moose		3	3				3	3
Kane	Rohrsen Prairie	Burlington Township							1	1
Kane	Rutland Bog	Chicago Title and Trust		3						3
Kane	Sauer Family Prairie Kame FP	FPD Kane County	1			1				1
Kane	Schweitzer Forest Preserve (Pothole Marsh)	FPD Kane County			1		1		2	2

County	Site Name	Land Owner	2001	2002	2003	2004	2005	2006	2007	Total EORs
Kane	Sleepy Hollow Ravine	Glen Speigler		1	1	1				1
Kane	Trout Park Nature Preserve	City of Elgin		3	2	1	1	1	1	3
Kankakee	Sweet Fern Savanna	Marianne Hahn		1						1
Lake	Berkeley Prairie	FPD Lake County		2	3	3	3	3	5	5
Lake	Beulah Park	City of Zion						1	1	1
Lake	Biltmore Way Easement	Citizens for Conservation					1			1
Lake	Buffalo Grove Prairie	Commonwealth Edison			1	1	1	1	1	1
Lake	Cuba Marsh	FPD Lake County		1					1	2
Lake	East Skokie Nature Preserve	Lake Forest Open Lands Association		1				1	1	1
Lake	Elm Road Forest	FPD Lake County			4	2		1	5	6
Lake	Ethels Woods	FPD Lake County		1		1	1		1	1
Lake	Farm Trails North Nature Preserve	Citizens for Conservation					1			1
Lake	Florsheim Park/North Park	Village of Lincolnshire	1	2	2	3	3	4	5	5
Lake	Fort Sheridan Bluff (Ft. Sheridan Golf Course)	FPD Lake County	2	7	3		8	11	2	16
Lake	Fourth Lake Fen	FPD Lake County			1				1	2
Lake	Gander Mountain	FPD Lake County					3	2	3	4
Lake	Gavin Bog and Prairie	FPD Lake County	2	3	8	4	4	10	4	10
Lake	Grainger Flatwoods	FPD Lake County	1	3	6	3	5	5	6	8
Lake	Grant Woods Forest Preserve	FPD Lake County	1	1	1	2	2	2	1	2
Lake	Grassy Lake FP (Wagner Fen Nature Preserve)	FPD Lake County	1				1	1	2	2
Lake	Greenbelt Forest Preserve	FPD Lake County			2	1	2	1	1	2
Lake	Heller Nature Center	Highland Park/Park District			1	2	2	2	2	2
Lake	Highmoor Prairie	Highland Park/Park District				1	1	2	1	2
Lake	Illinois Beach State Park (North Unit)	IDNR				2	2	2	2	2
Lake	Illinois Beach State Park (North Unit) and Hosah Prairie	IDNR + Zion Park District				2	2	4	3	5
Lake	Illinois Beach State Park (South Unit)	IDNR	2	3	6	6	8	9	9	11
Lake	Independence Grove	FPD Lake County				2			1	2
Lake	Lake Barrington - Flint Creek Savanna	Citizens for Conservation							2	2
Lake	Lake Barrington - Lake Barrington Shores	LBCHA							1	1
Lake	Lakewood Forest Preserve	FPD Lake County							3	3
Lake	Leonardi Park	Highland Park/Park District			1	1	1	2	1	2
Lake	Liberty Prairie	Libertyville Township						2	3	3
Lake	Lyons Prairie and Marsh	CD McHenry County			2		2		1	3
Lake	Lyons Woods	FPD Lake County			2	1	1			2
Lake	MacArthur Woods	FPD Lake County		4	6	5	5	1	2	6
Lake	Marl Flats Forest Preserve	FPD Lake County				2	2	2	3	3
Lake	Middlefork Savanna	FPD Lake County		2	1					3
Lake	North Chicago Wetland Mitigation	IDOT						1	1	2
Lake	Red Oak Woods	North Shore School District 112				1	1	1	1	1
Lake	Reed-Turner Woodland and Woodland Ridge Lot 2	Village of Long Grove	1	1	1	1	1	2	3	3
Lake	Rollins Savanna	FPD Lake County			1			3	3	3
Lake	Ryerson Conservation Area	FPD Lake County	1	4	8	7	6	8	8	11
Lake	Singing Hills	FPD Lake County			1		1			1
Lake	Spring Bluff	FPD Lake County		2	4	2	2	3	3	5
Lake	Sun Lake	FPD Lake County		2						2
Lake	Turner Lake	IDNR	1	1	1	1				1

County	Site Name	Land Owner	2001	2002	2003	2004	2005	2006	2007	Total EORs
Lake	Volo Bog	IDNR					2	3	3	3
Lake	Wadsworth Prairie	FPD Lake County	1	1	1	1	1			1
Lake	Wadsworth Prairie	FPD Lake County/RR Right of Way	1	1	1		1			1
Lake	Wauconda Bog	FPD Lake County	1				1	4	2	6
Lake	Waukegan Beach	City of Waukegan			2	2	3	3	3	3
Lake	Wright Woods	FPD Lake County	1	1	2	3	2	2	1	3
McHenry	Alden Sedge Meadow	CD McHenry County			1	2	1		2	2
McHenry	Amberin Ash Ridge	Staley Family						1		1
McHenry	Bailey Easement: Boone Creek	Bailey Family		1	1		1			1
McHenry	Barber Fen	CD McHenry County				1	1	1	1	1
McHenry	Boloria Fen and Sedge Meadow	Boone Creek Watershed Alliance						3	2	3
McHenry	Boone Creek Fen	O'Donnell Family			1			1		1
McHenry	Bystricky Prairie	CD McHenry County							3	3
McHenry	Cotton Creek Marsh	CD McHenry County						2	2	2
McHenry	Frank and Margo Blair Property	Frank and Margo Blair		1	1	1	1	1		1
McHenry	Glacial Park	CD McHenry County		1	2	1	2	4	4	4
McHenry	Gladstone Fen	Lorna Gladstone						1	1	1
McHenry	Hickory Grove Tszurz	FPD DuPage County					1		1	1
McHenry	HUM 58-59	CD McHenry County				1			1	1
McHenry	HUM 61	CD McHenry County				2	2		2	2
McHenry	HUM Coyne Station East	CD McHenry County				2	2	2	2	2
McHenry	HUM Railroad Prairie West	CD McHenry County				1	1		1	1
McHenry	Kloempken Prairie	CD McHenry County							3	3
McHenry	Lake Elizabeth	CD McHenry County							3	3
McHenry	Lake in the Hills Fen	IDNR/Village of Lake in the Hills	1	5	5	4	5	6	5	6
McHenry	Lind Woods	CD McHenry County							1	1
McHenry	Manuk-Sook Land and Water Reserve	John Clemetsen						2	3	3
McHenry	Nippersink Canoe Base	CD McHenry County					1	1	1	1
McHenry	North Branch Preserve	CD McHenry County							1	1
McHenry	Oakwood Hills Fen	Village of Oakwood Hills					2	2	2	2
McHenry	Silver Creek (Bates Fen)	CD McHenry County							1	1
McHenry	Tom Burroughs Property	Tom Burroughs		1	1	1	1			1
Pike	Walnut Grove Hill Prairie	Privately Owned 3	1							1
Will	Blodgett Road Dolomite Prairie (Des Plaines River Conservation Area)	IDNR		1	1	1	1	1	1	1

County	Site Name	Land Owner	2001	2002	2003	2004	2005	2006	2007	Total EORs
Will	Braidwood Dunes and Savanna	FPD Will County					4		3	4
Will	Dellwood West Nature Preserve	Lockport Township Park District				4	2	2	3	4
Will	Four Seasons Park	Plainfield Park District			1	1	1	1	1	1
Will	Goodenow Grove Nature Preserve	FPD Will County				3	2	1	1	4
Will	Grant Creek Prairie	IDNR	1	1	1	1	1	2	2	2
Will	Grant Creek Prairie and Midewin National Tallgrass Prairie	IDNR + U.S. Forest Service		1	1	1		1	1	1
Will	Hickory Creek Barrens	FPD Will County				1			1	1
Will	Messenger Woods	FPD Will County					1			1
Will	Midewin National Tallgrass Prairie (Blodgett Road)	U.S. Forest Service	1	1	1	1	1	1	1	1
Will	Midewin National Tallgrass Prairie (Drummond Prairie)(Joliet Army Ammunition Plant)	U.S. Forest Service			2	3	3	4	4	4
Will	Midewin National Tallgrass Prairie (Joliet Army Ammunition Plant)	U.S. Forest Service				2	2	3	3	3
Will	Midewin National Tallgrass Prairie and Des Plaines River Conservation Area: Foxglove Prairie (Joliet Army Ammunition Plant)	U.S. Forest Service/IDNR	1	1	1	1	1	1	1	1
Will	Plum Creek Preserve	FPD Will County				1				1
Will	Romeoville Prairie Nature Preserve	FPD Will County		1	1	5	5	3	2	5
Will	Sand Ridge Savanna	FPD Will County						2		2
Will	Thorn Creek Woods	FPD Will County, IDNR, Villages of Park Forest and University Park			2		1	1	1	2
Will	Thorn Grove Forest Preserve	FPD Will County				1	1	2	1	2
Will	Vermont Cemetery	FPD Will County		1	1	1	1	1	1	1
TOTAL:			96	153	178	244	281	354	392	584

Indiana

County	Site Name	Land Owner	2001	2002	2003	2004	2005	2006	2007	Total EORs
Lake	Cressmoor Prairie	Shirley Heinze Land Trust						1		1
Porter	Cowles Bog Trail (Indiana Dunes National Lakeshore)	National Park Service						1	1	1
Porter	Indiana Dunes National Lakeshore	National Park Service						1		1
Porter	Swanson Woods	Susan Swanson et.al.							1	1
TOTAL:			0	0	0	0	0	3	2	4

Wisconsin

County	Site Name	Land Owner	2001	2002	2003	2004	2005	2006	2007	Total EORs
Kenosha	Chiwaukee Prairie	Chiwaukee Prairie Preservation Foundation							9	9
Walworth	Kettle Moraine State Forest - Southern Unit	WDNR							1	1
Walworth	Lulu Lake Preserve	TNC							6	6
Walworth	Lulu Lake SNA	WDNR							1	1
Waukesha	Natura property (Private Property)	Heidi and Dan Natura							2	2
TOTAL:			0	0	0	0	0	0	19	19

ATTACHMENT 8

Plants of Concern 2001-2007
Species EO Frequency per County - A Regional View

Number of Counties	Species	Status	Cook	DuPage	Kane	Lake	McHenry	Will	Total EO's
6	<i>Cypripedium candidum</i>	Listed	11	5	3	5	13	1	38
4	<i>Carex crawei</i>	Non Listed	2		1	1		3	7
4	<i>Carex viridula</i>	Listed	2	5		2		1	10
4	<i>Cirsium hillii</i>	Non Listed		5	2		1	2	10
4	<i>Juncus alpinoarticulatus</i>	Listed	1	2	1	2			6
4	<i>Lathyrus ochroleucus</i>	Listed	1	1		9	1		12
4	<i>Oenothera perennis</i>	Listed	8	1		9		1	19
4	<i>Tomanthera auriculata</i>	Listed	7	2		1		4	14
4	<i>Triglochin palustris</i>	Listed	1		2	2		1	6
4	<i>Utricularia intermedia</i>	Listed	2		1	1	1		5
4	<i>Veronica scutellata</i>	Listed	3	6		7		1	17
4	<i>Viola conspersa</i>	Listed	4	1		9	1		15
3	<i>Adiantum pedatum</i>	Non Listed		3	1	1			5
3	<i>Amelanchier interior</i>	Listed	3	4	1				8
3	<i>Aster furcatus</i>	Listed	2		2	3			7
3	<i>Calopogon tuberosus</i>	Listed	6			2	1		9
3	<i>Carex aurea</i>	Listed	3		1	5			9
3	<i>Carex bromoides</i>	Listed	1	1		2			4
3	<i>Carex woodii</i>	Listed	1	7		5			13
3	<i>Chamaedaphne calyculata</i>	Listed			1	1	1		3
3	<i>Dalea foliosa</i>	Listed	2	1				1	4
3	<i>Filipendula rubra</i>	Listed	1			1	1		3
3	<i>Gentiana flavida</i>	Non Listed	1	1		2			4
3	<i>Minuartia patula</i>	Listed	2	1				3	6
3	<i>Platanthera flava</i> var. <i>herbiola</i>	Listed	1			4		2	7
3	<i>Psoralea tenuiflora</i>	Non Listed		1	1	1			3
3	<i>Rubus odoratus</i>	Listed		1	1	1			3
3	<i>Sisyrinchium montanum</i>	Listed	3	1		1			5
2	<i>Actaea rubra</i>	Non Listed	1			3			4
2	<i>Ammophila breviligulata</i>	Listed	7			1			8
2	<i>Aristolochia serpentaria</i>	Listed		5	1				6
2	<i>Asclepias viridiflora</i>	Non Listed		2	3				5
2	<i>Baptisia leucophaea</i>	Non Listed	1			1			2
2	<i>Cakile edentula</i>	Listed	13			2			15
2	<i>Carex cryptolepis</i>	Listed		1		2			3
2	<i>Carex intumescens</i>	Listed	1			1			2
2	<i>Chamaesyce polygonifolia</i>	Listed	10			1			11
2	<i>Cypripedium parviflorum</i> var. <i>makasin</i>	Listed				2	4		6
2	<i>Diarrhena americana</i>	Non Listed	1	1					2
2	<i>Drosera intermedia</i>	Listed			1			1	2
2	<i>Drosera rotundifolia</i>	Listed				1	1		2
2	<i>Elymus trachycaulus</i>	Listed		1		1			2
2	<i>Hydrastis canadensis</i>	Non Listed	1		1				2
2	<i>Hypericum kalmianum</i>	Listed	2			4			6
2	<i>Isoetes butleri</i>	Listed		1				2	3
2	<i>Juglans cinerea</i>	Non Listed		5		2			7
2	<i>Liatris scariosa</i> var. <i>nieuwlandii</i>	Listed	4					1	5
2	<i>Lycopodium complanatum</i> var. <i>flabelliforme</i>	Non Listed		5	1				6
2	<i>Menyanthes trifoliata</i>	Listed			2	1			3
2	<i>Mitella diphylla</i>	Non Listed				2	1		3
2	<i>Oryzopsis racemosa</i>	Non Listed		1		2			3
2	<i>Parnassia glauca</i>	Non Listed				1	2		3
2	<i>Plantago cordata</i>	Listed		1				1	2
2	<i>Pogonia ophioglossoides</i>	Listed	1				1		2
2	<i>Polygonatum pubescens</i>	Listed	3			1			4
2	<i>Polystichum acrostichoides</i>	Non Listed		1			1		2
2	<i>Prenanthes aspera</i>	Non Listed	1		1				2
2	<i>Pyrola elliptica</i>	Non Listed	1			2			3
2	<i>Rubus pubescens</i>	Listed	3			3			6

Number of Counties	Species	Status	Cook	DuPage	Kane	Lake	McHenry	Will	Total EO's
2	Sarracenia purpurea	Listed				1	2		3
2	Scirpus hattorianus	Listed		2		1			3
2	Silene regia	Listed	1		2				3
2	Silene virginica	Non Listed	1			1			2
2	Sparganium emersum	Listed		2	1				3
2	Tetranneuris herbacea	Listed	1	1					2
2	Thuja occidentalis	Non Listed			1	1			2
2	Tofieldia glutinosa	Listed	1			1			2
2	Trientalis borealis	Listed	1			2			3
2	Triglochin maritima	Listed				2	1		3
2	Trillium sessile	Non Listed	1	2					3
2	Valeriana edulis var. ciliata	Non Listed		1				1	2
1	Agalinis skinneriana	Listed				2			2
1	Amelanchier sanguinea	Listed	2						2
1	Arabis hirsuta	Non Listed		1					1
1	Artemisia serrata	Non Listed			1				1
1	Asclepias exaltata	Non Listed				2			2
1	Asclepias hirtella	Non Listed		1					1
1	Asclepias lanuginosa	Listed					1		1
1	Asclepias meadii	Listed		1					1
1	Asclepias ovalifolia	Listed	1						1
1	Asclepias perennis	Non Listed						1	1
1	Beckmannia syzigachne	Listed	2						2
1	Besseyia bullii	Non Listed			1				1
1	Betula alleghaniensis	Listed				1			1
1	Betula populifolia	Non Listed						1	1
1	Bidens discoidea	Non Listed		2					2
1	Bolboschoenus maritimus	Listed		3					3
1	Botrychium campestre	Listed			1				1
1	Callitriche heterophylla	Non Listed		2					2
1	Callitriche palustris	Non Listed		1					1
1	Carex alata	Listed						1	1
1	Carex brunnescens	Listed				2			2
1	Carex canescens	Listed				1			1
1	Carex crawfordii	Listed						1	1
1	Carex crus-corvi	Non Listed		1					1
1	Carex disperma	Listed				1			1
1	Carex formosa	Listed	2						2
1	Carex frankii	Non Listed		3					3
1	Carex garberi	Listed				1			1
1	Carex leptalea	Non Listed				1			1
1	Carex oligosperma	Listed			1				1
1	Carex pedunculata	Non Listed				1			1
1	Carex trisperma	Listed				1			1
1	Carex tuckermanii	Listed		4					4
1	Carex utriculata	Non Listed		1					1
1	Cassia hebecarpa	Non Listed	1						1
1	Castilleja sessiliflora	Listed				1			1
1	Cicuta bulbifera	Non Listed		3					3
1	Cimicifuga racemosa	Listed				1			1
1	Cladium mariscoides	Non Listed				1			1
1	Collinsia verna	Non Listed			1				1
1	Comptonia peregrina	Listed	2						2
1	Corallorhiza maculata	Listed						2	2
1	Cypripedium reginae	Listed				1			1
1	Cypripedium x andrewsii	Non Listed					2		2
1	Delphinium tricornes	Non Listed	1						1
1	Desmodium canescens	Non Listed		1					1
1	Desmodium cuspidatum	Non Listed		2					2
1	Dichanthelium boreale	Listed	1						1
1	Diervilla lonicera	Non Listed				1			1
1	Dirca palustris	Non Listed			2				2

Number of Counties	Species	Status	Cook	DuPage	Kane	Lake	McHenry	Will	Total EO's
1	Echinodorus cordifolius	Non Listed			1				1
1	Epilobium strictum	Listed						1	1
1	Erigeron pulchellus	Non Listed		2					2
1	Eriophorum angustifolium	Non Listed			2				2
1	Eriophorum virginicum	Listed				1			1
1	Erythronium americanum	Non Listed		1					1
1	Galium labradoricum	Non Listed				3			3
1	Gentiana procera	Non Listed				1			1
1	Gentiana puberulenta	Non Listed			1				1
1	Geranium bicknellii	Listed				3			3
1	Geum rivale	Non Listed			1				1
1	Geum triflorum	Non Listed				1			1
1	Goodyera pubescens	Non Listed			1				1
1	Gratiola quartermaniae	Non Listed						1	1
1	Helianthus giganteus	Listed	1						1
1	Hepatica nobilis var. obtusa	Non Listed				5			5
1	Hybanthus concolor	Non Listed	1						1
1	Hydrocotyle ranunculoides	Listed				1			1
1	Hypericum adpressum	Listed						2	2
1	Ilex verticillata	Non Listed		1					1
1	Iodanthus pinnatifidus	Non Listed		2					2
1	Jeffersonia diphylla	Non Listed	2						2
1	Juniperus communis	Listed				1			1
1	Lechea intermedia	Listed			1				1
1	Lespedeza leptostachya	Listed					2		2
1	Lonicera dioica	Non Listed				1			1
1	Lycopodium clavatum	Listed		1					1
1	Lysimachia hybrida	Non Listed		1					1
1	Malvastrum hispidium	Listed						1	1
1	Napaea dioica	Non Listed						1	1
1	Ophioglossum vulgatum var. pseudopodum	Non Listed	1						1
1	Orchis spectabilis	Non Listed					1		1
1	Orobanche uniflora	Non Listed				1			1
1	Panax quinquefolius	Non Listed		3					3
1	Penstemon pallidus	Non Listed		2					2
1	Penstemon tubaeiflorus	Listed		2					2
1	Physocarpus opulifolius	Non Listed				1			1
1	Platanthera clavellata	Listed				1			1
1	Platanthera hyperborea var. huronensis	Non Listed					2		2
1	Platanthera lacera	Non Listed						1	1
1	Platanthera psychodes	Listed				3			3
1	Poa alsodes	Listed				1			1
1	Poa sylvestris	Non Listed		1					1
1	Populus balsamifera	Listed	1						1
1	Potamogeton robbinsii	Listed				1			1
1	Pycnanthemum pilosum	Non Listed		1					1
1	Ranunculus rhomboideus	Listed			1				1
1	Rhus vernix	Non Listed					2		2
1	Rudbeckia fulgida var. sullivantii	Non Listed						1	1
1	Sagittaria calycina	Non Listed			1				1
1	Salix candida	Non Listed			1				1
1	Scirpus microcarpus	Listed				3			3
1	Shepherdia canadensis	Listed				1			1
1	Spiranthes lucida	Listed	2						2
1	Spiranthes ovalis	Non Listed	1						1
1	Stellaria pubera	Listed	1						1
1	Symphoricarpos albus var. albus	Listed			1				1
1	Trifolium reflexum	Listed						1	1
1	Trillium cernuum	Listed					3		3
1	Trillium erectum	Listed				1			1
1	Utricularia cornuta	Listed					1		1
1	Utricularia minor	Listed	1						1

Number of Counties	Species	Status	Cook	DuPage	Kane	Lake	McHenry	Will	Total EO's
1	Vaccinium oxycoccos	Listed				1			1
1	Valeriana uliginosa	Listed					2		2
1	Viola canadensis	Listed	1						1
1	Viola pallens	Non Listed				1			1
1	Viola striata	Non Listed	2						2
1	Zizania aquatica	Non Listed			1				1
TOTALS:			150	124	51	169	49	41	584

ATTACHMENT 9

Plants of Concern Advisory Group

MINUTES

DECEMBER 6, 2007

9:30 AM-2:30 PM

CHICAGO BOTANIC GARDEN
Children's Learning Center - Classroom 3

FACILITATOR	Susanne Masi, Coordinator for Plants of Concern
ATTENDEES	Debbie Antlitz, Juanita Armstrong, Lori Artiomow, Jane Balaban, Jeannie Barnes, Laurie Boldt, Mary Borecki, Julia Bourque, Ben Dolbeare, Carol Freeman, Rebecca Grill, Cindy Hedges, Marian Hofherr, Emily Kapler, Ann Kelly, Ken Klick, Scott Kobal, Kelly Neal, Stephen Packard, Kim Roman, Becky Schillo, Brad Semel, Karen Tharp, John Wilker, Matt Williamson, Eric Ulaszek

Agenda topics

PROGRAM OVERVIEW FOR 2007

SUSANNE MASI

DISCUSSION	Preliminary data was presented as of 12/3/07, with 193 species monitored, 590 EO's, 1033 subpops, 213 sites and 74 landowners. (Data is cumulative from 2001). SM noted that more forms are expected and final data will be ready in February, 2008. SM read an e-mail from Deb Nelson that stressed the value of monitoring in triggering a timely management response to new invasive encroachment.
CONCLUSIONS	We currently monitor 45 % of the listed EO's in NE Illinois. Goal is 75-80%. Additional volunteers are needed to reach that goal. Need to aggressively promote Spring Workshops on POC website, newsletters, etc. Debbie Antlitz suggested that we broaden beyond Chicago Wilderness and said the Illinois Native Plant Society would be a good volunteer resource.

CURRENT AND PENDING GRANTS

SUSANNE MASI

DISCUSSION	IDNR: Wildlife Preservation Fund; National Forest Service are secured. C2000, Chicago Wilderness and Wallace Genetics (pre-proposal) are pending.
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VOLUNTEER TRAINING AND PARTICIPATION

MARIAN HOFHERR

DISCUSSION	Three POC 2008 Spring Workshops are scheduled: Volo Bog – 4/5/08, Midewin Tall Grass Prairie – 4/17/08 and the Chicago Botanic Garden – 5/27/08. <u>Land Managers are all invited to participate!</u> Volunteer retention was down 8% to 62% (to date – numbers will change). We currently have 187 volunteers, an increase of 374 % since the program began in 2001. Volunteers monitored a total of 1469 hours. Three in-office volunteers worked 282 hours and Workshop hours were 445 (four Workshops with 84 attendees - 59 went on to monitor for POC).
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VOLUNTEER MONITOR SURVEY

MARIAN HOFHERR

DISCUSSION	350 surveys were sent and 24 volunteers responded (13% of 187 active monitors). All agreed that the Workshops provide good training for field work; the monitoring forms were clear and easy to understand; in general all felt a benefit from their POC work. It was suggested that we include a workshop section on associate plant identification. Comments were made concerning occasional difficulties with web submission.
CONCLUSIONS	Plant identification is rather broad to include in a Workshop. We will look into a tutorial on the website. There are excellent links to plant websites.

LEVEL ONE DATA SUMMARY AND ANALYSIS

SUSANNE MASI / ANN KELLY

DISCUSSION	Summary of monitoring data from Susanne Masi: -The threat levels (brush and tree encroachment, deer browse, erosion, trails, and invasive species) have stayed roughly the same from year to year, even though the data set includes a different subset of populations each year. - Looking at the set of subpopulations that have been monitored for 6 or 7 years (96 subpopulations), a
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trend analysis shows that the majority of the subpopulations have stable or decreasing trends in threat levels across the years, with the bulk having stable threat levels.

- The percent of subpopulations with at least one invasive species has consistently been 75% or higher since 2001. In 2007, 92% of subpopulations have at least one invasive species. The most prevalent invasive species present in our subpopulations is *Rhamnus cathartica*.
- Sign test and linear trend analysis of all subpops with 5 or more years of data yielded the results that around 50% of this set of subpopulations have growing or stable counts. The same analysis of all subpops with all 7 years of data shows over half are staying the same or increasing. 15 species are increasing or stable according to both analytical tests, while 11 species are decreasing according to both tests. These data are considered preliminary as meaningful trends require more years of data.
- Population Viability Analyses were done on Level 2 species, although this was done just as an example, because a statistically robust PVA requires at least 10 years of data. PVAs are indicative of population trends in the absence of management changes or environmental stochasticity. The *Cypripedium candidum* PVAs predict stability for the Level 2 subpops, and a population count analysis on all Level 1 *C. candidum* subpops agrees with this result. The *Viola conspersa* example PVA predicts a 100% probability of extinction. These example PVAs were chosen for their contrast, to illustrate the potential use of PVA, as a focusing tool to direct management to those species and subpops with the greatest need.

MIDWIN NATIONAL TALL GRASS PRAIRIE PROGRAM OVERVIEW

EMILY KAPLER

DISCUSSION	<ol style="list-style-type: none"> 1) Twelve species currently monitored at Midewin and adjacent sites (Grant Creek Prairie, Blodgett Road Dolomite Prairie): <i>Carex crawei</i>, <i>Cirsium hillii</i>, <i>Cypripedium candidum</i>, <i>Gratiola quartermaniae</i>, <i>Isoetes butleri</i>, <i>Malvastrum hispidum</i>, <i>Minuartia patula</i>, <i>Napaea dioica</i>, <i>Rudbeckia fulgida</i> var. <i>sullivantii</i>, <i>Trifolium reflexum</i>, <i>Tomanthera auriculata</i>, and <i>Valeriana edulis</i> var. <i>ciliata</i>. 2) Example of Level 2 Monitoring at Midewin: <i>Tomanthera auriculata</i> <ol style="list-style-type: none"> a) Methods: two visits. First visit tags about 100 plants and measures buds, flowers, aborts, stem height, branches, and herbivory. Second visit returns to tagged plants and measures fruits, aborts, insect damage, and herbivory. b) Studies by Pati Vitt indicate <i>Tomanthera</i> populations will not persist without brush removal and deer browse reduced to about a third of adult plants. c) Data from Foxglove Prairie shows very high levels of deer browse at visit 2 unless deer deterred somehow. An effective method used at this site involves staking nylons filled with human hair around the site perimeter. Deer browse drops to low levels with use of this method. 3) Example of Photopoints at Midewin: <i>Rudbeckia fulgida</i> var. <i>sullivantii</i> <ol style="list-style-type: none"> a) Photopoints are shots across a monitored plot from a standard location each year. b) These shots enable visual documentation of changes in habitat area, such as rapid brush encroachment in the grazing study plot. They also provide visual evidence of land management at work. 4) Example of GPS Polygons at Midewin: <i>Malvastrum hispidum</i> <ol style="list-style-type: none"> a) Polygons draw a shape around the perimeter of the population and can help estimate the size of widely distributed annual species. b) Polygon boundaries might also tell us about what is limiting the plant's distribution. For <i>Malvastrum</i>, one of the subpopulation's boundaries is defined primarily by the invasive <i>Poa compressa</i>. 5) Soil Depth and Restoration at Midewin <ol style="list-style-type: none"> a) The railroad berm in Drummond Prairie fragments habitat and is a haven for invasives. Its removal offers opportunities for native species and rare plants to recolonize if conditions are right. b) Soil is an important condition to consider and the dolomite species of Midewin have different soil needs. Some like <i>Minuartia</i> can grow in cracks in the pavement, preferring shallower soil. Others like <i>Carex crawei</i> prefer deeper soil. 6) Precipitation at Midewin: <i>Isoetes butleri</i> <ol style="list-style-type: none"> a) Sometimes population changes aren't related to threats, invasives, or management; rainfall is instead the prime factor. b) Photopoints can lend support to monitor observations of dry conditions. c) While plants south of the berm in 2007 decreased, counts actually increased north of it in that same year!
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CONCLUSIONS	Looking ahead, Drummond Prairie's ownership is being transferred to the US Forest Service. That means new opportunities for restoration. Most exciting is the potential to set a burn for the first time in decades. Setting aside a control area will enable POC monitors to compare burned vs. unburned areas.
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WEBSITE UPDATE/ON-LINE SUBMISSION**MARIAN HOFHERR FOR BIANCA ROSENBAUM**

DISCUSSION	<ul style="list-style-type: none"> • 2007 Total number of visitors: 6933 (2006: 2383 visitors) • 2007 Average number of visitors/month: 630 • Number of visitors last month: 476 • Highest traffic month: May (990 visitors) • On-Line Form Submissions <ul style="list-style-type: none"> - 221 monitoring forms were submitted on line - 36% of all monitoring forms (2x that of 2006) • 28.3% visitors added webpage to favorites <p>Goals for 2008</p> <ul style="list-style-type: none"> • Land Management Forms viewable on line (not submissable). • Troubleshooting & FAQ section for on-line form submission • Improve on-line form submission <ul style="list-style-type: none"> - Add new fields as needed - Troubleshooting by POC staff - More detailed error messages • POC Monitor Survey submitted on line • Monthly news updates • Staff & volunteer profiles • Invasive plants section <ul style="list-style-type: none"> - Profiles - Pictures - How to identify
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CAROL FREEMAN: PARTNERSHIP W/POC**CAROL FREEMAN**

DISCUSSION	Carol discussed her goal of photographing all species monitored by POC. She requested help with being alerted when plants are in bloom. Her e-mail is carol@carolfreemanphotography.com
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NEW INVADERS WATCH LIST**KAREN THARP**

DISCUSSION	Karen updated the group on the progress of the List. They are looking for a coordinator for the program. A grant request was written to C2000 and further funding is being sought. Form submission is low and online training is being considered. Funding has been received to expand the list, and aquatics have been added.
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WISCONSIN AND INDIANA PROGRAMS**SUSANNE MASI/LORI ARTIOMOW, WI POC COORDINATOR**

DISCUSSION	<p>Susanne reported that part of the CW grant for 2006 and 2007 was to expand POC to other parts of the region: NW Indiana and SE Wisconsin. POC would provide a shared database, materials, workshops, but did not have the resources to administer the program in those states. We would function more as a consulting model.</p> <p>Meetings in early 2006 were held in both states to explore possibilities with agencies, NGOs, volunteers. In Indiana in 2006, POC led a training workshop and a pilot monitoring program was begun under the leadership of Naida Lehmann in 2006 with several reports submitted. Additional reports are expected in 2007 from Naida (now at St. Mary's College) and David Hamilla from the Indiana Dunes National Lakeshore (who received a small grant from the National Lakeshore). In Wisconsin, a pilot program was begun in 2007, with a POC workshop at Lulu Lake (TNC) organized by Eric Howe, who led monitors in reporting on 9 species at two sites; Lori Artiomow conducted rare plant surveillance and some monitoring at Chiwaukee Prairie. The Chiwaukee Prairie Preservation Foundation (guided by Pam Holy, a POC volunteer), received a grant from WDNR's Citizen Based Monitoring Program to launch a POC monitoring program, starting in Chiwaukee. Lori will coordinate that effort.</p> <p>Other Parts of Illinois</p> <p>John Wilker of IDNR discussed possibilities for exporting POC to other parts of the state, most likely in larger urban hubs where universities and population base would support a volunteer program. He asked for input on sources of funding or contacts. Several suggestions included partnering with Illinois Native Plant Society chapters, contacting active groups in the Peoria, contacting VSN groups. Coordination and some staffing would be needed. POC in NE Illinois could probably house the master database.</p>
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LEVEL ONE/TWO (DEMOGRAPHIC): SPINOFFS**SUSANNE MASI**

DISCUSSION	1. POC is serving on the technical team of the Ravine Restoration Project as is Ken Klick. It is sponsored by Open Lands and the Lake Forest Garden Club. POC will be involved in setting up a rare plant
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monitoring program and training volunteers. On April 24th, CBG will host a Ravine Restoration Symposium to present findings and restoration recommendations and to outline a reserve plan that will include agencies from the stretch of the North Shore where the ravines occur. The purpose of the Symposium is "to provide a forum for discussing the best approaches to the preservation and restoration of the Lake Michigan ravine and bluff ecosystem. Bartlett Ravine (at the Openlands Lakeshore Preserve) and McCormick Ravine (in Lake Forest) will be used as case studies." Rebecca Grill mentioned the ravine restoration efforts that have taken place in Highland Park.

2. Outside agencies are using information from the POC database:

- Steve Byers of the Nature Preserves Commission is using monitoring data for Deer Grove in Cook County to strengthen the case to list the site as a Nature Preserve.

- Dan Ludwig of IDNR is using POC-collected deer browse data to plan for a deer control program at Illinois Beach State Park.

3. Susanne was asked to participate in a symposium on Citizen Science by Wisconsin DNR in Milwaukee for the Ecological Society of America Conference in 2008.

4. Kate Bradley, Michigan Technological University post-doctoral student conducted a study on the weevil *Rhinocyllus conicus* and submitted a report to Wisconsin DNR.

The invasive weevil, *Rhinocyllus conicus*, was introduced in Wisconsin in 1975 (and again in '78 and '80) in Walworth and Waukesha (Kettle Moraine) Counties to combat Musk Thistle (*Carduus nutans*). Since there is concern as to whether the weevil was starting to move on to native thistles such as *Cirsium hillii* and *Cirsium pitcheri*, which bloom at the same time as *Carduus nutans*, Bradley sought to determine the weevil's range and pattern of movement as well as any predation on the native *Cirsium* species. Her study concentrated on 28 Wisconsin counties, but she also visited two *C. hillii* populations monitored by POC and 1 nursery population of *C. pitcheri* in Illinois. She also visited IBSP. *Rhinocyllus conicus* was at 40% of the individual sites visited. In Wisconsin, she found the weevil directly on *C. hillii*, but in Illinois, she found the weevil occurring only on *C. nutans* close to two POC populations, and also on a nursery *C. pitcheri* plant at CBG. At IBSP, she found the weevil on *C. nutans* but did not have the permit to check *C. pitcheri*. Bradley estimates that the insect will spread west to other *C. hillii* population areas in 6 to 30 years in Illinois and Wisconsin and to Indiana in 25 years or more. Ken Klick thought the weevil had been introduced in Lake County, but later learned it was another species.

5. Data analysis is starting to be taken further by people from outside POC. Steve Kroiss, last year's POC intern, is creating matrix models for the *Cypripedium candidum* Level 2 data while working toward his PhD under Dr. Tiffany Knight at Washington University – St. Louis. His goals are to determine (1) probability of future extinction risk of the orchid populations, (2) which size stages of the plant (i.e., juveniles vs. large adults) contribute the most to population growth rate and (3) determine how management, such as burning, influences population growth rates. He has written up a research proposal to this end, titled "Demographic population viability analysis of *Cypripedium candidum* and the influence of fire management." He is happy to distribute copies of this and to answer any questions. Please contact him at skroiss@gmail.com.

PLANNING FOR 2008

GROUP DISCUSSION

DISCUSSION	<p>1. Question from Steven Packard about deer browse results: the "Threats" graph shows that deer browse is decreasing in some populations over the years – is there a correlation between lower browse report rates and monitoring done by less experienced volunteers? Other causes were proposed, such as newer sites less impacted by deer, or deer management being conducted on sites. Someone proposed looking for a correlation between the deer management reported on land management forms (beginning in 2007) and the deer browse reported on the level one forms. These data need to be viewed on a site-by-site basis.</p> <p>2. Request from Rebecca Grill: Susanne mentioned that some land managers submit their management forms in Excel spreadsheets. Rebecca and others requested that spreadsheet be sent around for their use.</p> <p>3. Others may wish to use a cloned-access format (available from Bianca) or an e-mail attachment. Only one form is needed for multiple species in the same area, as long as the species are listed. Susanne mentioned that a POC goal is to fill in the gaps in LM reports – both missing reports and missing information on reports, and will request land managers to assist with this. It is critical to be able to track management impacts on monitored populations, one of the key elements of the POC program.</p> <p>4. Debbie Antlitz asked whether managers could be alerted ASAP to any serious immediate threats. In response to this, POC advises that land managers (who have access to all their site and species reports on line) check them on a regular basis to see what has occurred.</p> <p>5. Susanne announced the POC staff (she, Ann and Marian) will be setting up meetings with the FPD land managers and IDNR to individually plan their monitoring efforts for 2008. Assignment spreadsheets will be sent in advance for review.</p> <p>6. Marian asked that landowners not submit reports that have already been submitted by volunteers to POC. This results in duplication that is difficult to track due to the volume of forms received. A check box will be added to track the "paper trail".</p> <p>Questions concerning the website (Bianca's answers <i>in italics</i>):</p>
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- Cindy Hedges mentioned the most frustrating part of online submission is that if she hits enter, it take her out of the submission page and she loses everything she's entered in that form. Can this be fixed?
No. As we discussed, learn to avoid enter and hit tab. Additionally, sometimes when it seems that the website has lost your data and gone to a different screen, you can hit your browser's "back" button and get back to the form with your data.

- Ken Klick is curious if there is a way to have an email sent to the land manager when a form is submitted by a monitor for a site they manage.
This is definitely possible. It can be done in time for the next monitoring season.

- There is interest in improving the Associates drop-down menu – people want it to be like the drop-down menu in the database, where the list gets "smarter" as you fill in letters and takes you to the right species instead of just the right initial letter.
This is possible, but is a work in progress.

- Ken Klick is interested in having the Associates drop-down list have all of the possible Chicago-region associates available, rather than just those that are already in our database – is there a way for the Associates to be linked to other databases that have this information? Debbie Antlitz has a database with the scientific name of about 1000 area plants, and Jane Balaban mentioned the FQA database through CDF, which has all of the Swink and Wilhelm plants, and Eric Ulaszek mentioned the USDA PLANTS database.
Linking our Associates list to another database is definitely possible, and will be explored as soon as possible.

- There is also a lot of interest in having online forms that are editable after submission. Is this possible?
No, but what is possible is having a "corrections/comments" box at the bottom of the form where you can enter anything you'd like us to know or change, and when you hit "send," an email will be sent to the POC staff alerting us to make the change.

- Is there a way to make it so that if you enter "same as last report" in the associates and the GPS, last year's entries can pop up and fill in automatically? Or to have last year's entries somehow simultaneously available and copyable into this year's?
Volunteers will be strongly encouraged to take new GPS readings as often as possible. To answer the question, this is a work in progress. GPS readings will probably be linked up before the Associates, as the data format for the Associates is more complicated.



Plants of Concern

Chicago Botanic Garden
1000 Lake Cook Rd
Glencoe, IL 60022

Volunteer Monitor Survey October 2007

PLEASE RETURN BY DECEMBER 1ST

This survey is anonymous. If you wish to respond by email, send this form as an attachment to Bianca Rosenbaum at brosenbaum@chicagobotanic.org. Your form will be forwarded to POC without your email information. If you wish to return your response via mail, please send your envelope with **NO** return address to:

Bianca Rosenbaum, Chicago Botanic Garden, 1000 Lake Cook Road, Glencoe, IL, 60022

Please rate 1 to 5, 1=the poorest, 3=average, 5=best, or check Yes or No.

Monitoring Form and Process: Please answer with reference to the 2007 monitoring season.

<p>In general, were the questions on the monitoring form clear to you?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, briefly explain any question that was not clear to you:</p>	<p>Rate your overall monitoring experience.</p> <p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p>
<p>How accessible was the monitoring equipment to you?</p> <p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> Not Applicable</p>	<p>Rate the directions you received to locate your population.</p> <p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> Not Applicable</p>
<p>Will you return to monitor with POC again next year?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Have you shared your volunteer experience with other people?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Do you feel you have been recognized for your contributions as a volunteer monitor?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Did you personally benefit from the volunteer monitoring experience?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>How many years have you monitored for POC?</p>	<p>In what county/counties do you monitor?</p>

Additional Comments: _____

Website: Please answer with reference to the 2007 monitoring season.

<p>How often have you visited the website?</p> <p><input type="checkbox"/> Never <input type="checkbox"/> 1-10 times <input type="checkbox"/> 11 or more times</p>	<p>Rate your overall impression of the website.</p> <p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> Not Applicable</p>	
<p>Did you use the website to download forms and guidelines?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, please explain: _____</p>	<p>Did you use the website to enter your data online?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, please explain: _____</p>	
<p>Did you experience problems submitting online?</p> <p><input type="checkbox"/> Yes</p> <p>If yes, please explain: _____</p>	<p><input type="checkbox"/> No</p>	<p><input type="checkbox"/> NA</p>

Interaction with POC staff

How accessible was the POC staff to your questions or concerns? <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> Not Applicable	How helpful was the POC staff? <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> Not Applicable
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Additional Comments: _____**Landowner and management issues**

Please rate how much you feel your comments have helped to inform the land manager of threats in your population(s) (including invasive species). <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> Not Applicable	Have you seen a positive land management change(s) over the years within your population? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable If not briefly explain No: _____ _____ _____
How accessible were the landowners/managers to your questions or concerns? <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> Not Applicable	How helpful were the landowners/managers? <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> Not Applicable

Additional Comments: _____**Training**

Did you attend a 2007 training workshop? <input type="checkbox"/> Yes <input type="checkbox"/> No	Was the workshop location convenient for you? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable
Were you assisted in the field by POC staff, landowners/managers, or other volunteer monitors? <input type="checkbox"/> No <input type="checkbox"/> Yes, POC staff <input type="checkbox"/> Yes, landowners/managers <input type="checkbox"/> Yes, other volunteer monitors	If yes, rate your experience with this assistance. <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Do you feel you received adequate training to conduct the monitoring? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, please explain: _____ _____ _____	Please rate the overall training experience. <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Please tell us what aspect of the training was the most beneficial to you, or give suggestions for improvement: _____ _____ _____	

The staff of POC appreciates your time and effort on behalf of the program. Please tell us what we can do in the future to improve and how we can assist you with your field work!



CAROL FREEMAN PHOTOGRAPHY

TO: Chicago Botanic Garden
1000 Lake Cook Road
P.O. Box 400
Chicago, IL 60022

ATTN: Susanne Masi

Photography process: Meet with Susanne Masi prior to the blooming season to determine a wish list of species to photograph. Contact the monitors of targeted species to arrange a time to meet. The monitors help pin point bloom times and locations for each species. Once the plant has been located, photography begins. Often a second session is required as bloom times or lighting are not optimal during the first attempt to photograph a species. The high-res digital images are processed and reviewed and 3-5 images are selected that best represent the species. These photos are provided on CD to POC.

Plants photographed in 2007:

Carex Woodii

Tetaneuris herbacea

Polygonatum pubescens

Rubus pubescens

Carex aurea

Cypripedium parviflorum var. makasin

Sisyrinchium montanum

Adiantum pedatum

Cream Wild Indigo

Fire Pink

Asclepias Exaltata

Carex Bromoides

Carex Formosa

Carex Viridula

Gentian Flavida

Hypericum Kalmianum

Juncus Alpinoarticulatus

Plantanthera Flava

Lespedeza leptostachya

Scirpus Hattorianus

Scirpus Microcarpus

Triglochin Maritima

Walk in beauty,

Carol Freeman

Carol Freeman

Plants of Concern: Volunteers Help Land Managers Track Rare Plants

By Susanne Masi

After observing that the Purple Fringed Orchid (*Platanthera psycodes*) she monitored was deer-browsed, Kathleen was permitted by the Lake County Forest Preserve District to cage all the plants. When she noted a population of Pale Vetchling (*Lathyrus ochroleucus*) was being mowed during trail management, Joyce met with the maintenance crew and the director of the Lake County FPD to get the mowing stopped. After monitoring Dog Violet (*Viola conspersa*) at one site, Florrie found previously unrecorded populations at two other sites. Karen reported a patch of the invasive Common Reed (*Phragmites australis*) near her monitored population and the land manager herbicided it within days before it became a serious problem. Following several years of stewardship at Montrose Beach Dunes and monitoring five listed species that have colonized the newly developing dunes, Leslie worked with the Chicago Park District and IDNR to include the site on the Illinois Natural Areas Inventory and later to help develop a successful C2000 grant for site management.

The stories go on and on as trained Plants of Concern (POC) volunteers go about their annual data gathering on more than 176 rare plant species at 192 public and private sites throughout northeast Illinois. They are able to keep a close and regular eye on plant populations that agency staff lack the time or resources to visit systematically. On a standardized data form used by all POC monitors, volunteers record plant numbers, area covered and locations through GPS coordinates, but they also report various threats, including invasive species, that put the plants at risk. On numerous occasions monitoring reports have enabled land managers to handle problems at an early stage.

Launched in 2001 through the Chicago Botanic Garden (CBG) initially in partnership with Audubon-Chicago Region and Chicago Wilderness, POC has grown from 52 volunteers monitoring 44 species to 322 volunteers tracking 176 species on an annual, biannual or sometimes triannual basis. Volunteer training workshops are held each spring in multiple locations. New monitors are given additional training in the field by experienced monitors, POC staff or agency staff. The program has worked closely with 71 public and private landowners to place volunteers on their sites, and permits are issued by agencies and by the Illinois Nature Preserves Commission to approve the work being done.

Monitoring Benefits Management Plans

Land managers greatly appreciate the benefits of the program, a key component of which is to provide feedback to managers that will guide their activities. Deb Nelson, former

IDNR Heritage Biologist, stated “I have gained some extremely interesting insights from the monitoring information for the 25 subpopulations now monitored at Illinois Beach State Park.” Land managers also supplement monitoring data by reporting specific management activities within rare plant populations so that the effects of management can be related to changes in the populations.

Volunteers travel to all the natural communities of the region - prairies, savannas, woodlands, wetlands, dunes - wherever the rarest plants occur. Their targets are species listed as threatened or endangered in Illinois, but also other species rare to the region. In addition to alerting landowners to imminent threats, POC is accumulating long-term data that will give a broad regional perspective on the status of individual species or of rare plants overall.



Narrow-leaved sundew (*Drosera intermedia*), a state-threatened species. Photo by Carol Freeman.

A special component of POC is the sensitive species monitoring program at Midewin National Tallgrass Prairie. POC has received funds from the US Forest Service at Midewin and the National Fish and Wildlife Foundation to recruit volunteers and to monitor 12 species on their dolomite and black soil prairies and at adjacent Grant Creek Prairie in order to provide data to guide management activities. One of these species, Limestone Hedge Hyssop (*Gratiola quartermantiae*) was discovered at Midewin by Steve Hill of the Illinois Natural History Survey. It is a previously unknown species, recently named by Duane Estes of the University of Tennessee.

POC is already getting a good handle on the major overall threats to rare plants and the key invasive species encroaching on them. About 78% of all monitored locations are impacted by brush/tree encroachment, 40% by authorized or unauthorized trails, and 15% by deer browse. The five most prevalent invasive species recorded are Buckthorn (*Rhamnus* spp.), Dogwoods (*Cornus* spp.) Bush Honeysuckles (*Lonicera* spp.) Reed Canary Grass (*Phalaris arundinacea*) and Garlic Mustard (*Alliaria petiolata*). Three of these are woody species, which also accounts for the high levels of brush and tree encroachment.

With 10 years of data, POC will be able to make a statistically-based judgment whether a population is viable in the long term through a simple PVA (Population Viability Analysis) supplemented by a linear trend analysis. Very preliminary analyses (based on populations monitored, not all populations) show that nine species are stable or increasing in the region, including lakefront taxa such as Marram Grass (*Ammophila breviligulata*) and Sea Rocket (*Cakile edentula*), and that eight species are showing decline, including Serviceberry (*Amelanchier* spp.) and Woolly Milkweed (*Asclepias lanuginosa*).

Importance of Volunteers

Almost as important as gaining data on rare plants is the involvement of volunteers and their dedication to the study and conservation of these special elements of biodiversity. The role of volunteers cannot be overstated - they are the backbone of the program which could not function without them. Volunteers come from diverse backgrounds, many of them professionals in their own fields, and range in age from college students to an 80-some retired teacher. They are often involved in stewardship activities at their sites and some have taken on stewardship roles as a result of experiencing first hand through monitoring the ecological needs of their loved species. That garlic mustard must go! One volunteer put it enthusiastically: "I thoroughly enjoy being a plant monitor great experience to be outdoors checking up on these important and special plants."

Because of its wealth of data on rare species, POC offers opportunities to researchers and graduate students for data analysis in conjunction with their own work. For example, CBG's Dr. Pati Vitt, who has helped guide the Level 2 demographic monitoring of four POC species, has done population research on Eared False Foxglove (*Tomanthera auriculata*) and Dog Violet. Dr. Jeremie Fant, also of CBG,

has conducted genetic studies of populations of Hill's Thistle (*Cirsium hillii*) and Marram Grass. Dr. Anton Endress of the University of Illinois at Urban-Champaign undertook a CART (Classification and Regression Tree Analysis) statistical analysis of POC census data as part of his sabbatical work.

POC now monitors about 65% of the listed species in northeast Illinois and more than 40% of the region's occurrences of listed species, with an ambitious goal to monitor at least 80% of these occurrences. As the widely accepted regional standard for rare plant monitoring, POC promises to be an increasingly invaluable tool for understanding the status of listed and rare species in the region.

"The most notable progress toward the *Biodiversity Recovery Plan* [for Chicago Wilderness] goals for endangered and threatened species is the development of a regionwide monitoring program and common database for rare species Plants of Concern." 2006. Chicago Wilderness Consortium. *The State of our Chicago Wilderness, A Report on the Ecological Health of the Region*. Ch. 4: Plant Species. 92-94.

For more information and contact information about Plants of Concern visit www.plantsofconcern.org.

Acknowledgements: Funding for Plants of Concern has come from Chicago Wilderness, Illinois Department of Natural Resources (Wildlife Preservation Fund and C2000), U.S. Forest Service at Midewin National Tallgrass Prairie, National Fish and Wildlife Foundation, and CorLands. Acknowledgements also go to present and former POC staff, including Steve Kroiss, Emily Kapler, Ann Kelly and Marian Hofherr, to my supervisors Dr. Pati Vitt and Dr. Kayri Havens, and to all the landowner partners and volunteers who contribute to the program.



A group of volunteers gather data on rare plants.
Photo by Robin Carlson.

Susanne Masi is Manager of Regional Floristics and Plants of Concern Coordinator, Chicago Botanic Garden, and a member of the Illinois Endangered Species Protection Board.

ATTACHMENT 13

2007 Monitoring Season Overview

Email Newsletter to POC volunteers

We have wrapped up another successful monitoring season, and wish to extend our sincere thanks to all of the dedicated volunteers that make Plants of Concern possible. At four 2007 Spring Workshops that were held at Volo Bog, Ryerson Woods, The Morton Arboretum and Lulu Lake in southern Wisconsin, we recruited and trained 71 new volunteers for the 2007 monitoring season! 181 active “Citizen Scientists” monitored 137 species at 155 sites in northeastern Illinois, all in an incredible 1,422 hours. (Must be *some* kind of record!). To date, we’ve received 585 monitoring forms - have we received YOURS?). Our highly competent in-office volunteer staff worked a total of 279 hours inputting data on monitoring and land management forms, filing and generally being there when the POC staff needed an extra hand. (Thanks, Gil, Nancy and Bob!). We also secured key grants that enable the continuation of the work that Plants of Concern has begun, namely from the Illinois Department of Natural Resources (Wildlife Preservation Fund – Tax Check-off), and the Midewin National Tallgrass Prairie. It was a busy year that we hope to only improve upon in 2008!

2008 Training Workshops

We have finalized the plans for our 2008 Spring Workshops. Attached is the information sheet for the upcoming monitoring workshops in April, including dates, times, locations, and a description of events. New monitors are asked to attend a workshop for valuable instruction, and returning monitors are welcomed and encouraged to attend for a refresher. The field work that volunteers do is instrumental to the success of Plants of Concern, and we always have a need for more monitors—we welcome newcomers and appreciate your time!

Volunteer Monitor Survey Reminder

Just a reminder for our current volunteers - if you haven’t sent us your 2007 Volunteer Survey, there is still time to do so. We know how busy you are, but PLEASE take a few minutes to let us know how we’re doing, what more we can do to make your job easier, and any important comments you have that will help us make POC better! We want to do this most important job the best we can, and only you can give us the first hand information that we need. It just takes a few minutes! We have attached a copy for your convenience, or you can find the survey on our website www.plantsofconcern.org. If you need assistance, please let us know and we’ll be happy to help! To those of you who have already sent us your completed survey, THANKS!

For Your Enjoyment!

The Chicago Botanic Garden’s Wonderland Express invites you on a magical train tour of Chicago’s major landmarks while never having to leave the Regenstein Center! POC Staff Review –“Four Thumbs UP!” “Five Stars!” A Must See!” Please take time to visit the Garden for this wonderful event! For more information: www.chicagobotanic.org

Again, thanks for all you do. We wish you a Happy and Peaceful Holiday, and a Most Joyful New Year!

Susanne Masi, POC Coordinator, Marian Hofherr, POC Program Assistant/Volunteer Coordinator, Ann Kelly, POC Research Assistant and Emily Kapler, Midewin Research Assistant.

P.S. Check website for more news: www.plantsofconcern.org

Chicago Botanic Garden
Wildlife Preservation Fund Grant Report
Plants of Concern: Mobilizing Citizen Scientists
Contract # RC08L02W
For July 1, 2007 to June 30, 2008

Submitted by Susanne Masi, Manager of Regional Floristics, Chicago Botanic Garden, Principal Investigator

This narrative summarizes the continued Plants of Concern activities from January 1 to June 30, 2008. It supplements the attached comprehensive program report submitted to Chicago Wilderness which covers the period from December 2006 to December 2007.

Goals and Objectives

The long-term program goal of Plants of Concern (POC) is to expand its role as the primary standardized rare plant monitoring program for northeast Illinois and serve as a model for related programs in other parts of the state and region. POC's key purpose is to collect information on rare and listed plant populations so that managers can respond to individual site and population problems. In addition, the status of populations can be viewed on a regional scale. The program's role is well-recognized by participating agencies and landowners.

A unique value of this program is its public outreach component. Through POC, trained volunteers become citizen scientists, working with public and private landowners to assess and help protect some of the most threatened elements of the state flora. The high level of training and engagement that POC affords enables volunteers to be contributors in meeting regional goals for biodiversity and gains their active support for the conservation of rare plants.

Through 2007, POC had trained 386 volunteers, monitored 203 species in 603 EORs at 223 sites. Eighty-one landowners have been involved. Very preliminary figures for 2008 through June 30 are noted below.

The program objectives as set forth in the original proposal are to:

1. Collect standardized monitoring data (population size, location, threats, and management) on rare plants in formerly monitored and additional groups to report on a cumulative 45-50% of northeast Illinois Element Occurrences (EORs). The POC Advisory Group and individual agencies will determine specific monitoring goals and create a prioritized list of other rare and indicator species to be monitored in conjunction with the Regional Monitoring Program;
2. Continue to collect Level 2 demographic data, initiated in 2001, on selected populations of target species (*Viola conspersa*, *Cypripedium candidum*, *Cirsium hillii* and *Tomanthera auriculata*) for future analysis by CBG staff and other researchers;
3. Hold three volunteer training workshops; support volunteers with further training in the field;
4. Increase the number of trained volunteers recruited (approximately five per county) in conjunction with landowners;
5. Continue collaboration with public and private landowners to place volunteer monitors on their sites;
6. Continue collaboration with IDNR on specific projects (Regional Biologists, Natural Heritage Database, Nature Preserves Commission, Illinois Endangered Species Protection Board);
7. Hold annual meeting of the Advisory Group to plan program direction; and

8. Prepare summary reports by March 2008 for the preceding year's work, including analysis of monitoring data, and as appropriate share data with state agencies and landowners, highlighting management impacts on populations or concerns about the absence of management (hereby submitted to WPF; landowners and state agencies have received this report and individual EO reports as appropriate);
9. Explore with IDNR staff the possibility of exporting POC to other parts of Illinois, including pursuit of additional funding for this effort.

Project Implementation (Program implementation during 2007 is detailed in the attached report to Chicago Wilderness.)

- **Planning the 2008 season**

The December 2007 meeting of the Advisory Group (members include Heritage Biologists and other representatives from the Illinois Natural Heritage Division, Illinois Natural Heritage Database, the Illinois Nature Preserves Commission, and the Illinois Endangered Species Protection Board) was followed by individual planning meetings in February and March 2008, between POC staff and the major landowners in the program: five of the six forest preserve and conservation districts and Illinois DNR (Brad Semel of Lake and McHenry Counties). The meetings resulted in detailed lists of sites and species to monitor and volunteers to train and assign. POC also met with staff of the program at Midewin National Tallgrass Prairie. Other landowners were contacted by phone and email to participate in similar planning.

- **Staffing**

POC Program Manager, Susanne Masi (full time), supervises three staff members:

Marian Hofherr, Volunteer Coordinator and Program Assistant (part time; *this position is temporarily on hold as of July 1, 2008 because the C2000 grant to POC, highly recommended by Chicago Wilderness, was not funded due to funds for this program not being released for 2008 and because the announcement for the Illinois Wildlife Preservation Fund grant for POC for 2008-2009 has not yet been made.*

Rachel Goad, Research Assistant (full time; hired in May 2008 to replace Research Assistant Ann Kelly who served from May 2007);

Dani Drekich, Research Assistant for Midewin National Tallgrass Prairie (full time for 9 months to replace Emily Kapler, who served from April 2007 to January 2008.

POC is in the Conservation Projects section of Chicago Botanic Garden's Division of Plant Science and Conservation. POC staff report to Dr. Pati Vitt, Curator, national Tallgrass prairie Seedbank. (15 % time for POC).

- **Reporting and Permits**

In March, monitoring reports were distributed to all the landowners in the program as well as to the Illinois Natural Heritage Database. Reports on monitoring conducted in Illinois Nature Preserves were submitted to the Illinois Nature Preserves Commission. Applications for new and renewal permits were submitted in May.

- **Volunteer training and participation**

Four training workshops, advertised in stewardship newsletters, the *Habitat Herald*, Chicago Botanic Garden volunteer newsletter, and on the POC website, were held during March and April in different parts of the region (Chicago Botanic Garden, Volo Bog, Midewin National Tallgrass Prairie and Lake Forest Open Lands Association). Eighty-two new and returning volunteers attended these workshops. A fifth workshop was held May 3 in Wisconsin at UW Parkside for 10 volunteers as part of the program's expansion and modeling.

The Volunteer Manual, an annual training resource, was updated and reprinted for distribution at the workshops. POC staff, land manager staff, and experienced volunteer monitors also assisted new volunteers in the field to ensure correct plant identification and protocol usage. After the workshops, new and former monitors were contacted to confirm 2008 assignments by both POC and respective land managers.

Based on monitoring report submissions received through June 30, 2008 (the majority of data forms are received July through September), 70 volunteers monitored 41 species (85 EORs) at 55 sites. Volunteer time, including time spent in the field, at workshops, and in-office, totals 847.35 hours. POC anticipates these figures will significantly increase by the end of the season.

Level 2 demographic monitoring continues as planned, with first and sometimes second visits completed for multiple populations of *Viola conspersa*, *Cypripedium candidum*, and *Cirsium hillii*. *Tomanthera auriculata* monitoring is scheduled for August and September.

Program Promotion and Outreach

In 2007, photographer Carol Freeman submitted multiple images of 22 POC species for use on the website, on posters, and in publications and in 2008 has submitted images of 12 additional species, with further images planned.

Ms. Masi and her staff created Powerpoint presentations on POC for several venues, including the Chicago Wilderness Science and Land Management Team meeting in August 2007. Ms. Masi also presented a poster, co-authored with Research Assistant Ann Kelly at the July Plant Biology & Botany 2007 Joint Congress held in Chicago and at the Janet Meekin Poor Symposium held at the Chicago Botanic Garden in October 2007.

Ms. Masi's article "Plants of Concern: Volunteers Help Land Managers Track Rare Plants" was published in the Fall 2007 issue of *Illinois Audubon* (included in Attachment).

Ms. Masi was invited to participate in the Ecological Society of America's Annual Meeting's Citizen Science Symposium, to be held in Milwaukee in August 2008 and will present "*Plants of Concern*": *Citizen Scientists Monitor Rare Plants in Chicago Wilderness*, co-authored with Research Assistant Ann Kelly.

Articles and announcements about Plants of Concern have appeared in volunteer newsletters throughout the region, including the *Habitat Herald*, Midewin National Tallgrass Prairie's *Tallgrass Telegraph*, and CBG's *Grounds Cover*.

Ms. Masi, as a member of the Illinois Endangered Species Protection Board, is able to bring data from the POC program to the attention of that board and to inform its quinquennial listing process.

Website

The POC website (plantsofconcern.org) has improved and expanded under the creative expertise of Bianca Rosenbaum, Conservation Information Manager. Images of POC species, including those by photographer Carol Freeman, are found on the site, as are links to other important plant websites. A list of invasive species encountered through POC monitoring is also available. The number of hits to date for 2008 is 2899 (compared to a 2864 for the same period in 2007), and the number of on-line monitoring form submissions to date is 82 (compared to 26 for the same period in 2007). The website is serving as an increasingly important and useful tool for the POC program.

POC as a Model

In 2008, POC staff continues to collaborate with agencies in northwest Indiana and southeast Wisconsin on pilot monitoring programs in those areas. In Wisconsin, Lori Artiomow received a grant from the Wisconsin DNR's Citizen Science Fund for monitoring at Chiwaukee Prairie and adjacent sites. Eric Howe of Wisconsin TNC continues to work with volunteers at Lulu Lake and neighboring sites. In Indiana botanic contractors David Hamilla and Barbara Plampin are monitoring more than 20 species in the Indiana Dunes National Lakeshore for the National Park Service. These data will be shared with POC as part of its regional program. Data from these programs will be centrally stored in the POC database at the Chicago Botanic Garden.

Regarding expansion of POC to other parts of Illinois, a general discussion at the December, 2007 POC Advisory Group meeting was led by IDNR's John Wilker who asked for input on exporting the program to other parts of Illinois, particularly to other urban centers with a potential volunteer base. Funds required for expansion have not been identified, but if funds do become available, expansion is possible.

Conclusion

The need for a standardized rare plant monitoring program in Illinois has been amply demonstrated by the success of the Plants of Concern program since its inception in 2001. The program's expansion into neighboring states provides new opportunities for insights into appropriate land management and the conservation of rare plants. The continuing need for long-term data on Illinois' rarest elements of plant biodiversity requires the ongoing and broad base of support that has been provided by agencies such as the Illinois Department of Natural Resources through the Wildlife Preservation Fund and Conservation 2000 as well as Chicago Wilderness and the U.S. Forest Service at Midewin National Tallgrass Prairie. Expansion to other parts of Illinois, particularly urban centers, remains a long-term goal, provided local leadership and funding can be identified.

Attachments

Attachment 1

Masi, S. and A. Kelly. "Plants of Concern: Standardized Rare Plant Monitoring Using Trained Volunteers". Final Report to Chicago Wilderness and the Illinois Conservation Foundation, Grant TR0605. March 2008.



Viola conspersa – Dog Violet



Cypripedium candidum –
White Lady's Slipper



Cirsium hillii –
Prairie Thistle



Tomanthera auriculata – Eared False
Foxglove



Measuring population size



POC intern mentoring volunteers at Illinois Beach State Park



Volunteers doing field work at Midewin National Tallgrass Prairie



**2008 POC Training Workshop at
Chicago Botanic Garden**



Field exercises at POC training workshop