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Abstract

A self-administered mail survey of 8,079 residents in 9 counties of the Southwestern region of Lake Michigan (6 in Illinois, 2 in northwestern Indiana, 1 in Wisconsin) was undertaken during February through April 2002 to determine residents' value orientation, attitudes toward, and knowledge of ecological restoration in tall-grass prairies and oak savannas of the region. Specific focus was given to attitudes toward prescribed burns as a management practice. A total of 1,690 (21%) completed questionnaires were received. Although the overall response rate was low, the original sample reflected an over-sampling of the 9 counties. The final response was within the 95% confidence interval for a bivariate response given the population of the region. Respondents had higher mean education levels (51% were college graduates) and income (mean was <$60,000 year) than county averages, however these averages may be more reflective of the population of visitors to natural areas, as opposed to total population of the counties sampled. In the absence of quantitative demographic data on visitors from Chicago Wilderness sites such comparisons cannot be verified.

Prescribed burning was supported by most respondents (73%) in some (56%) or all (17%) cases, whereas 17% were unsure and 10% found prescribed burning unacceptable in some (6%) or all (4%) cases. Individuals supportive of prescribed burns were more supportive of other restoration practices and more held positive attitudes toward ecosystem restoration than those

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Introduction

The purpose of this study was to investigate public attitudes toward use of prescribed burns in restoration and management of natural areas in northeast Illinois, southeast Wisconsin, and northwest Indiana. By segmenting according to attitudes toward prescribed, specific publics were identified in order to target communication messages tailored to that group's orientation.

Prescribed burns are a necessary management practice in reducing fuel loads and removing unwanted vegetation, and are especially important in restoring tall grass prairies and oak savanna woodlands. Public attitudes toward prescribed burns have been mixed. A nationwide survey found the general public expressed divided support for prescribed burns

obtained from survey Sampling, Inc. of Fairfield, CT. Each individual in the sample was mailed a questionnaire, accompanied by a cover letter explaining the study and a stamped return-

all cases were collapsed into one group classified as "Unacceptable," those who perceived burns as "Acceptable" in some or all cases were collapsed into the "Acceptable" group. Many item responses were stratified between the "Unacceptable" and "Acceptable" groups. In some tables the "Unsure" group responses are also presented. Where differences between groups are presented, three different statistical tests are used to determine significance between the groups: Pearson's Chi-square, Kendall's tau-b, and One-way Analysis of Variance (ANOVA). Specific tests are identified for comparisons where findings were significant.

Results and Discussion

Response

The 3 mailings resulted in a response of 1,690 (21%) questionnaires. Whereas this is a low overall response when viewed from the total sample, it is important to note that over-sampling occurred to provide useable strata on the county level. The overall response rate is within the 95% confidence interval at +/- 3% error on a bivariate item for the total regional population. For a population of 3 million people a response of 1,064 is needed for the 95% confidence interval for a bivariate item (Salant and Dillman, 1994). Although the response received limits meaningful stratification at the county level, it does not prevent statistical significance for use of the data in the aggregate. Two hundred follow-up telephone calls were made to determine nonresponse bias. Based on results of the telephone follow-up and statements written on 90 incomplete questionnaires returned, it was determined that issue salience was the motivating factor prompting response.

Support for prescribed burning

Most respondents (73%) supported prescribed burning in some (56%) or all (17%) cases. Some respondents were unsure (17%), and fewer (10%) found prescribed burning unacceptable in some (6%) or all (4%) cases. Many of the analyses presented in this report were based on the

groupings produced by responses to this item in the questionnaire. Respondents who did not support burning in some or all cases were classified into the "Oppose" group (10%), whereas those who supported burning in some of all cases were classified into the "Support" group (73%), with the remainder in the "Unsure" group (17%).

Table 1. Level of support for prescribed burning as a management tool.

	Unacceptable in all cases (%)	Unacceptable in some cases (%)	Unsure (%)	Acceptable in some cases (%)	Acceptable in all cases (%)
Burning	4	6	17	56	17

Place of residence

As discussed previously, the relatively low overall response rate makes county comparisons difficult in a statistically significant sense, however some comparisons are warranted for purposes of identifying general tendencies. Along this line of reasoning, support and opposition for burning were examined by county (Table 2). Support for burning was highest among residents of Lake (80%), DuPage (79%), McHenry (78%), and Kane (77%) counties. Support was lowest among residents of Lake (21%) and Porter (66%) counties in Indiana, Cook County in Illinois (64%), and Kenosha County (69%) Wisconsin.

Table 4. Description of habitat type of natural area nearest respondents' homes (n=1411).

Area	Support (%)	Oppose (%)	Total (%)

Table 6. Frequency of visitation to natural area in past 12 months. (n=1418)

	Support (%)	Oppose (%)	Total (%)
Often (6 times or more)	40	35	37
Occasionally (3-5 times)	30	30	31
Rarely (1-2 times)	24	30	27
Never	6	5	5

Habitat type of natural areas most often visited was used to determine effect of habitat type on attitudes toward prescribed burns. A majority of supporters (55%) and approximately half (49%) of respondents opposed to burning visit areas of mixed habitats most often (Table 7). Natural areas most frequently visited are provided in Appendix B. There was no significant differences in sites visited between the 2 groups.

Table 7. Description of habitat type of natural area respondents visited. (n=1411)

Area	Support (%)	Oppose (%)	Total (%)
Mostly forest	29	32	29
Mostly wetlands	9	10	9
Mostly prairie	8	9	8
Mix of different habitats	55	49	54

Restoration and management of natural areas

Respondents opposed to prescribed burning reported a significantly lower awareness of burning 0 75 0

activities such as prescribed burning on the part of individuals opposed to burns may lead to misconceptions or erroneous assumptions about prescribed burns and lead to opposition.

Table 8. Awareness of management activities on natural areas in region.

Management Activity	Support (%)	Oppose (%)	Total (%)	χ^2
Prescribed burning	41	16	33	104.19 [a]
Planting native plants	31	14	26	46.45 [a]
Gathering native seeds	17	4	13	43.19 [a]
Shrub removal	17	5	14	31.72 [a]
Deer control	24	14	22	16.45 [a]
Tree removal	[22]			

Table 9. Management activities personally witnessed by respondents.

Witnessed Activities [a]	Support (%)	Oppose (%)	Total (%)
Yes	33	19	27
No	67	81	73

Which activities did you witness? (percentages are of respondents who witnessed activities)Support (%) Oppose (%) Total (%)81

1681

Table 10. Respondents receiving burn communication messages. (n=1632)

"Have you read, seen, or heard anything about restoring natural sites in you region?"	Support (%)	Oppose (%)	Total (%)
Yes [a]	56	42	50
No	44	58	50
If "Yes," was the information:	(%)	(%)	(%)
Supportive of people restoring natural sites	75	66	74
Not supportive of people restoring natural sites	25	34	26

[a] Significant difference between "Support" and "Oppose" ($\chi^2 = 43.42$).

Table 11. Media for information about restoring natural sites.

Source of Information	Support (%)	Oppose (%)	Total (%)
Newspaper	42	28	37

Information at nature center D 0my hom0 TD 9 566917 Tw (Info 28 at na52re center) T3 124.5 0 TD 0 Tc

Table 12. Preference for communication medium relating information about restoration and management activities.[a]

Source of Information	Number of Responses
Newspaper	540
Mailing – brochure/newsletter/flyer	483
Television news media	141
Posting at the site	78
Web site/email	72
Radio	58
Multiple media sources	17
Community official/Conservation official-staff	16
Neighborhood friends/association	14
Road signs/billboard	8
Notice posted at library	6
Magazine/journal	2
Information from kids through the school	1

[a] Little to no differences were observed between support, unsure, and opposed groups. Therefore, only total responses are presented.

Questionnaire items concerning burn communications included participants' ratings of importance for content of the messages (Table 13). Respondents rated notifying residents of proposed burns, certification of burn personnel, and communicating potential risks as extremely important items to include in future messages. Individuals opposed to burning rated burn procedure with diagrams as more important than did burn supporters. Burn supporters favored including statements about potential benefits to ecosystems in future burn communications.

Table 13. Importance of o4(me 0.4434 c4.4302 Twstems in future burn communications.) Tj 403.5 0 mmunilts.

Knowledge of restoration practices

Study participants were asked to indicate how well they felt they were able to explain to a friend several concepts related to restoration of natural areas. Concepts were presented with a corresponding 5-point scale (1 = "Not very well" and 5 = "Very well"), with respondents selecting a position on the scale to indicate their level of ability. In every example, individuals supportive of prescribed burns exhibited a significant difference in self-reported ability than those opposed to burning (Table 14). Greater differences in ANOVA significance were observed for the concept "Why natural areas are burned" ($F = 206.43$), "Why restoration is conducted" ($F = 88.84$), and "Why some species are considered 'invasive'" ($F = 69.55$).

As perceived understanding of the use of fire in restoration may influence attitudes toward prescribed burns, participants were asked to rate their knowledge of fire as a tool in restoration and management of natural areas. Slightly less than half (49%) of individuals who supported prescribed burns rated themselves as "Fairly knowledgeable" to "Very knowledgeable," compared to 23% of those opposed to prescribed burns and approximately 14% of those unsure (Table 15).

Table 14. Self-reported level of ability to explain restoration concepts.

"How well would you be able to explain the following concepts to a friend?"	Type of Support	Not Very Well (%)	(%)	(%)	(%)	Very Well (%)	ANOVA
How natural areas are restored to a healthy state	Support	18	24	32	17	9	F = 47.36
	Unsure	45	22	22	7	4	
	Opposed	38	24	20	14	3	p<0.0001
	Total	25	24	29	15	8	
Methods and issues in controlling deer populations	Support	21	22	27	16	14	F = 35.73
	Unsure	41	20	27	7	5	
	Opposed	39	23	24	7	8	p<0.0001
	Total	26	22	27	14	11	
Why some species are considered "invasive"	Support	19	17	26	24	15	F = 69.55
	Unsure	44	21	24	8	4	
	Opposed	40	23	19	12	6	p<0.0001
	Total	25	18	25	20	12	
Why restoration is conducted	Support	11	14	33	30	13	F = 88.84
	Unsure	37	19	29	12	2	
	Opposed	28	23	31	11	8	p<0.0001
	Total	17	15	32	25	11	
Why natural areas are burned	Support	8	9	26	35	23	F = 206.43
	Unsure	40	23	25	10	3	
	Opposed	35	24	24	9	8	
	Total	16	12	26	28	18	p<0.0001

Table 15. Self-rated knowledge of use of fire in restoration. [a] (n=1627)

"I consider myself _____ about use of fire to restore and manage natural areas."	Support (%)	Unsure (%)	Oppose (%)	Total (%)
Not very knowledgeable	12	51	40	22
A little knowledgeable	38	35	38	38
Fairly knowledgeable	41	13	20	34
Very knowledgeable	8	>1	3	6

[a] ANOVA = (α = 0.01, p<0.0001).

Significant differences in importance for various reasons to conduct burns were found to exist between respondents supportive of prescribed burns and those opposed or unsure (Table 16). The reason that produced the greatest variance in response was "To promote ecosystem health." A majority (77%) of burn supporters rated this reason "Very Important" (50%) or "Extremely Important" (27%), compared to respondents opposed to burning (27% "Very Important" and 16% "Extremely Important"). Large variances were also observed for responses to reasons "To keep vegetation from growing too dense" and "To remove non-native plants."

Table 16. Perceived importance of reasons for burning on natural areas.

	Type of Support	Not Important (%)	Slightly Important (%)	Moderately Important (%)	Very Important (%)	Extremely Important (%)	ANOVA
To promote ecosystem health	Support	1	3	19	50	27	F = 74.85
	Unsure	9	8	37	30	16	
	Oppose	13	15	28	27	16	P<0.0001
	Total	4	5	23	45	25	
To keep vegetation from growing too dense	Support						
	Unsure						

In order to understand how the terms “prescribed burns,” “controlled burns,” and “wild fire” are perceived by the general public, study participants were asked to assign certain characteristics (results or methods) to one or more of the three specific types of fire (Table 17). Several results were received from this questionnaire item. One general interpretation is that the public perceives a difference between “prescribed burns” and “controlled burns,” as opposed to viewing them as synonymous terms. In every example provided, responses differed significantly between the two terms. For example, “Ensures that fire does not get out of control” described both prescribed and controlled burns; however 75% of the total responses felt that was an attribute of controlled burns and less than half (42%) of all respondents perceived that statement as an attribute of prescribed burns. Some attributes were equally descriptive of all three types of fire (e.g. “Renew soil nutrients”), yet respondents differentiated between the types of fire when assigning the attributes.

Another result to come out of responses to this questionnaire item was the differences in perceptions of the three fire types between groups based on level of support for use of burning in restoration and management. Significant differences were found in each of the attributes by fire type across the three groups, with “Restore healthy habitat” and “Renew soil nutrients” producing the greate

Table 17. Perceived characteristics of fire types by level of support for prescribed burns.

"What do the following types of fire accomplish?"	Ensures that fire does not get out of control (%)	Restore healthy habitat (%)	Renew soil nutrients (%)	Conducted by trained personal (%)	Controls non-native species (%)
Prescribed Burn					
Support	48	70	63	64	55
Unsure	28	38	32	41	22
Oppose	24	36	37	35	21
Total	42	61	56	57	46
χ^2	59.39 [b]	140.27 [b]	109.35 [b]	77.75 [b]	135.20 [b]
Controlled Burn					
Support	81	62	62	77	48
Unsure	54	26	27	50	19
Oppose	59	32	30	49	17
Total	75	53	53	69	40
χ^2	104.89 [b]	142.53 [b]	146.93 [b]	109.41 [b]	112.64 [b]
Wild Fire					
Support	2	39	51	4	30
Unsure	4	16	28	5	11
Oppose	6	18	25	7	12
Total	3	33	45	4	25
χ^2	8.58 [a]	69.39 [b]	74.34 [b]	3.49 [c]	57.07 [b]

[a] Significant at $\alpha = 0.05$, $p < 0.001$

[b] Significant at $\alpha = 0.01$, $p < 0.0001$

[c] Not significant

Attitudes toward management and health of natural areas

Attitudes toward prescribed burns tended to predict attitudes toward other restoration and management practices (Table 18). Majorities of respondents who supported prescribed burns expressed some level of support for other management practices, whereas majorities of those

Table 18. Support for management practices on natural areas.

	Type of Support	Unacceptable in all cases (%)	Unacceptable in some cases (%)	Unsure (%)	Acceptable in some cases (%)	Acceptable in all cases (%)
Removing shrubs	Support	1	6	17	63	13
	Unsure	1	7	64	22	6
	Oppose	19	25	24	30	3
	Total	3	8	25	53	11
$\chi^2 = 510.03$, $p<0.0001$						
Spraying herbicides	Support	12	18	20	43	7
	Unsure	7	16	63	11	3
	Opposed	38	33	12	16	1
	Total	14	19	27	34	6
$\chi^2 = 343.38$, $p<0.0001$						
Clearing trees from prairies	Support	5	13	19	49	14
	Unsure	5	13	62	17	2
	Opposed	33	29	16	20	1
	Total	8	15	26	41	10
$\chi^2 = 438.53$, $p<0.0001$						
Thinning invasive trees in woodlands	Support	2	4	9	55	29
	Unsure	2	5	59	27	8
	Opposed	24	23	17	31	5
	Total	4	7	18	48	23
$\chi^2 = 665.60$, $p<0.0001$						
Deer control	Support	3	5	11	52	30
	Unsure	3	4	58	27	8
	Opposed	23	21	25	23	8
	Total	6	6	20	44	24
$\chi^2 = 504.67$, $p<0.0001$						

Table 19. Attitudes toward natural areas health and management.

	Type of Support	Strongly Disagree (%)	Disagree (%)	Unsure (%)	Agree (%)	Strongly Agree (%)	ANOVA
Natural areas should be restored wherever possible.	Natural						

Table 19. (Continued) Attitudes toward natural areas health and management.

	Type of Support	Strongly Disagree (%)	Disagree (%)	Unsure (%)	Agree (%)	Strongly Agree (%)	ANOVA
Fire is a useful tool in maintaining natural areas.	Support	<1	2	22	60	16	F = 238.07
	Unsure	1	5	67	26	1	
	Oppose	13	25	41	19	3	
	Total	2	5	31	50	12	p<0.0001
Cutting any trees degrades natural areas.	Support	9	52	25	11	4	F = 57.90
	Unsure	2	24	53	16	5	
	Oppose	2	27	30	29	11	p<0.0001
	Total	7	44	30	14	5	
Preserve areas allow me to experience natural ecosystems.	Support	<1	1	7	63	28	F = 18.64
	Unsure	<1	1	20	62	18	
	Oppose	<1	5	13	57	24	p<0.0001
	Total	<1	2	10	62	26	
Residents should be notified of burning in natural areas.	Support	1	5	9	52	34	NS [a]
	Unsure	1	2	16	50	32	
	Oppose	2	2	5	49	42	
	Total	1	4	10	51	34	
I feel applying herbicides for weeds damages natural areas.	Support	3	20	42	23	12	F = 11.76
	Unsure	3	8	54	25	10	
	Oppose	3	14	24	37	22	p<0.0001
	Total	3	17	43	25	12	
Managing natural areas causes problems where I live.	Support	25	51	21	2	1	
	Unsure	15	37	45	2	2	
	Oppose	17	41	33	5	3	
	Total	22	48	26	3		

Value orientations differed by level of support for prescribed burns among 9 of 12 items (Table 20). Participants were asked to respond to the statement "Natural areas are important to me because they…" by indicating the level of personal importance placed on 12 completing statements. Where significant variance was found to exist the difference was between burn supporters and those either opposed to burns or unsure of their support. Greatest differences were found for "…Create a place for me to escape the urban world," "…Provide places for people to experience nature," and "…Provide open space." No significant differences were found for items related to spiritual aspects of natural areas, nor creating pristine, pre-European settlement conditions or providing places for recreation.

Table 20. Value orientations toward natural areas.

Natural areas are important to me because they….	Type of Support	Not Important (%)	Slightly Important (%)	Moderately Important (%)	Very Important (%)	Extremely Important (%)	ANOVA
Create wildlife habitat.	Support	<1	3	16	44	37	F = 11.0
	Unsure	3	6	21	41	29	
	Oppose	2	3	25	34	36	p<0.0001
	Total	1	4	18	43	35	

Table 20. (Continued) Value orientations toward natural areas.

Natural areas are important to me because they….	Type of Support	Not Important (%)	Slightly Important (%)	Moderately Important (%)	Very Important (%)	Extremely Important (%)	ANOVA
Provide places for recreation.	Support	2	8	23	41	27	NS [a]
	Unsure	4	7	26	42	22	
	Oppose	7	11	24	38	21	
	Total	3	8	24	41	25	
Provide open space.	Support	<1	4	15	47	34	F = 18.94
	Unsure	2	6	24	42	26	
	Oppose	6	8	19	41	26	
	Total	2	4	17	46	32	p<0.0001
Allow for biodiversity.	Support	<1	6	19	41	34	F = 17.95
	Unsure	4	7	28	42	19	
	Oppose	2	9	28	35	26	
	Total	1	6	21	41	30	p<0.0001
Create a place for me to escape the urban world.	Support	3	7	19	35	37	F = 22.09
	Unsure	6	10	25	32	26	
	Oppose	13	7	27	27	27	
	Total	4	7	21	34	34	p<0.0001
Provide places for people to experience nature.	Support	<1	2	11	45	41	F =19.15
	Unsure	2	6	18	42	32	
	Oppose	1	8	20	37	34	p<0.0001
	Total	<1	3	13	44	39	
Create beauty in the urban landscape.	Support	1	2	13	41	42	F = 11.82
	Unsure	2	4	20	45	29	
	Oppose	3	6	18	34	39	
	Total	1	3	15	41	40	p<0.0001
Are part of our American heritage.	Support	2	4	14	37	42	F = 7.47
	Unsure	3	5	19	43	31	
	Oppose	5	8	17	34	36	p<0.005
	Total	3	5	15	38	40	

[a] Not significant at $\alpha = 0.05$

Perceptions of risks associated with prescribed burns

Perceived risks of health or property damage, or to wildlife resulting from prescribed burns differed significantly between groups based on their support for burning as a management tool. As expected, the groups opposed to burning perceived the greatest risks in all categories provided (Table 21). Greatest difference was in response to fire damage to ecosystems: 18% of those opposed to burning felt fire posed a severe risk for ecosystem damage, compared to 1/6

(3%) as many respondents who supported burning. Other items that produced large differences in perceived risks were damage to the appearance of natural areas, fire injuring wildlife, and health threats from smoke.

Table 21. Perception of risk from using fire as a management tool.

	Type of Support

Socio-demographic characteristics

Respondents did not vary significantly across the 3 burn support groups. (Only number of conservation organizations was slightly significant. Burn supporters belonged to an average of 0.53 organizations, whereas those opposed to burning belonged to 0.48 organizations. This difference, although statistically significant, has little practical significance). Therefore socio-demographic characteristics presented here are not separated by groups.

Most respondents (61%) were male. The higher proportion of males to females (39%) was likely due to the use of single family dwellings as the criteria for sampling, as a majority of homes are listed under the male head of household, where applicable. Average age among respondents was 52 years. The most frequent responses came from college graduates (Table 22). The proportion (51%) of graduates from college or professional schools who responded to the survey was higher than the proportion of graduates in the populations of the counties sampled. Higher education level of respondents suggests that, based on education alone, the respondents did not reflect the population of the general public at large.

Table 22. Highest level of education completed. (n = 1610)

Level	Percent Response
Some high school	2
High school	16
Trade or technical school	8
Some college	23
College graduate	30
Graduate or professional degree	21

Mean and median total annual household income reported by respondents was more than $60,000 (Table 23). The most frequent response (mode) was $100,000 or more. Mean income for the 9 counties in the study was approximately $52,000 (U.S. Census Bureau, 2000), with average income highest in Lake and DuPage Counties, Illinois ($63,354 and $62,825,

respectively) and lowest in Cook County, Illinois ($40,181) and Lake County, Indiana ($38,205). Total annual income reported from study participants was higher than combined average for the 9 county study region.

Table 23. Total (gross) household income. (n = 1351)

Income	Percent Response
Less than 20,000	5
$20,000 to $39,999	14
$40,000 to $59,999	21
$60,000 to $79,999	21
$80,000 to $99,999	15
$100,000 or more	24

Respondents had a mean occupancy of 16 years in their current home. Most individuals (96%) owned their home. A majority of respondents (75%) lived in Illinois, 9% lived in Wisconsin, and 16% lived in Indiana (Table 24). A majority of people (57%) have lived in their current state all of their lives, whereas 43% have moved to their current state of residence from another state (Appendix D).

Table 24. County of residence.

County	Number of Respondents	County	Number of Respondents[a]
DuPage, IL	240	Porter, IN	144

Respondents supportive of prescribed burns received more communications (read, seen, or heard) about prescribed burns than those opposed to burns, and perceived the messages to be positive to a greater extent than respondents opposed to burning. Types of communication media suggest those opposed to burns relied more on broadcast media than supporters, who tended to receive communications via print media and social networks. No difference existed between the two groups in terms of preferred media for communications about future management and restoration activities. Communication media most preferred for future messages were newspapers, mailings (e.g. brochures, newsletters, flyers), and television. Few differences between the support and oppose groups were found in ratings of importance for communicating future burning activities. Those messages that stressed safety and benefits to the ecosystem were deemed most important by respondents.

In conclusion, this study found a core of support for natural areas restoration exists in the greater Chicago region of Southwestern Lake Michigan. These residents visit natural areas in their region on a fairly regular basis and perceive themselves to be fairly knowledgeable about restoration activities and management of natural areas. Their values are positively oriented toward natural areas and they possess attitudes that favor restoration and management of natural areas, including prescribed burns. For those individuals opposed to prescribed burns, general understanding of ecosystem restoration and management of natural areas appears to be lacking. Whether information directed toward the principles of restoration and reasons for conducting management activities would serve to educate and enlighten these individuals or that their value orientations predispose them to reject such messages is uncerta Fting

Appendix A. Natural areas nearest respondents' homes.

Hawthorn Hollow
Churchhill Woods Forest Preserve Glen Ellyn IL
Cook County Forest Preserve
Arrowhead Lake

Sunset Farms
Indiana Dunes State Park
Rogers - Lakewood Park
Funk Park HPPD
Kankakee River State Park/Marsh
Vernon Park
Volo Bog
Bristol Woods
Pilcher Park - New Lenox IL
Des Plaines Conservation Area
Monee Reservoir
Green Valley Forest Preserve - Woodridge
Exner Marsh
Gentry Ridge Conservation Area
Oakwood Hills FEN
Moline State Park
Rush Creek Conservation Area
Glacial Ridge State Park
Chain O'Lakes State Park
McHenry Cnty Conservation Area/McHenry Dam
Chicago River
IL Beach State Park
Raviria Woods Sub
Cuba Marsh
Wicklow Villag3
Independence Grove
LF Openlands McCormick Ravine
Carol Beach - Kenosha WI
Lake George
Carl's or Coales Bog
Wauhob Lake
Black Oak
Oak Forest
Goodenow Grove
Old School Forest Preserve
Heller Nature Center
Penny Road Forest Preserve
Hawk Hollow Forest Preserve
Iroquois Hunting Area
LaBaugh Woods
Bemis Woods
Fullersburg Forest Preserve
Blackwell Forest Preserve
Peck Farms
Red Oak
Blackburn Marsh
Millcreek
Binnie Marsh
Butternut Forest Preserve
Rock Cut State Park
The Hollows Conservation District
Lake County State Park
DuPage River/Forest Preserve
SW Forest Preserve
Chicago Park District Park - River Forest IL
Morton Arboretum
Argonne National LAB
Yorkshire Woods
Culberwood Forest Preserve
Griffith Nature Preserve
Race Way Woods
Busse Woods
Stickney Run
Grand Kankakee Marsh
Arie Crown Forest Preserve
Gibson Woods
Ottawa
Catherine Woods
Grave Mill
Meacham Forest Preserve
Berkeley Prairie
Ryders Woods
Maple Grove Forest Preserve
Bliss Woods
Cornerstone Lake & Prairie Areas
Morengo Ridge Conservation Area
Harrison Benwell
Chellberg Farm
Crystal Lake
Silver Springs Lake Park
Flint Lake
Pringle Nature Center
Otter Creek
Somme Woods
Wolf Lake
Trout Park Nature Preserve
Buffalo Grove Creek
Fox Lake State Park
Trailside Museum and Forest Preserve
Wooddale Forest Preserve
St Charles River Walk Area
Center Lake
Larsen Park
Swift Dog Park
Kenosha City Park
Kishwaukee River

Liberty Prairie Forest Preserve
Veterans Acres
Will County Forest Preserve
Hoosier Prairie
Little Calumet River
Open Lands
Valparaiso Conservation Club
Old Plank Rd Trail
The Shrine
Hidden Lakes
Harbor Prairie
Schaumberg Preserve
Lake Dalcarlia
Izaak Walton Preserve
Barbara Key Fen
Aetena Park
Skokie Lagoons
Grove of Glenview
Mallard Lake Forest Preserve
Gilman Trail
Hampshire Forest Preserve
Lakewood Forest Preserve
Wagner Forest Preserve
Grays Lake
Carnbury Lake Wetland
North Point Marina
McCullom Lake
Sterns Woods
Coral Woods
Prime County Wetlands
Douglas Park
Dwight Perkins
Harms Woods
Raccoon Grove
Paul Wolfe Forest Preserve
Rollin's - Savanna IL
Midewin National Tallgrass Prairie
Lake of the Woods - Shorewood IL
Isle A La Cache
Lake in the Hills - FEN
Lake Renwick
Kingbury
Lake Louise
Jasper Pulaski Fish and Wildlife Area
Long Lake
McCormick Nature Preserve
Hooker Lake
Blackberry Forest Preserve
Ned Brown Forest Preserve
Jericho Lake
Holy Hill
Abbott Park
Chicago Botanical Gardens
Bode Lake Forest Preserve
Willow Brook Wildlife Center
Lombard Park
Gilbert Park
Thunderbird Woods
Wildflower
Sauk Trail Forest Preserve
Deer Creek
The Rookery
I & M Canal
Hammel Woods
Dunes - West Beach
Calumet River
Duneland National Park
Sand Creek
Lake Anderson
Pleasant Prairie
Sand Ridge Nature Center
Yankee Woods
Petersen Park Nature Center
Schulenberg Prairie
Highland Park Nature Trail
Eastan Park
Turnbull Woods
Wayne Woods
Oak Brook Terrace Park
Hammond Woods
Lemon Lake
Eggers Woods
Ferson Creek Fen
Wadworth Wetlands
Kickapoo State Park
New Munster
Shabbona Lake
Del Webb Wetlands
Stoney Run
Higgonbotham Woods
Boone Creek
Fern Cliff Park

Merrit Prairie
Elburn Forest Preserve
May Wyatts Commons
Ryans Woods
Shubert Woods
Milwaukee Ave Forest Preserve
Hickory Nut Grove Conservation Area
River Oaks Forest Preserve
Poplar Creek
Virgil Gilman Nature Trail

Andrea Park
Dan Ryan Woods
Greenbelt Forest Preserve
Imagination Glen
Sterling Lake
Lake Arlington
Goose Lake
Gateway Wetland
Swallow Cliff Forest Preserve
Orland Park Forest Preserve
Wright Woods Forest Preserve

Appendix B. Natural areas respondents reported visiting most often.

Morton Arboretum
Busse Woods Forest Preserve

Maple Grove
McDowell Forest Preserve
Kishwaukee River
Sterling
VanHorn Woods - Hickory Creek
National Lakeshore
Kettle Marine Park
Horicon Marsh
Hot Springs - AR
Isaak Walton - Homewood
Grave Mill
Veterans Acres - Crystal Lake IL
Pilcher Park
Forsythe Woods
Blackberry Woods
Lemon Lake County Park
Jergenson Woods
Springbrook Forest Preserve
Harms Woods
Silver Springs Lake Park

Butler Forest Preserve
Thornton Woods
Ferson Creek
Bluff City - FEN
Fermilab
Sagauaw
Palatine Forest Preserve
Marengo Ridge
Cricket Creek
Lake Etta
Jackson Park
Cosley Zoo - Dupage County
Triple R Ranch
Bristol Woods Park
Cowls Bog
Prairie Path Trail
McKinnley Woods
Chelberg Farm
Potato Creek State Park
North Creek Meadow

Appendix C. Reasons for declaring management practice “unacceptable.”

Reason	Number of Responses
Contamination of water resources – poisons – keep toxin out/health hazard/destructive to all wildlife/prefer other methods than using herbicides.	166
You’re interfering with nature/natural means leave it alone/spraying and thinning is contrary to natural environmental change/negative effect on natural area.	162
We need to preserve more trees/trees help out our ecosystem/natural way to get oxygen into the air and good to take out pollution/trees are scarce/don't like to see woodlands removed.	60
Pollutes the air we breath/pollutes environment/public safety concerns.	55
Like seeing deer in natural habitat/we enjoy the beauty of the trees and wildlife. I can't see a situation where it would be necessary for these practices.	20
Shrubs provide cover and habitat/shrubs may prevent soil erosion/burning may destroy untargeted species/burning can be harmful to surrounding areas.	19
Need further information as to why it's needed/depends on method.	15
Danger of fire getting out of hand/burning would be a hazard.	11
Prefer restraints/only clean up fallen trees.	10
In some cases it is necessary to protect and improve/only agree with spraying for some insects like mosquitoes.	8
Waste of money/seems unnecessary and extreme.	2

Appendix D. Percentage of respondents moved to current state and state of former residence.

Appendix E. Conservation and environmental organization membership reported by respondents

Organization	Number of Respondents	Organization	Number of Respondents
Brookfield Zoo	145	Ducks Unlimited	58
National Wildlife Federation	116	Shedd Aquarium	53
The Nature Conservancy	99	Sierra Club	50
World Wildlife Fund	90	Defenders of Wildlife	30
Field Muse			

Appendix F. Recreational activities reported by respondents.

Activity	Number of Respondents	Activity	Number of Respondents
Gardening[a]	945	Snow Skiing[a]	255
Running/walking	943	Hunting[a]	228
Visiting Historical Sites[a]	852	Other Volunteering	202
Visiting Nature Preserves[a]	831	Horseback Riding	169
Fishing[a]	718	Tennis	162
Hiking[a]	670	Water Skiing	154
Visiting museums	616	Sport Shooting[a]	153
Camping[a]	584	In-line Skating	149
Boating/Canoeing[a]	578	Mushroom Hunting	125
Cycling[a]	569	Snowmobiling	100
Golfing	500	ATV Riding	95
Bird Watching[a]	447	Volunteering at Natural Areas[a]	45
Dog walking/Training[a]	441	Other	71
Photography	387		

[a] ANOVA significant differences exist at ($\alpha = 0.05$)

Appendix G. Survey questionnaire.

Urban Natural Areas Survey

ALL RESPONSES ARE CONFIDENTIAL

THANK YOU FOR YOUR COOPERATION!

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The Chicago Wilderness

and the

Illinois Natural History Survey

2. Have you personally witnessed any of the activities listed in **question 1**?

_____ Yes (please go to **question 2a**) _____ No (Please go to **question 3**)

2a. Which activities did you witness? (Please identify): _____

3. Have you read, seen, or heard anything about restoring natural sites in your region?

_____ Yes (Please go to **question 3a**) _____ No (Please go to **question 4**)

3a. If "Yes," was the information: _____ supportive of people restoring natural sites

_____ not supportive of people restoring natural sites

3b. If "Yes," how did you receive this information? Please check all that apply.

_____ newspaper _____ television

_____ radio _____ staff at natural area

_____ information at nature center _____ phone message

_____ sign at site _____ conservation or wildlife official

_____ friends/family _____ neighborhood association

_____ brochure _____ environmental/conservation organization

_____ mailing at my home _____ web site

_____ flyer or poster on bulletin board, etc. _____ other (Please identify): _____

4. In the future, how would you prefer to hear about restoration and management activities?

_____

5. How well would you be able to explain the following concepts to a friend? Please circle the number that matches your response.

Not
Very

Cutting any trees degrades natural areas.	1	2	3	4	5
Preserve areas allow me to experience natural ecosystems.	1	2	3	4	5
Residents should be notified of burning in natural areas.	1	2	3	4	5
I feel applying pesticides for weeds damages natural areas.	1	2	3	4	5
Managing natural areas causes problems where I live.	1	2	3	4	5

8. Please give the level of importance you attach to the following statements by circling the number that matches your response.

maGod___2(234ti.5D ( ) 1725 h f 225 225 7 Tj 540 0 TDs 225 733a6s 733a6s36_____ 77777

"Natural areas are important to me because they…"72t _____.25 0 33a6s 225 733a656s 1D ( ) Tj - 733a6s36_____260 TD 0 8T

Section 3. Use of Fire as a Management Activity. Please answer the following questions about the use of fire to restore and manage natural areas.

1. I consider myself _____ about use of fire to restore and manage natural areas. (Please circle the number below that best matches your response).

Not very knowledgeable	A little knowledgeable	Fairly knowledgeable	Very knowledgeable
1	2	3	4

2. What do the following types of fire accomplish? Please check the box under the activity if it applies to the type of fire listed to the left.

	Ensures that fire does not get out of control	Restore healthy habitat	Renew soil nutrients	Conducted by trained personnel	Controls non-native species
Prescribed Burn					
Controlled Burn					
Wild Fire					

3. Please give the level of risk to each of the following that you feel results from using fire as a management tool.

Issue	No Threat	Slight Threat	Moderate Threat	Severe Threat
Health threat from smoke	1	2	3	4
Reduced visibility on highways	1	2	3	4
Fire escaping from natural area damaging nearby private property	1	2	3	4
Damage to ecosystem	1	2	3	4
Fire injuring wildlife				

4. Please rate how important you feel the following reasons are for burning on natural areas.

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
To promote species diversity	1	2	3	4	5
To protect endangered species	1	2	3	4	5
To remove non-native plants	1	2	3	4	5
To restore habitat for wildlife	1	2	3	4	5
To keep vegetation from growing too dense	1	2	3	4	5
To promote ecosystem health	1	2	3	4	5

5. How important is it to you that the following information about burns be included in future announcements regarding management activities?

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Burn procedure (with diagram)	1	2	3	4	5
Burn procedure (without diagram)	1	2	3	4	5
Potential benefits for ecosystem	1	2	3	4	5
Potential benefits for people	1	2	3	4	5
Potential risks	1	2	3	4	5
Notification to nearby residents when and where burning will occur	1	2	3	4	5
Certification of burn personnel	1	2	3	4	5

Section 4. The following questions are important to help us understand more about the people living near natural areas in Illinois, Wisconsin, and Indiana. Please tell us something about yourself by checking the responses that apply. All responses will be kept confidential.

1. How many years have you lived in your present home? _____ Years

2. Do you own or rent your home? _____ Own _____ Rent

3. What is your state of residence? _____ Illinois _____ Wisconsin _____ Indiana

4. What is your county of residence? _____ County

5. Have you lived in your state all of your life? _____ Yes _____ No

If "No," in what state did you live before moving? _____

6. What is your gender? _____ Male _____ Female

7. What is the highest level of education you have completed?

_____1) some high school _____4) some college

_____2) high school _____5)college graduate

_____3) trade or technical school _____6) graduate or professional degree

8. What is your approximate total (gross) household income?

_____1) less than 20,000 _____4) $60,000 to $79,999

_____2) $20,000 to $39,999 _____5) $80,000 to $99,999

_____3) $40,000 to $59,999 _____6) $100,000 or more

9. Please give your age. _____ Years

10. Do you belong to any of the following conservation or environmental organizations? Please check all that apply.

_____ National Audubon Society _____ World Wildlife Fund

_____ Defenders of Wildlife _____ Sierra Club

_____ National Wildlife Federation _____ Ducks Unlimited

_____ The Nature Conservancy _____ Field Museum of Natural History

_____ Brookfield Zoo _____ Environmental Defense Fund

_____ Chicago Botanical Garden _____ Shedd Aquarium

_____ Chicago Wilderness _____ Other (Please identify): _____

11. In what recreation or free-time activities do you participate? (Check all that apply)

_____ fishing	_____ snow mobiling	_____ snow skiing	_____ bird watching
_____ hunting	_____ water skiing	_____ hiking	_____ running/walking
_____ golfing	_____ tennis	_____ horseback riding	_____ sport shooting
_____ ATV riding	_____ mushroom hunting	_____ boating/canoeing	_____ cycling
_____ camping	_____ gardening	_____ dog walking/training	_____ photography
_____ in-line skating	_____ volunteering at natural areas		_____ other volunteering
_____ visiting historical sites	_____ visiting museums		_____ visiting nature preserves

_____ other (please identify): _____

COMMENTS

RETURN ENVELOPE IS PROVIDED – POSTAGE-PAID

THANK YOU FOR YOUR TIME AND ASSISTANCE!

Your input will help us understand more about managing natural areas in Illinois, Wisconsin, and Indiana.

This study was conducted in cooperation with the Illinois Natural History Survey. The Illinois Natural History Survey is an agency within the Illinois Depar

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