WHAT PEOPLE THINK ABOUT ECOLOGICAL RESTORATION AND RELATED TOPICS: A FIRST LOOK

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ABSTRACT: This study represents a first step in gaining awareness of what people think about ecological restoration and related concepts. Forty-one undergraduate nonscience majors at a liberal arts college in Chicago were asked to define, explain, or illustrate the following four terms: "forest preserves," "natural area," "ecological restoration," and "biodiversity." Analysis involved repeated readings of responses and identification of common themes. Forest preserves held a variety of meanings for people while natural areas often were equated with nature in its most pristine form. The term ecological restoration often translated to fixing the mistakes of man, usually by planting trees. Biodiversity was an unfamiliar term for most respondents. Overall, trees appeared to be an important icon for forest preserves, natural areas, and ecological restoration. This is important information especially when restoration efforts involve removal of trees. Rarely did respondents associate ecological restoration with replacement of one type of community (e.g., forest) with another (e.g., savanna). Learning how people perceive restoration and related concepts may be a good first step in involving a larger population in restoration efforts.

Key words: forest preserve, natural area, ecological restoration, biodiversity

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INTRODUCTION

Ecological restoration is increasingly being used as a tool for enhancing the biodiversity of areas and re-establishing healthy ecosystem functioning. As Stevens (1995) describes, "More and more conservation biologists are coming to recognize restoration as an essential weapon in the struggle to head off the possibility of mass extinctions and collapses of ecosystems."

Somewhat surprisingly, the Chicago area (including Cook and the surrounding counties) is home to some of the largest and best surviving remnants of rare oak and prairie ecosystems (Friederici 1997). It may seem incongruous that the Chicago Metropolitan area, home to 8 million people, is also the site of some of the most unique habitat in the world. This biological wealth is a function of early, farsighted planners who preserved open space in and around the city. The forest preserve districts of Cook and surrounding counties thus have potential for restorationists interested in rescuing and restoring rare biological diversity. Realization of this potential is confounded by the fact that these areas are located in the "backyard" of millions of people, and these people may have specific images of what the forest preserves represent—images that may have been formed over decades.

A better understanding of what is occurring in forest preserve restoration in the Chicago area may be gained by looking at the history of the preserves According to Joseph Nevius, General Superintendent of the Forest Preserve District of Cook County, the forest preserve district has undergone three distinct eras in its 80-year history (Stewart 1995). In the earliest era, from the 1920s–1950s, the district focused on land acquisition Much of the acreage obtained by the district in those early years was abandoned farm fields. Reforestation of these lands with native hardwood trees and shrubs was a major activity in the 1930s and 1940s (Wendling et al. 1981). From the 1950s through the 1980s much attention and effort were directed toward the recreational development of some of these areas through construction of facilities such as bike trails, picnic areas, and golf courses. Wendling et al. (1981) describe the preserves as "forested sanctuaries—large natural reservations with recreation facilities for intensive use on their fringes."

Restoration of both constructed and natural features has been the emphasis of the most recent era beginning in the early 1990s (Stewart 1995). Although restoration has been occurring throughout forest preserve history, the formation of a multi-agency partnership has spurred restoration efforts within the last few years. Ecologists contend that over the years, since the forest preserves were established (in the early 1900s), they have undergone degradation partly due to the absence of effective

stewardship (Forest Preserve District of Cook County 1996). As the forest preserve district has been developed during the past 80 years, fire has been excluded from its ecosystems, some of which depend on it for their health,. Also, weedy species have become dominant in some cases. In support of a more ecological approach to management, the Forest Preserve District of Cook County currently is engaged in cooperative planning efforts to restore native ecosystems and apply the principles of ecosystem management in the district's holdings (USDA Forest Service 1995).

As these plans for ecological restoration in the forest preserves begin to be implemented, restoration activities will become more visible and salient to the public. Restoration by definition involves change, and often these changes occur at an accelerated pace bringing them to the attention of neighbors, visitors, and passersby. Many of them may wonder what is happening and why. The layperson often has not had the types of experiences that foster knowledge and appreciation of rich and biologically diverse systems (Chipeniuk 1995).

An article in the Chicago Tribune (Martinez 1995) illustrates some of the challenges facing restorationists in urban areas. The article describes a plan by the local park district to convert a 20-acre lot that had stood vacant since the late 1970s into a nature sanctuary with renewed savannas, wetlands, and prairies. Local residents claimed the area "is already a nature sanctuary" and that "the plan is redundant." It is a small stretch to imagine similar scenarios of public resistance playing out in the course of restoration efforts in the forest preserves.

In contemplating the increased restoration activities on forest preserves in this region, we began to wonder how forest preserves were perceived by area citizens who are not personally or professionally involved with restoration. We also wondered how people perceived natural areas and whether these perceptions were different from those associated with forest preserves. We also wanted to find out what people thought ecological restoration was all about? Finally, we wanted to determine what the term "biodiversity" meant to people?

METHODS

Participants

Forty-one undergraduate students at Columbia College participated in the study. The students were members of two Ecology and Human Affairs classes and were all nonscience majors. Columbia College is a private, four-year Art, Design, and Communications college. It is located in downtown Chicago.

The students participating in the study ranged in age from 18–29 with a mean age of 21 years. Over two-thirds (68%) of respondents were male. The majority of class members were white (76%), however African Americans (12%), Hispanics (10%) and Asians (2%) also were represented. Nearly two-thirds (64%) of the students resided in the city of Chicago, while 36% lived in the suburbs.

Materials and Procedure

Surveys were administered during the first day of classes in the spring semester, February 1996. Prior to distributing the surveys, the instructor introduced herself and briefly explained the study objectives.

Each student was then handed a sheet of paper with the following printed at the top, "What words come to mind when the term Forest Preserves is mentioned?" Students were given 5 to 10 minutes to complete their responses. These sheets were collected and a similar procedure was followed for three other questions. On a second sheet respondents were asked to draw or describe a natural area, possibly a place they had visited and were familiar with, or some place they had heard about, seen in pictures, magazines, or movies, or a purely fictional place that appealed to them. On a third page students were instructed to diagram or describe ecological restoration, what they thought the term meant, and where they most likely would find this happening? Finally, respondents were asked, to define the term "biodiversity," where it exists in the Chicago and Cook County areas, and to draw and/or describe the phenomena of biodiversity. Background information on study participants was gathered from index cards completed by each student.

Analysis

The goal of analysis was to capture and summarize the main ideas participants expressed about the four concepts (forest preserves, natural areas, ecological restoration, and biodiversity). To conduct analyses, responses to each of the questions were grouped and read repeatedly. Through this process common themes or recurring ideas related to each of the four concepts emerged. Once a set of themes was identified, responses were coded into theme categories. Some responses could be broken down into more than one thought, thus, it was possible that an answer given by a single respondent could be coded into more than one theme category. Going back and categorizing responses into theme categories served as a cross check to assure that the complete set of ideas generated by respondents was represented. The approach used in analysis of this material was modeled after Schroeder (1996) for interpreting textual material.

RESULTS

Over three-fourths of those who participated in this examination said they had previously visited a forest preserve. A greater proportion (87%) said they had visited a natural area. Most participants expressed themselves in words. In seven instances, a drawing formed the predominant portion of the response.

In the following four subsections, results of analysis of written responses on each of the four concepts are reported. Commonly occurring themes are shown in **bold** type. Each theme is illustrated using quotes from respondents. The order of the paragraphs reflects the prevalence of the theme in the responses, i.e., the first theme discussed was most prevalent, the second theme was second most prevalent, etc.

Forest Preserves

Much of the restoration planned for the Chicago area will occur on land currently designated as county forest preserves. Thus, we felt it was important to ask about the meanings forest preserves held for people. Thirty-seven subjects responded to the question about forest preserves. Perhaps not surprisingly, **trees, forest,** or **wooded** were words that came to mind, with some suggesting that there were lots of trees or the woods were dense. "When I think of the term 'Forest Preserves' I envision a densely wooded area that has little effect from mankind. I picture a forest full of trees..."

The fact that these areas were **protected** from development, or set aside, seemed to be a defining feature. "It is a protected woodsy area that allows people to enjoy the natural setting. Land that men or women can't mess with as far as buying. Put aside for the enjoyment of people and animals."

Forest preserves were described with the words **nature** and **natural**, although there was an interesting discrepancy about how natural forest preserves actually were. From one perspective, a forest preserve is "a completely natural area full of plants and animals..." Another view was that a forest preserve represents, "Nature contained." Alternatively, a forest preserve was described as: "a forest which has been preserved in its natural state, but not all of it since some forest preserves have parking lots and driveways and outhouses and grills..."

People believed it would not be unusual to find some **wildlife** like birds, deer, fish, reptiles, and rodents in forest preserves. It was suggested that forest preserves are "...meant to keep certain types of wildlife thriving that wouldn't be able to survive just a few miles down the road."

Respondents believed forest preserves were places to **do** a variety of things. Forest preserves were described as being "...maintained for the purpose of walking, enjoying nature, playing with children", or as "somewhat like parks that people just sit for privacy and sometimes enjoyment." Others mentioned "partying with friends," "picnics during the summer," and "hiking with the dog and mountain biking" as activities they would pursue at forest preserves.

Respondents expected to find **built or maintained structures** such as "pathways through the trees for biking, walking, skating," "occasionally a picnic area," or "...benches and a lot of space to do whatever it is you do." Bodies of **water** were mentioned in descriptions of forest preserves:"... there are about a couple of lakes—usually manmade."

Forest preserves were described as clean with the implication that this would make them somewhat of an oasis in the city. Respondents said forest preserves were, "Clean, untouched, preserved, fun, an escape from busy and dirty streets. Free of trash, filth, and people. A peaceful area where much of life is living at its fullest away from the city, fast life, and pollution."

Natural Area

The restoration process at a site is often undertaken to make the site more natural. We wanted to see how participants viewed natural areas. Thirty-six subjects responded to the question about natural areas. **Plants, trees,** and **greenery** in general were commonly mentioned in descriptions of natural areas. According to respondents, natural areas contain "Bluegreen grass, tall trees, mountains with a river running through a valley... Only the plants and animals are there. A natural area should have abundant greenery."

Natural areas were often described as places that are **untouched**—"a natural area is a place that hasn't been touched by industry; ...a place untouched by the hands of man; man has not made these particular places with technology or knowledge; these places are of nature's creation."

The presence of water in some form appears to be important in defining a natural area. Picture a place where, "the high mountain glades are cut with streams," or "a waterfall in a tropical rain forest in Brazil." To some, a natural area is a place that fills all the **senses**. "I imagine a place that is fragrant... All around are gorgeous trees blooming with flowers. It's quiet and peaceful. A natural area to me is a beach, watching, and listening to the waves. Feeling the sun on my face."

Animals also seemed to be symbolic of natural areas. "A natural area ...is an area which harbors several types of flora and fauna which continue their cycle of death and reproduction without human intervention. Animals and plant life in balance and undisturbed."

Quite a variety of specific **places** were mentioned as representations of natural areas. "I imagine the rain forests of Brazil. A natural area that I have visited and think of frequently is the Rocky Mountain National Park. An example of a natural area that I have been to is the North Woods in Wisconsin. The most natural area I've been to is a small valley at the other end of Mexico. The only natural area I can think of is my aunt's house in Madison, Wisconsin, because she lives on a farm..."

Ecological Restoration

Thirty-six subjects responded to questions about ecological restoration. Ecological restoration often conjured up images of **fixing** or **repairing** areas that had been harmed by humans. "This would involve repairing an area that was previously damaged by people. Bringing life back into a dead zone where man has destroyed all life for his greed for money. Fixing our mistakes."

The idea of making things more **natural** was associated with ecological restoration. Ecological restoration was described as "restoring of the basic or natural make-up of the ecosystem; an effort to restore the balance God had intended; or Mother earth if you will. Resorting back to a more 'natural' life style and natural system."

Cleaning, and making **healthier** were words used in describing ecological restoration. "Ecological restoration is when an area has been damaged environmentally, and there is an effort to make it healthier." It connotes, "...cleaning dirty water, picking up trash all over, in the forest or in the city, by factories and beaches. It could also mean Mother nature 'restoring' earth or cleaning itself because of human's reckless abandon."

Planting or **replanting trees** was another theme identified. Respondents suggested ecological restoration means "replanting trees where clearcutting has taken place," or "planting trees, cleaning dirty rivers and oceans in order to bring nature back to the planet. The actions involved in ecological restoration can run the gamut from planting trees to saving mating pairs of endangered animals to boycotting nonanimal-friendly products."

There was some degree of **uncertainty** expressed on what ecological restoration means. Some were sure they didn't know what it meant. "I have exactly no idea." Others were uncertain but willing to venture a guess. "By the sounds of the words I get the picture of restructuring. "Perhaps restoring/rebuilding something...."

Biodiversity

Ecological restoration may be undertaken for the purpose of increasing biological diversity in an area, so we were interested in what this term meant to participants. Thirty-one subjects responded to the question about biodiversity. There was a lot of **uncertainty** about what the term biodiversity means. "I haven't the slightest idea what this word means" and "no clue" were not unusual responses. Some ventured guesses. "Diversity in twos? ...To take a guess I would say some sort of bringing something together, or taking two groups of different things and binding them."

The word did seem to connote **many** or **varied** species to some. Biodiversity was associated with "existence of various living things, many types of animals and plants, and biological differentiation." **Co-existence** was also mentioned. Biodiversity suggested "coexisting without dangerous harm to one another; an area where many, or more than one organism coexist together, and directly have an effect on each other; and all things coming and living together."

The presence of **humans** and/or **culture** were included in definitions of biodiversity. "Biological diversity means there are many different or diverse people, plants, animals; from races to religions its all over, everywhere you look. It could be the many different cultures that could be found within the city, and it could be many different species living together in one world."

DISCUSSION

In the Chicago metropolitan area, forest preserves are one environment where ecological restoration is being planned. From this study we have learned that forest preserves are viewed quite broadly and heterogeneously. Trees were a unifying concept that most people associated with these areas. This finding is consistent with results of an earlier study of forest preserves (Young and Flowers 1982) that found trees to be the most frequently mentioned feature contributing to site attractiveness. That forest preserves were areas protected from development was also commonly mentioned in our study.

There were discrepancies in how respondents perceived the level of naturalness inherent in forest preserves. Some viewed them as very natural while others noted many built features. There was also variation in the type of experience people sought from forest preserves, with some people associating them with active pursuits such as biking and skating, while others sought peace and quiet. A number of respondents suggested forest preserves would provide homes for wildlife. The most commonly mentioned wildlife species tended to be ones that the professional biologist or restorationist might consider pests (e.g. deer, squirrels, raccoons, and rabbits).

In contrast to forest preserves, natural areas tended to be more clearly and singularly equated with nature in its most pristine, untouched, and pure form. Natural areas were described in an almost Disney-esque way. They were described as places with snowcapped mountains, magnificent waterfalls, gorgeous trees, bluegreen grass, where brooks bubble and animals roam. Most of the specific places named in the course of talking about natural areas were not close by, but three people did give local examples. One thought of Lake Michigan as a "place that has naturally grown to be whatever it is." Another mentioned cutting brush in a natural prairie in Lake Forest, Illinois. One person contrasted forest preserves and natural areas with the following statement, "When I think 'natural area' I picture the woods (forest preserves). I know it is not technically natural, but to me, natural means pure and peaceful and that's how I view the forest preserves."

Ecological restoration often translated to cleaning up or fixing mistakes, such as strip mining, clearcutting, or oil spills. There was a lot of emotion and judgment in these responses. According to respondents, ecological restoration would be needed where man has "abused, butchered, and destroyed". That forest preserves would be the site of ecological restoration efforts may be a difficult one for people to fathom given the meaning the term ecological restoration had for participants. Participants suggested that some goals of restoration would be to make things more natural, cleaner, and healthier. Planting and replanting trees were mentioned as means to achieve these goals. Trees were found to be an important icon for forest preserves and natural areas as well. This may make restoration efforts that involve the removal of trees particularly confusing to people. The idea that one would restore an open space (e.g. a weedy field) to a more natural condition (e.g. a prairie) was not common in participant responses.

The term biodiversity was not very familiar to study participants. The words "many" or "varied" species were mentioned by some who provided responses. Only a few respondents alluded to ecosystem functions or processes. Co-existence that encompassed not only plants and animals but people and culture was another idea that came up.

Perhaps this last idea is one worth giving further consideration. The human dimension, that is the people who live near, play in, pass by, and/or read about areas being restored, may be as important to today's restoration efforts as are the seed mixes, the planting techniques, and the soil fertility. As one respondent put it, "I think ecological restoration means the repairing of not only our environment, but the relationship we have with the environment and how we can work together to a better end."

CONCLUSIONS

This study was a preliminary exploration of the ideas people have about ecological restoration and the related concepts of forest preserves, natural areas, and biodiversity. The small sample size and the non-random nature of the sample do not allow us to estimate the proportion of the population that holds specific views. The important consideration of our research goals was that respondents were urban people and did not have special knowledge about ecological restoration.

Our findings suggest that people are able to articulate a range of perspectives about what forest preserves and natural areas mean to them. However, they are quite unfamiliar with the concept of biodiversity. Ecological restoration often translated to disaster mitigation. This narrow interpretation would not encompass many of the activities restorationists typically engage in. Attempts to sell restoration to the public by emphasizing the outcome of enhanced biodiversity may not be effective given the low level of understanding of this concept.

As we increasingly look to urban and suburban areas for remnants of disappearing habitat and rare species, it is important not to ignore the human dimension. According to Perry (1994), restorationists tend to focus on the restoration site and its ecological history, paying less attention to the multidimensional landscape that surrounds a project. This landscape includes the social as well as biological and physical contexts.

Determining what people think about ecological restoration and related concepts is one way to weave the human social dimension into restoration projects. At the same time, we as resource professionals, scientists, and managers need to do a better job of communicating our messages. Among the strategies for facilitating communication about topics such as biodiversity and restoration are the following: clearly define concepts; make the issues real—not conceptual; use local examples when possible; make the human connection and explain how people are not only responsible for ecological degradation but also ecological restoration; and finally, speak in plain English using nontechnical terms (Saunders and Skosey 1998).

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CONTENTS

Fifteenth
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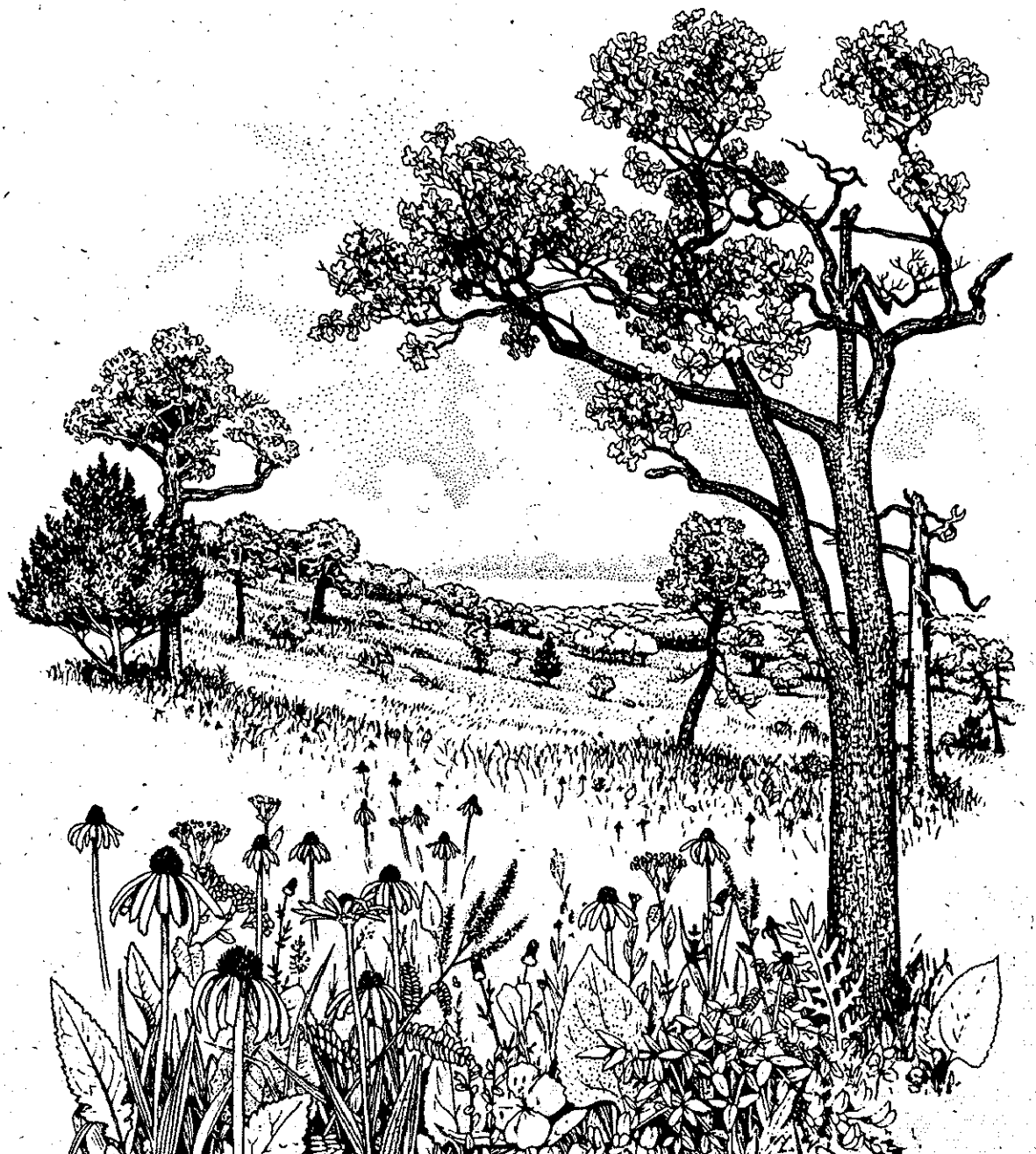

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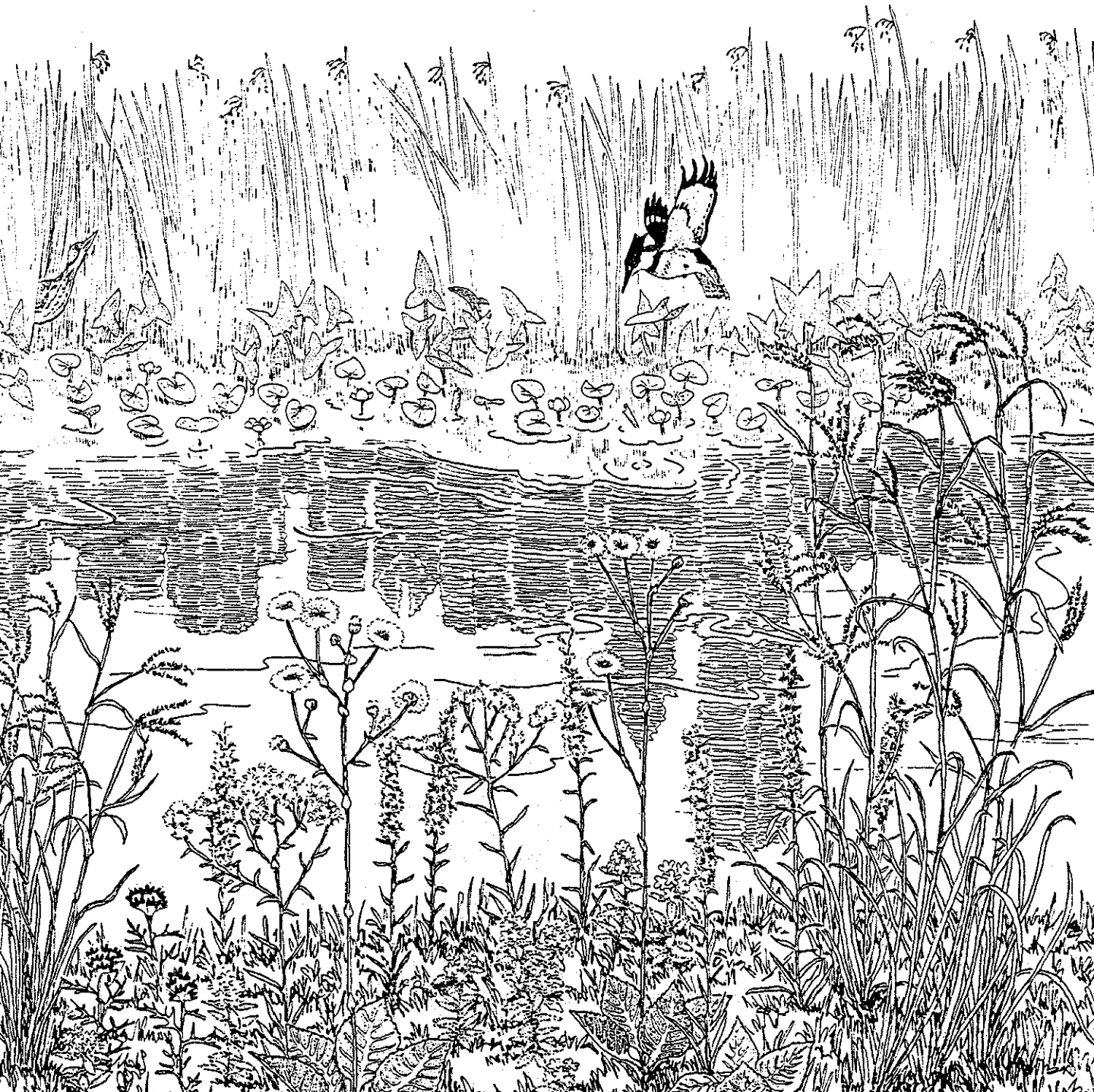

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Salon V	Salon VI
Human Perceptions of Natural Areas Moderator: John Dwyer, USDA Forest Service	**Invasive Species Management** Moderator: Steve Thomas, Cook County Forest Preserve District
8:00am(161) *Wisconsin Native American Perspectives on Environmental Connectedness.* Statham, Ritchie	**8:00am(211)** *Control of Smooth Sumac with Prescribed Burning and Herbicides.* Miles, Stubbendieck, Butterfield
8:20am(162) *Implications of Archaeological and Ethnohistoric Data for Managing Natural Resources.* O'Brien	**8:20am(212)** *The Effects of Robinia pseudoacacia on the Species Diversity of Indiana Dunes Black Oak Savanna.* Peloquin
8:40am(163) *Factors Leading to Attachment for Special Natural Areas.* Ryan, Kaplan	**8:40am(213)** *Reed Canary-grass Community Response to Mowing, Burning, Herbicide, and Prairie Cordgrass Transplants.* Spuhler, Harrington
9:00am(164) *What People Think about Ecological Restoration and Related Concepts: A First Look.* Barro, Bopp	**9:00am(214)** *Impact of Seedlings Emerging from Horse Dung on Trail Corridors.* Campbell, Gibson, West
9:20pm(165) *Integrating Diverse Human Values in Urban Natural Areas Restorations.* Gobster	**9:20pm(215)** *Implications of Exotic Pest Plants.* Spuhler, Harrington
Human Perceptions of Natural Areas Moderator: Paul Gebster, USDA Forest Service	**Invasive Species Management** Moderator: John Schwegman, Illinois Department of Natural Resources
10:00am(166) *Towards an Eco-Sensitive Habitat: A Study of Resident's Willingness to Manage Their Immediate Natural Surroundings.* Talapatra	**10:00am(216)** *Characteristics of Exotic Pest Plants.* Spuhler, Harrington
10:20am(167) *Wilderness...Again: A Reflection of Social Change.* McCorvie, Welch	**10:20am(217)** *The Great Lakes Food Web: A History of Exotics.* Charlebois
10:40am(168) *Biological and Social Values of Wilderness to Society.* Watson, Landres	**10:40am(218)** *Ecological Effects of Invasive Non-indigenous Species in Florida.* Gordon
11:00am(169) *A Sense of Place in the Man and Biosphere Reserve Program: Qualitative and Quantitative Analysis in Lake Superior.* Cantrill	**11:00am(219)** *Recent Exotic Plant Introductions into the Illinois Flora.* Ebinger, McClain
11:20am(170) *Bioregionalism: A State of Mind, Place, and Heart.* DePrez	**11:20am(220)** *Criteria for Ranking Invasive Natural Area Weeds Objectively.* Randall, Morse, Thunhorst, Benton