THE OTTAWA HERITAGE TRAIL: PROTECTING AND INTERPRETING
REMNANT PIONEER CEMETERY PRAIRIES
FROM DANVILLE TO PAXTON, ILLINOIS

BY

ANNA C. WALLACE

THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Landscape Architecture in Landscape Architecture
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2011

Urbana, Illinois

Adviser:

Associate Professor David L. Hays
ABSTRACT

This thesis presents a large scale vision for a system of unplowed remnant prairies in pioneer cemeteries in east-central Illinois, focusing on sites between the city of Danville and the town of Paxton. The objective of the thesis is to protect the remnants by cultivating place attachment among locals and visitors by providing information about the ecological and cultural significance of cemetery prairies. The strategy is to create unique opportunities for experiencing individual sites while associating those settings through a trail concept (a network of cemetery prairies), with the primary purpose of helping to protect isolated remnant prairies. Linking the sites through a designed trail, wayfinding elements, and a brochure elevates the individual significance of the small patches that would otherwise fade into history. Such a network could also create opportunities to extend the prairies, allowing them to flourish once again on a larger scale than at present. This project will cover the ecological and social benefits of such a proposal and will suggest how this concept can be expanded to cemetery and site development in general. Finally, site specific redesigns will be presented that consider alternative approaches to remnant cemetery prairies.
## TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

CHAPTER 2: THEORETICAL FRAMEWORK

CHAPTER 3: ECOLOGICAL AND CULTURAL HISTORY

CHAPTER 4: DESIGN VISION

CHAPTER 5: CONCLUSION

APPENDIX A: COMPARING PRAIRIE AND CEMETERY

APPENDIX B: STATUS OF CEMETERY PRAIRIES

APPENDIX C: ILLINOIS NATURE PRESERVE REGULATIONS: TRAILS

REFERENCES
CHAPTER 1:  
INTRODUCTION

PRAIRIE BIRTHDAY

Every July I watch eagerly a certain country graveyard that I pass in driving to and from my farm. It is time for a prairie birthday, and in one corner of this graveyard lives a surviving celebrant of that once important event.

It is an ordinary graveyard, bordered by the usual spruces, and studded with the usual pink granite or white marble headstones, each with the usual Sunday bouquet of red or pink geraniums. It is extraordinary only in being triangular instead of square, and in harboring, within the sharp angle of its fence, a pin-point remnant of the native prairie on which the graveyard was established in the 1840’s. Heretofore unreachable by scythe or mower, this yard-square relic of original Wisconsin gives birth each July, to a man-high stalk of compass plant or cutleaf Silphium, spangled with saucer-sized yellow blooms resembling sunflowers. It is the sole remnant of this plant along this highway, and perhaps the sole remnant in the western half of our county. What a thousand acres of Silphiums looked like when they tickled the bellies of the buffalo is a question never again to be answered, and perhaps not even asked…the fence had been removed by a road crew, and the Silphium cut. It is easy now to predict the future; for a few years my Silphium will try in vain to rise above the mowing machine, and then will die. With it will die the prairie epoch…Few grieved when the last buffalo left Wisconsin, and few will grieve when the last Silphium follows him to the lush prairies of the never-never land.

Aldo Leopold, A Sand County Almanac, 1966, 49-54.

THE PROBLEM

Unfortunately, Leopold’s fears are becoming reality. Land that was once lush and full of diversity has been nearly entirely transformed into a monoculture by European settlers. Humans have changed the land to such an extent that many of the species that once flourished are now unable to survive and have disappeared. They became so efficient at changing the land that even plants with roots 15 feet deep or more succumbed to the plow. At the time it must have appeared that there was an inexhaustible amount of prairie. Euro-American settlers did not fully realize the importance of this ecosystem and did not realize that their individual actions, when combined with others’ actions, would eventually eliminate virtually all prairie. We are left with remnants of what once existed: those areas which settlers found difficult to plow or were used for burial.

Tallgrass prairie once covered nearly 22 million acres, or about 60% of Illinois, and it did so as recently as 1820 (McClain 1997, 1 and Ellis 2008, 3). In 1976, the Illinois Natural Areas
Inventory (INAI) looked for high-quality prairie remaining in Illinois and found only 2,352 acres. Anderson and Ellis have said that the tallgrass prairie has been 99% destroyed east of the Mississippi River, whereas it has been 85% destroyed to the south and west of the Missouri River and 99% destroyed to the east and north of the Missouri River (2006, 626 and 2008, 16). Due to the changes implemented by humans only 0.01% of high quality remnant prairie remains (Anderson 2006, 626, Urban 2005, 648 and Ellis 2008, 16). These figures are also true for the four counties focused on in this thesis (Figures 1 and 2).

<table>
<thead>
<tr>
<th>Date</th>
<th>Illinois</th>
<th>For the four east central Illinois counties in thesis</th>
<th>Champaign</th>
<th>Vermilion</th>
<th>Ford</th>
<th>Iroquois</th>
</tr>
</thead>
<tbody>
<tr>
<td>1820</td>
<td>22,000,000</td>
<td>1,989,900</td>
<td>592,300</td>
<td>449,500</td>
<td>297,100</td>
<td>651,000</td>
</tr>
<tr>
<td>1976</td>
<td>2,352</td>
<td>59.5</td>
<td>1</td>
<td>4.1</td>
<td>6.4</td>
<td>48</td>
</tr>
</tbody>
</table>

Urban (2005), White and Madany (1976), and Ellis (2008)

Figure 1: Comparing the amount of prairie in 1820 to high-quality prairie left in 1976 for the four counties in this thesis. Note: this table refers to high-quality acres identified by the Illinois Natural Areas Inventory (INAI). Degraded acreage of prairie remained in 1976, but that acreage was not quantified in this study.

This is a small representation of the original Illinois landscape. The North American grasslands, especially the tallgrass prairie, are among the most endangered habitats in the world (Ellis 2008, 16 and Larrabee and Altman 2001, 11). The tallgrass prairies are considered “Critically Endangered Ecosystems” (i.e. have declined by more than 98%) (Anderson 2006, 626 and Ellis 2008, 16).

Ellis states that patches of prairie larger than 10 acres contain the most local diversity of plants, approximately 100 species (2008, 9). He continues that even prairie remnants smaller than 10 acres contain a substantial amount of floristic diversity (2008, 9). For example, despite its small size, the 3.4 acre Loda Cemetery Prairie in the southwest corner of Iroquois County contains about 120 native species (Ellis 2008, 9). Although that number is somewhat atypically high for a small remnant; it proves the importance of such spaces for the overall health of the ecosystem.
Unfortunately, prairie remnants less than 10 acres are unable to support many bird species or large grazers, such as elk or bison, yet they are supporting a diverse group of flora (Ellis 2008, 17). Despite that, remnant prairies face several threats to survival. They lack natural disturbance such as fire, due to the suppression of fire by humans, and become more vulnerable to invasion by exotic species. Remnant prairies also face the threat of being degraded due to unnatural disturbances along their edges, such as mowing, herbicide drift, or plowing (Ellis 2008, 17).

The crux of the problem focused on in this thesis is taking place in the areas of unplowed settler cemetery prairies in east central Illinois. A delicate balance exists between ensuring the health of the prairie, while maintaining the cultural resources of the historic burial sites, and still trying to invite people to explore and learn about the area’s rich history and ecological diversity. To see a space full of plants three to six feet tall, some of which may go above your head, is somewhat foreign to many people accustomed to the highly manicured turf-grass they see in their lawn, neighborhood parks, and traditional cemeteries. However, cemetery prairies embrace long-forgotten native plants and allow a firsthand experience and intimate viewing of them. Unfortunately, some members of the public see cemetery prairies as unkempt and would prefer that they be maintained following the model of modern cemeteries. However, that type of management would compromise the integrity of the species in the remnant prairies. Cemetery prairies retain vegetation present when burials began, and those plants only remain because the settler cemeteries were laid out before the prairie was plowed under (Ellis 2008, 16 and Larrabee and Altman 2001, 87). Should current ideals of cemetery management trump the survival of native prairie species, or is there an alternative approach that honors both natural and cultural heritage?
Figure 2: Amount of high-quality prairie left in Illinois.
This 8.5 x 11 sheet of paper represents Illinois, more than 56,000 square miles. At this scale half the area enclosed by the lowercase “o” equals about 1 square mile which represents the amount of high-quality black-soil prairie (referred to as remnant) left in Illinois (White 1988, 100).
Hypothetically, there is a range of opinions concerning prairies and specifically regarding cemetery prairies (Figure 3). One axis of thought deals with cultural heritage values. At one extreme are people who believe the cemetery is not important due to the fact the generations are so far removed and no immediate family members remain to tend to the graves. In their opinion, there is no need to spend resources on the care and upkeep of grave markers and burial sites. However, at the other extreme are people who believe the cemetery is sacred ground and that it is a desecration to the memory of ancestors to let a cemetery fall into ruins by allowing plants to soar over the grave markers. They believe the cemetery should be restored and maintained according to our current standard for cemetery care (such as maintaining and replacing damaged grave markers and tending to the vegetation planted at the grave site) out of respect to the people buried there.

The other axis of thought pertains to ecological heritage values. At one extreme are people concerned only about the prairie plants and the biological diversity of the space being maintained. The other extreme represents people not concerned for the prairie plants but focused instead on modern cemetery management techniques (mown lawn). Between those hypothetical extremes are attitudes falling within the matrix at different levels. As an example, some people may care about prairie plants and their survival but would like to have a way to protect the grave markers from such factors as fire or obstruction by tall vegetation. Others believe cemeteries are sacred places but know that their upkeep may not be feasible and would like to find ways to honor the people buried in the cemetery while also encouraging biological diversity. Finally there are those who believe that there can be prairie in some areas, while the areas surrounding the gravestones can be managed using traditional cemetery maintenance techniques.

There is no black or white solution, and so many conditions influence cemetery prairies (Figure 4 and Appendix A). A prairie may leave some in awe, while others see an opportunity for research. It may be pleasing to some when in bloom, but the same space may look weedy, unsafe, and too wild to others. Lack of familiarity with a space can cause fears to develop.
Those fears can create a major obstacle but can be reduced with design and management of natural areas (Kaplan, Kaplan, and Ryan 1998, 32). With such thoughts in mind, my goal is to create and strengthen a bridge between human and ecological communities by providing strategies that satisfy the needs of the prairie while also honoring the past and those buried in the cemetery.

Figure 4: Conditions influencing the cemetery prairie.

Another issue that needs to be addressed is whether the public should be allowed in remnant prairie areas. If such access continues, visitors could destroy what little is left. Forcing the public to stay off the land could prove detrimental as well. Not only would people be prohibited from viewing and paying respect to their ancestors, but they would also lose the opportunity to interact with the prairie plants. In both scenarios, prohibiting the public from entering the settler cemetery prairies would be denying the public a large piece of history.

Through carefully thought out design, the ecological and cultural worlds can live in harmony. As James Corner states, “there are some human communities that have adapted their landscapes, buildings, and programs of occupancy to construct a way of life that is in harmony with the ecology of their environment” (1996, 121). Each of the sites in this thesis has the potential to be interwoven to honor both the cultural and environmental aspects. By creating a
strong first impression, the visitor will likely notice more about the cemetery prairie landscape; thus creating stronger memories about the space and the experience.

**DESIGN SCOPE AND METHODS**

The “Ottawa Heritage Trail” proposed in this thesis is the result of substantial research drawing on a diverse group of disciplines. Information gathered through research subsequently informed the proposed design and interpretation of cemetery prairies in east central Illinois. This thesis was influenced by philosophy and ethics, politics, anthropology, archaeology, biology, ecology, geology, and landscape architecture, with each informing the design vision of the trail and individual cemetery prairie sites.

The juxtaposition of valuable historic and natural resources found in or near cemeteries presents significant challenges. Additionally, it is difficult to make small, isolated remnants appear as part of a larger entity. Large tracts of prairie can no longer be found in most areas. Instead, fragments are now separated by cultivated and developed land, causing small patches of prairie species to be many miles apart. The objective of this thesis is to protect those remnants by cultivating place attachment among locals and visitors—specifically, by providing information about the ecological and cultural significance of cemetery prairies. The strategy is to create unique opportunities for experiencing individual sites while associating those settings through a trail concept. This network of cemetery prairies will help link the individual sites and foster a greater desire for their protection by making them seem more significant collectively. Such a network could also create opportunities to extend the prairies, allowing them to flourish once again on a larger scale than at present.

**Study area: east central Illinois’ remnant prairies in unplowed pioneer cemeteries**

This thesis focuses on six cemetery prairies located in east central Illinois and representative of undisturbed pre-settlement sites in Illinois. They are part of the Grand Prairie Section of the Illinois’ Grand Prairie Natural Division. The cemetery prairies are situated in the heart of what was the “Prairie Peninsula,” an area defined by glacial topography and the tallgrass prairie. That area is characterized by very flat land divided by glacial moraines, and it gives rise to six major streams (Illinois Department of Natural Resources 1997, 1). The Grand Prairie was a vast mosaic of tallgrass prairie interspersed with pockets of wet prairie and marshland. Due to
those conditions, it was the last area in Illinois to be settled (Winsor 1987, 375). The area is now dominated by corn and soybeans with some of the most productive agricultural land in the United States (see Chapter 3: Ecological and Cultural History for maps and descriptions).

In many rural communities of the Midwest, settler cemeteries have provided refuge for the prairie due to their general neglect and lack of development, which helped prevent the prairie species from being completely extirpated from Illinois. The settler cemeteries represented in this thesis are situated along or near the Ottawa Travel Road, a trail of prehistoric origin which originated as a worn path used by various animal species, including humans, following the high ground of glacial moraines to avoid the flooded areas of the prairie. Figures 5 and 6 indicate the location of the six sites within Illinois and in relation to the topography of the land in east central Illinois. The six sites are Fairchild Cemetery Savanna Nature Preserve and Pellville Cemetery Prairie in Vermilion County, Tomlinson Pioneer Cemetery Prairie Nature Preserve and Welles Cemetery Prairie in Champaign County, Prospect Cemetery Prairie Nature Preserve in Ford County, and Loda Cemetery Prairie Nature Preserve in Iroquois County (see Chapter 4: Design Vision for maps and descriptions). The sites have different owners, both public and private entities, which can change due to the selling of land or a change in organizational interests. The cemetery prairies differ both in status of protection and whether or not they contain recognizable graves or may accept new burials, which has a direct affect on the future persistence of prairie at those sites (see Appendix B for status information). This thesis is just a start; the goal is to create a much larger trail connecting more remnant prairies throughout Illinois.
Remnant prairies, specifically those in unplowed pioneer cemeteries, are areas that can emerge as places to enhance the identity of local communities in east central Illinois. There is an ongoing debate about how to address the social and ecological factors of cemetery prairies, as well as how they should be managed. Fueling the intensity of the debate is the large number of interested stakeholders—including, but not limited to, farmers, developers, historical societies, neighbors, nature enthusiasts, environmentalists, cemetery preservationists, natural scientists, and design professionals—interested in addressing social and ecological aspects of the cemetery prairies and how the spaces should be managed. The cemetery prairies under the management of the Illinois Nature Preserve Commission have regulations about how to manage the preserves and allow for the upkeep of grave sites. The Cemetery Care Act is responsible for registered cemeteries, while the Human Skeletal Remains Protection Act is responsible for unregistered cemeteries. Each agency provides regulations and information regarding management and care of cemeteries (see Chapter 3: Ecological and Cultural History for more information about regulations and what each agency oversees).

Conflict arises when the concerns of multiple agencies overlap in a single type of space, such as the cemetery prairie. Addressing public perception of the cemetery prairies establishes a
place of compromise among extreme views. I am offering design ideas that incorporate access to the space with minimal impact to help preserve biodiversity and protect the natural areas, while simultaneously helping visitors understand the importance of the cemetery prairies. There is a unique opportunity to save precious remnant prairies by providing a better understanding of why they are important, thereby building community pride while promoting stewardship.
CHAPTER 2:
THEORETICAL FRAMEWORK

Show me any civilization that believes that reality exists only because man can perceive it, that the cosmos was erected to support man on its pinnacle, that man is exclusively divine, and then I will predict the nature of his cities and its landscapes, the hotdog stands, the neon shill, the ticky-tacky houses, the sterile core, the mined and ravaged countryside. This is the image of anthropocentric man. He seeks not unity with nature but conquest, yet unity he finds, when his arrogance and ignorance are stilled and he lies dead under the greensward. Ian L. McHarg, in Multiply and subdue the Earth, 1969 (McHarg 1996, vii).

The whole idea of nature as separate from human experience is a lie. Humans and nature construct one another (Wilson 1992, 13).

“When we try to pick out anything by itself, we find it hitched to everything else in the universe” John Muir (1911) (Nature Conservancy 2008, chapter 2, 3).

When comparing prehistoric and contemporary landscapes, it is clear that humans have always tried to perfect nature, establish order to the places they live, and develop meanings for those places (Rogers 2001, 16). But what do we expect for the future? Old approaches to dominating nature are no longer viable, but are still imperative to define what is expected in the future. This is the case with all land management decisions, and, specific to this thesis, it is especially important when making decisions about the future of cemetery prairies. It is important to understand what we expect for the future of the cemetery prairies not just what once existed. Laying out future goals for the sites may encourage their health and longevity by lessening conflicts over how ecological and cultural aspects should be managed.

Since the purpose of this thesis is to invite people into cemetery prairies and thereby to help them gain a better understanding of the significance of those places, while encouraging place attachment and promoting biological diversity, there is a need to understand the distinct roles prairies and cemeteries play in shaping the cultural and ecological aspects of life in east central Illinois. Building on a better understanding of those roles, design interventions should consider the ecology of the prairie, honor lives that have passed, provide public access, and elevate isolated remnants by associating them with a larger context.

One of the critical aspects of that process is to help create place attachment. People often define themselves by the place in which they live. If you live in or near any of the mountain ranges in the United States, that helps shape who you become. Similarly, if you grow up near
the coast, it helps define who you are. Illinois is known as the Prairie State. How is it possible to define your identity or have any sort of attachment to a place that is named after an ecosystem that barely exists? How can one feel connected to a place whose nickname has been under constant destruction through development for economic gain?

HUMAN REACTIONS TO PRAIRIE LANDSCAPES

Cultural sustainability is the capacity of ecologically beneficial landscapes to elicit public acceptance and appropriate care over the long term. Without cultural sustainability, native landscape installations will often be replaced by conventional plantings (http://www-personal.umich.edu/~nassauer/ 2008). Cultural perceptions of ecological landscapes are a crucial part of gaining acceptance and creating place attachment. Landscapes that are perceived as attractive, such as streams, lakes, and their surroundings, are more likely to be sustained over time by human behavior, whereas landscapes seen as less attractive, such as wetlands and prairies, are less likely to be immediately appreciated (Nassauer 2004, 756). Ecological quality is not likely to be appreciated or maintained if humans are unable to recognize an intention for the landscape (Nassauer 1995, 169). People show preferences for something as simple as a mown edge because it can put them at ease and provide them with a sense of intent and appreciation (Nassauer 1995, 167-168). It is crucial for any proposed design intervention involving prairie vegetation to incorporate signs of human intention, since prairie is generally perceived as less attractive. When people are exposed to areas with obstructed views or unclear paths they become fearful of the unknown and are less likely to appreciate the ecological benefits of the space (Kaplan, Kaplan, & Ryan 1998, 33-34). The issue boils down to a point Joan Nassauer makes in Messy Ecosystems, Orderly Frames: “What is good may not look good, and what looks good may not be good” (1995, 161). The design needs to promote cultural perception of the cemetery prairie by looking good or at least being accepted as looking good while also being good by encouraging ecological function.

The biological diversity and cultural identity found in cemetery prairies can help encourage place attachment and pride of place. Cemetery prairies are composed of “given” and “made” forms, concepts coined by McHarg. He explains that the “given” is the natural landscape and the “made” is an accumulation of adaptations to the given form (Swaffield 2002, 41-42). The prairie is the “given,” and, though it is not the same as a beach in California or the
forest of Yellowstone, it is still noteworthy. The “made” is what makes a cemetery prairie different from other cemetery types. To enhance identity, the elements of the cemetery prairie must be identified and displayed. According to McHarg,

complexity, diversity, and stability (a steady state), with a high number of species and low entropy are indicators of health and systems moving in this direction are evolving…while systems moving toward simplicity, uniformity, instability with low number of species and high entropy is regressing; any system moving in this direction is moving toward ill health (Swaffield 2002, 42).

This is an important observation because cemeteries have become symbols of death and often are places of reverence for those who have passed away. However, according to McHarg, cemetery prairies can be considered vibrant and full of life due to the biological diversity and cultural history of the site.

Place identity can actually be considered stronger in cemetery prairies than in traditional cemeteries. Most settler cemeteries were established when prairie was abundant. The people buried in those sites would associate themselves with fields of prairie stretching for miles. The prairie remnants in the cemeteries act almost as a tribute to the environment familiar to those buried there. The goal of this thesis is to strengthen that image and provide access for future generations to value that history.

Precedent studies were essential in guiding the designs of cemetery prairies presented in this thesis. Precedents offer examples of how to connect sites symbolically without doing so physically, while telling their story, and protecting biodiversity. The precedent studies identified here each represent an aspect of cemetery prairie design, including the trail concept, through which wayfinding contributes to renewal of ecology and commemoration. All precedents cited touch on themes of perseverance, education, history, and care.

**PRECEDENT STUDIES**

**Trail**

The Looking for Lincoln Program is an example of connecting small historic sites across Illinois. Individually, those sites seem insignificant, but, when connected to the larger context, they seem much more significant. The Looking for Lincoln Program addresses Lincoln’s life, influences from that time, and the communities he visited. It is not about only one experience. The Looking for Lincoln Story Trail is an inspirational way to tell stories about Abraham
Lincoln which are unique to each community. The trail was inspired by people and events in Abraham Lincoln’s life. Through the work of historians, Lincoln enthusiasts, artists, local communities, and the National Park Service, many of the events in Lincoln’s life were translated into wayside exhibits to create the trail. There are a total of 215 exhibits in 52 communities across Illinois ([http://www.lookingforlincoln.com/](http://www.lookingforlincoln.com/) 2010). The exhibits are of museum quality and consist of signs with historical information specific to each site, a timeline with the date in reference highlighted, applicable photographs, and rubbing medallions which make the exhibits interactive (Figures 7 and 8). In addition there is a brochure, map, and website that utilizes Google Earth, provides GPS coordinates to help locate each exhibit, and tells about the significance of the trail. The rubbings are part of a Passport Program which incorporates a different rubbing at each site and allows the exhibit to become an interactive component. As participants visit each of the sites, they develop a collection of rubbings to help remember their adventure.

Figure 7: Map showing the location of wayside exhibits (source Abraham Lincoln National Heritage Area, Looking for Lincoln Heritage Coalition wayside brochure [http://www.lookingforlincoln.com/heritagemgmt.asp](http://www.lookingforlincoln.com/heritagemgmt.asp)).

Figure 8: Looking for Lincoln Story Trail wayside exhibit including rubbing medallion; images by author.
The Looking for Lincoln Story Trail is successful at connecting the sites because the exhibits are visually consistent and unique to this trail. With a map in hand or an idea of where the exhibits are located, the visitor knows that he or she has arrived because the exhibits are successful at standing out in the landscape. The interactive quality of the rubbing medallion provides visitors with a sense of connection while also providing souvenirs of the experience. The trail enhances the pride felt due to the fact Lincoln was an integral part of the history of Illinois.

A new concept for cemetery through renewal of ecology

Part of the resistance, to the cemetery prairie type, stems from the fact that it is not a traditional approach to cemetery design. The public hesitates to accept anything different than the normal. However, in recent years, new ideas have emerged about how the deceased could be honored and remembered. One such example is Jackie Bowring’s concept for the “Life after Death” cemetery. In Landscape Architecture’s 1992 edition of “Visionary and Unbuilt Landscapes,” Bowring’s compelling proposal offered a great example for changing the perception of a cemetery (Figure 9). Her idea is about renewal over a generation that incorporates ecological succession. In her design proposal, Bowring considers death, burial, and the cycle of a generation while also incorporating a spiritual connection to the landscape and having “life after death” through the establishment of the new to old growth forest (46-47). She proposes creating sickle-shaped walls where burials occur over a year. If it is a year with more death, the wall is longer and during a year with fewer deaths, the wall is shorter. After 30 years, the wall is dismantled and rebuilt at the front of the sequence with the ashes and

Figure 9: “Life after Death” concept sketch, stone arcs, and diagram of 30 year cycle (originally separate images author overlaid for presentation) (Source Landscape Architecture 1992, 46-47).
compostable waste (flowers) returned to the soil. Where the wall once stood, there would now be a stone arc with the names and dates of the dead. As one looks further back in time for ancestors the vegetation becomes denser due to the passage of time.

Although this design was for a competition and not actually built, there is still much to be learned from it. It offers another method to memorialize the deceased and can serve the purpose of expanding the preconceived notion of what a cemetery is. It begins to offer the possibility of the cemetery as a memorial that is also ecologically beneficial and responsible. This concept is vital to the concept of the cemetery prairie.

**Memorial**

When addressing historic resting places, people can present a range of attitudes. This is also the case with the remnant prairie. Because these sites are culturally and environmentally important it is necessary to find a way to memorialize the people, as well as the memory of the nearly extinct ecosystem. Accomplishing that will cause the experience to last longer in the visitor’s memory and will create a stronger emotional attachment. A great example of a memorial that successfully creates emotional attachment is the Vietnam Veterans Memorial. Through the use of artistic form, monuments, and a bit of controversy, the Vietnam Veterans Memorial is one of the most emotional and powerful memorials in Washington, D.C.

This memorial honors the United States armed forces who fought in the Vietnam War, service members who died in service in Vietnam/South East Asia, and the service members who were unaccounted for (Missing In Action) during the war. Several parts make up the Vietnam Veterans Memorial. However, the most controversial and most popular element of the memorial is “the Wall”. Its construction was commissioned by Jan Scruggs, a Vietnam War Veteran ([http://thewall-usa.com/information.asp](http://thewall-usa.com/information.asp) 2010). Maya Ying Lin’s design was selected after winning the Vietnam Veterans Memorial design competition while she was just an undergraduate student at Yale University. Her design met each of the design competition criteria. First, it had to be reflective and contemplative in character. Second, it had to harmonize with its surroundings. Third, it had to include the names of those who had died in the conflict or were still missing in action. Finally, it could not make any political statement about the war ([http://thewall-usa.com/information.asp](http://thewall-usa.com/information.asp) 2010). Her design concept was to “create a park within
a park - a quiet protected place onto itself, yet harmonious with the overall plan of Constitution
Gardens” (http://thewall-usa.com/information.asp 2010). She imagined,

taking a knife and cutting into the earth, opening it up, an initial violence and pain that in time would heal. The grass would grow back, but the initial cut would remain a pure flat surface in the earth with a polished, mirrored surface, much like the surface on a geode when you cut it and polish the edge….their names would allow everyone to respond and remember (Rogers 2001, 499).

“The walls have a mirror-like surface of polished black granite, reflecting the images of the surrounding trees, lawns, monuments, and visitors. The walls seem to stretch into the distance, directing visitors towards the Washington Monument in the east and the Lincoln Memorial, to the west, thus bringing the Vietnam Veterans Memorial into a historical context” (http://thewall-usa.com/information.asp 2010) (Figure 10).

This example is compelling and helped to inform the design concept for a monument incorporated into the cemetery prairie.


Wayfinding

It is necessary to establish a visible cue to aid visitors in finding their way along the trail. One of the proposed design elements uses the guidelines set by the Roadsides for Wildlife program. This program encourages landowners to plant roadsides with vegetation that establishes habitat areas. The Illinois Department of Natural Resources (IDNR) provides landowners with suggestions on which species to plant, where to plant those species, and how to maintain them. According to the IDNR,

Native warm-season grasses can be used if special attention is given. Species such as big bluestem and Indian grass are tall and can reduce traffic visibility. Tall vegetation left standing over winter may also lead to snow-drifting problems. However, these concerns can be remedied. Native warm-season grasses should
not be planted near intersections or farm-lane entrances where traffic safety is a concern. Areas prone to snow drifting can be mowed after the grasses enter dormancy in late fall. Native cool-season grasses afford some roadside advantages not offered by their warm-season counterparts. Virginia and Canada wild rye are shorter than most warm-season natives and they can be mowed earlier, which addresses visibility and snow-drifting concerns. In addition, they grow earlier in spring than warm-season species, thus providing earlier cover and nesting habitat. As with all grassy areas managed for wildlife, roadsides should not be mowed until after August 1. Delaying mowing until after the nesting season is the single most important thing farmers and road maintenance personnel can do to benefit grassland wildlife. Delayed mowing not only helps wildlife, it saves time and fuel. However, if roadside vegetation presents a visibility problem, such as at an intersection, the area should be mowed early and often during the growing season. As well as improving visibility, early and continuous mowing discourages nesting activities that would almost certainly end in failure. Landowners can receive assistance in managing roadsides by contacting district wildlife biologists or the Roadsides for Wildlife program offered by IDNR. Landowners should make every effort to improve roadside habitat because these areas will remain an important habitat component, especially for grassland birds. (http://dnr.state.il.us/orep/pfc/guide/habitats/croplands/management.htm 2010).

One of the goals of this thesis is to gain public acceptance by using these guidelines, but incorporating more wildflowers along the trail is important for acceptance and place attachment.

THE PROPOSAL

Linking the cultural and ecological heritage of cemetery prairies on a regional scale and a site specific scale yields a design with interlocking qualities, which helps the spaces appear much larger than they are in reality. Interpretation, memorial, ephemeral qualities, and thoughtful design are intended to enhance public awareness, appreciation, and knowledge of the culturally and ecological significant cemetery prairies. Elements of low impact use, interpretation, and art on the land formed the basis for design with the following elements incorporated into the plan.

- At the regional scale, connecting individual cemetery prairies with other cemetery prairies through a trail concept, as well as incorporating trail signs and native flora along roads proposed as part of the trail system using the Roadsides for Wildlife program guidelines.
- Integrating a list of prairie species specific to each site with examples near kiosks and along roadways for visitors and local community to view. Per the recommendations that Joan Nassauer lays out in *Messy Ecosystems, Orderly Frames*, the proposal is to plant heavily in wildflowers, especially showy and early bloomers (1995, 168).
- Conducting burns at varying times of the year to encourage either C3 or C4 plants.
• After the burn, locating the existing footpath, a worn area on the ground visibly used more than other areas, to start the site trail.
• Once the path is located, continuing the trail in areas which have the least negative impact, being careful not to jeopardize plants considered rare.
• Establishing a sense of the ephemeral through the changing seasons, evocations of passing of life, and art incorporated in select sites. The art would move to different sites, be built, displayed, and eventually would burn to symbolize change through time. There would be a requirement for the art to be biologically helpful to the ecosystem while displayed and once burnt. When burnt it could not raise the temperature above that of a typical prairie burn.
• Introducing a monument which incorporates craftsmanship in art, generates interest, aids in interpretation, and is dedicated to those who have died will be built at the each of the sites.
• Establishing pull-off areas for visitors with kiosks providing information pertinent to that cemetery prairie, both culturally and ecologically, while making it interactive by incorporating a rubbing medallion unique to each cemetery prairie (such as an image of a wildflower, animal, or other symbol along with the location).
• Providing a place to sit, linger, wonder, and mingle with others while experiencing the cemetery prairies. This will help establish, within the public eye, that the space has indention and is cared for as opposed to the space being misunderstood as a “weed patch” (Nassauer 2008 http://www-personal.umich.edu/~nassauer/ 2008).
• Future of the project:
  o Working with grassroots initiatives from local communities, counties, and state agencies to get their interest in the project and discover what they would like to do.
  o Establishing a website and downloadable application where a wayside brochure and other material could be accessed for anyone interested in visiting the cemetery prairies.
  o Involving landowners in prairie restoration and connecting landowners with programs through the Farm Bill or other programs to encourage biological diversity, carbon sequestration, and other environmentally beneficial activities.
  o Establishing buffers around the remnant cemetery prairies and providing new concepts for cemeteries, recreational areas, or agricultural practices that incorporate prairie.
CHAPTER 3:
ECOLOGICAL AND CULTURAL HISTORY

INTRODUCTION

The goal of this chapter is to highlight the events leading to the development of the landscape in east-central Illinois (Figure 11). Geologic history is an important resource when considering the history of an ecosystem that no longer exists. For the purpose of understanding the formation of Illinois, I have also relied on geologic information to help understand ancient ecology and its significance to the ecology of Illinois. The ecology of Illinois influenced the economy leading to the demise of the prairie ecosystem. Ecological history and cultural history are difficult to separate once humans begin to influence the ecology of the land. For the purpose of this thesis, I will begin by considering each of these separately, and then discuss the symbiotic relationship.

The planet Earth

Illinois and a majority of the American Midwest is covered by an Ancient Sea

Glacial Episodes help form prairie soils

Climate warms and becomes drier

Prairie emerges

Fires maintain the prairie

Humans arrive changing the landscape

Prairie is in demise

Present day - Fragments of prairie

Prairie has an uncertain future

Figure 11: Timeline for the life of prairies in Illinois.
PALEOGEOGRAPHY

Paleogeography means "ancient geography” and gives an understanding of continental plate movement transforming the world. The area we call Illinois was once located south of the equator. During the 4.6 billion years of the Earth’s life, the plates making up the Earth’s crust have been in slow, constant movement (http://www.isgs.illinois.edu 2010.). During the Mississippian Period, about 320 to 360 million years ago, what we know as Illinois slowly moved north. Approximately 100 million years later, all of the continental plates drifted together forming the supercontinent Pangea. Since that time the plates have been drifting apart forming what is currently understood as the continents making up Earth (http://www.isgs.illinois.edu 2010).

ANCIENT SEA

Millions of years ago, during the Mississippian and Pennsylvanian Periods, the land in east-central Illinois and much of the American Midwest were part of an ancient sea (Shaver 1959, 12, Headwaters 1997, 18, and http://www.isgs.illinois.edu 2010). At the same time, much of western and central Illinois was covered by dense swamps and forested with primitive plants (http://www.isgs.illinois.edu 2010).

GLACIAL INFLUENCE

The topography of the land in east-central Illinois is the result of multiple glacial advances over the span of 300,000 years (Ellis 2008, 6). The glaciers were a dominant feature until about 12,000 years ago (headwaters 1997, 18). The glaciers formed during times when the climate had cooled and snow and ice started to build up. They bulldozed the land and smoothed it out “like sandpaper on wood” (Nature Conservancy 2008, chapter 2, 7). As the ice would move forward it would pick up and pulverize rocks and other material. In most cases, the further a rock traveled with the glacier the finer it would become. Terence Harkness has explained, “As the ice wasted northward, it left a desolate zone of bare till much like today’s leveled strip-mines lands found in our region. Until forests or prairies covered the naked glacial landscapes the only moving things were melting water streams, windblown loess and a few stray birds and animals” (Harkness 1970, 21 and 26).
The glaciers left behind glacial debris known as drift. Much of the drift was subsequently covered by windblown deposited silt known as loess. Glacier activity also created moraines, which indicate the position of temporary stationary ice fronts as the ice retreated. As the glacier would push forward, the glacial till in most areas was put down on level ground. However, as the glacier became stationary the material would drop, creating “low, long, sinuous hills” known as moraines (Ellis 2008, 6). The Chatsworth, Ellis, Paxton, Gifford, and Newton end moraines are located in this study area.

ECOLOGICAL HISTORY OF THE PRAIRIE

After the glaciers retreated, the land was left barren. However, ecological succession led to the revitalization of the land and, eventually, the biodiversity of the prairie. The first species to establish after the glacial retreat were spruce and fir trees. They formed along the glacial edge and continued to follow the glacier north as it retreated (Ellis 2008, 6). About 10,500 years ago, the climate warmed and forests, dominated by oaks, hickories, and other trees common to eastern deciduous forests, developed (Ellis 2008, 6). “As the climate continued to warm and become drier, grasslands replaced the forests across the area from about 10,000 to 8,000 years ago, becoming the primary vegetation type” (Ellis 2008, 6). Figure 12 provides data indicating changes in climate and vegetation from pollen evidence found at Nelson Lake in Kane County Illinois. The graph does not directly show climate changes, but those can be inferred by understanding the climatic and ecological preferences for some of the species in the graph. For example,

Spruce trees do not grow under the same climatic conditions as ash trees do today. Ash prefers warmer, wetter conditions than spruce. Because we know the climatic preferences of these trees, we can deduce that the climate was changing from cooler and drier to warmer and wetter by looking at the pollen diagram (http://www.museum.state.il.us/muslink/forest/htmls/an_nelson.html 2009).
Figure 12: Pollen diagram; y axis showing changes in vegetation type from 17,000 years ago to present day and x axis showing percentage of pollen belonging to each species. The pollen map is from Nelson Lake, Kane County Illinois. It is one of the longest, most complete late glacial and Holocene (the last 11,500 years) records for Illinois. Today it is the location of Nelson Lake Marsh Nature Preserve, just 35 miles west of downtown Chicago. (Source: permission to use image has been granted from Illinois State Museum, http://www.museum.state.il.us; graph: Ancient Forest: http://www.museum.state.il.us/muslink/forest/htmls/an_nelson.html).

Prairie and the prairie peninsula

When French explorers arrived in the North American grasslands area, they had never seen anything like it, so they gave it a name of the closest comparison they could make. The French explorers used their word for meadow, “prairie” – a sunny opening in a forest or an area grazed by cattle (Ellis 2008, 5 and Larrabee and Altman 2001, 71). Prior to European settlement, agriculture, and urban development, the vast grasslands of the American prairie were situated in a rough triangle stretching from “Indiana about 1,000 miles west to the foothills of the Rocky Mountains, south to Texas, and north 2,400 miles into Saskatchewan, Alberta, and Manitoba with small outlaying areas in Ohio, Michigan, and Arkansas” (Ellis 2008, 5). The vegetation of the North American prairie consisted of shortgrass prairie in a band on the western edge of the Great Plains, mixed-grass prairie in the central plains between the shortgrass and tallgrass prairie, and the tallgrass prairie across Nebraska, Missouri, Iowa, Wisconsin, Illinois, and Indiana (Ellis 2008, 5). The average rainfall in each of those areas increases from west to east, and that influenced the type of vegetation growing in each region (Ellis 2008, 5). The prairie peninsula was located in the eastern extension of the prairie, where Illinois is located, and was bordered by deciduous forests to the north, east and south. Historically that area “fluctuated between a climate capable of supporting grassland and one supporting forest” (Ellis 2008, 5)
At the time of European settlement, 60% of Illinois was prairie with a shifting mosaic of prairie, forest, savanna, and wetlands, largely controlled by the frequency of fire under climatic conditions that were capable of supporting those vegetation types (Anderson 2006, 635 and Ellis 2008, 5). Wooded groves dotted the land like islands in the vast sea of tallgrass prairie across east central Illinois.

**Grand Prairie Division**

East central Illinois is situated within the Grand Prairie Division of Illinois’ Natural Division (Figure 14). The divisions are based on several factors, such as the range of plant and animal species, soil types, and topographical and geological landforms. In Illinois there are six subclasses of prairie, and each has further divisions based on drainage (Ellis 2008, 12). The prairie subclasses are: black soil prairie, sand prairie, gravel prairie, dolomite prairie, shrub prairie, and hill prairie (Ellis 2008, 12-14). Those are further divided based on soil moisture: dry, dry-mesic, mesic, wet-mesic, and wet (Ladd and Oberle 2005, 3-6 and Ellis 2008, 12-14).

The sites addressed in this thesis are considered black soil prairies. Black soil prairies dominated most of Illinois but are rare today because of their productivity for agricultural crops. The soils are deep and fine-textured, usually silt loam or clay loam derived from loess or...
glacial till, and soil moisture is from dry to wet (Ellis 2008, 12). Plants characteristic to this type of prairie are leadplant (*Amorpha canescens*), shooting star (*Dodecatheon meadia*), pale purple coneflower (*Echinacea pallida*), prairie blazing-star (*Liatris pycnostachya*), prairie dock (*Silphium terebinthinaceum*), compass plant (*Silphium laciniatum*), rattlesnake master (*Erygium integrifolium*), downy gentian (*Gentiana puberula*), big bluestem (*Andropogon gerardi*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), and prairie dropseed (*Sporobolus heterolepis*) (Ellis 2008, 12 and Ladd and Oberle 2005).

**Climate, fire, and grazing**

The prairie ecosystem was affected by climatic conditions, but it also persisted due to fire and grazing. Courtwright states, “Prairie without fire is not prairie…Prairie grasses like fire and fire likes prairie grasses” (2007, 162). As mentioned before if it were not for fire the prairie peninsula had the potential to become forest. However, the fire encouraged prairie species to persist by impeding the growth of the woody species. Not only did the fire keep the forests from developing, it also improved nutrient cycling and prevented the buildup of plant litter; thus allowing the sun to reach the soil, warm it up, and encourage seed germination.

It is difficult to distinguish between fires set by humans and those set by “natural” events such as lightning. “Fire use and cultural traditions are wholly intertwined, resulting in a complex history- one in which culturally driven human action and fire, a so-called "natural" environmental force, cannot be separated” (Courtwright 2007, 161). Native Americans may have experienced the prairie fires, realized the impact they had on the land, and set fires themselves to maintain the prairie and help with hunting. The prairie vegetation persisted because it has the ability to withstand fire along with grazing. The growing points of prairie plants are protected because they are located underground near the base of the plant, instead of at the tips of stems and branches as is the case in woody plants. If the plant experiences fire, grazing, or is damaged in other ways the growing points or buds remain unharmed ready to grow again.

Between 1840 and 1900 most of the tallgrass prairie in Illinois was destroyed, transformed, controlled, and made more comfortable (Mazrim 2007, 24; Ellis 2008, 16; and Larrabee and Altman 2001, 72). The most noticeable changes to the prairie came as a result of humans need to control and manipulate the natural world around them. Change in land use for
agriculture, urban development, fire suppression, elimination of specific prairie species (especially those considered unpleasant), and basic interference in ecological processes have led to the demise of prairie. The introduction of agriculture and impermeable surfaces have greatly reduced habitat for native animals and caused erosion while runoff has silted rivers and streams, altering aquatic ecosystems (Nature Conservancy 2008, chapter 16, 16). Figure 15 provides a sample of prairie plants that can still be found in east central Illinois.

![Figure 15: Images of prairie plants from east central Illinois; photos taken by author.](image)

**THE SOILS**

The soils in east-central Illinois, as anywhere, are influenced by five factors: parent material, topography, vegetation, climate, and time ([http://www.il.nrcs.usda.gov/technical/soils/soilsofil.html](http://www.il.nrcs.usda.gov/technical/soils/soilsofil.html) 2010). As described earlier, the soils in east-central Illinois developed from glacial movement and drift, windblown silty deposit called loess, and the roots of the prairie vegetation. Loess is the most extensive parent material, covering 63% of the land, and was deposited during glacial times ([http://www.il.nrcs.usda.gov/technical/soils/soilsofil.html](http://www.il.nrcs.usda.gov/technical/soils/soilsofil.html) 2010). Those soils have developed over time, and still continue to develop today ([http://www.il.nrcs.usda.gov/technical/soils/soilsofil.html](http://www.il.nrcs.usda.gov/technical/soils/soilsofil.html) 2010).

Ninety percent of the soils of central Illinois are Mollisols and Alfisols. The most extensive soil in central and northern Illinois is the thick, dark surface layer of the Mollisols
formed by the decomposition of the prairie grass roots. It makes up about forty-five percent of the land in Illinois. Another forty-five percent of Illinois is made up of Alfisols, which are generally the light-colored soils formed under forest predominating in southern Illinois (http://www.il.nrcs.usda.gov/technical/soils/soilsofil.html 2010).

ANIMALS

An examination of the ecology of Illinois would be incomplete if it did not include fauna. At the time of the ancient sea, tropical animals and sea creatures, including Illinois’ state fossil Tullimonstrum gregarium (Tully monster), would have been abundant (http://www.isgs.illinois.edu 2010 and http://dnr.state.il.us 2010). During the time of the glaciers, animals large and small inhabited the area. Megafauna, such as the American mastodon, mammoth, sabre-toothed tiger, Jefferson’s ground sloth, and nearly sixty other species of similar size, became extinct around 8,500 years ago (Larrabee and Altman 2001, 43). Some modern scientists believe that the warming climate led to the demise of megafauna, whereas others believe the mass extinctions were due to weapon-bearing humans (Larrabee and Altman 2001, 43). Animals still around from the time of the glaciers are the snowshoe hare and arctic shrew (now living in areas of northern Illinois), Eastern-cottontails, white-tailed deer, and raccoons; the black bear and gray wolf were once part of the Illinois ecosystem but are now found only in other parts of North America (http://dnr.state.il.us 2010).

The bison, an animal of the more recent past, is estimated to have numbered from 25 to 40 million grazing primarily on the short and mixed grass prairies to the west but is also recorded in Illinois (Ellis 2008, 10). “The last free-roaming bison reported in Illinois was killed in 1837 near Troy Grove” (Ellis 2008, 10). Elk (called wapiti by Native Americans) also inhabited Illinois until the 1830s at which time agriculture and unregulated hunting eliminated them (Ellis 2008, 10). Some other mammals living in the prairie included mountain lion, coyote, red fox, badger, striped skunk, Franklin’s ground squirrel, pocket gopher, thirteen lined ground squirrel, along with a variety of mice, voles, and shrews (Ellis 2008, 10). The prairie was also home for reptiles such as bullsnake, rough green snake, and blue racer, and ornate box turtle; amphibians such as tiger salamander and American toad; predatory birds such as eagles, hawks, and owls; and grassland birds such as bobolink, upland sandpiper, eastern meadowlark, grasshopper sparrow, and wild turkey. Insects and other invertebrates are the most important prairie animals
because they pollinate the prairie, provide a food source for the other animals, and are found in abundant numbers (Ellis 2008, 10-11). The loss of prairie brings ripple effects through the ecosystem because many of the animals found in the prairies were specialists. This means that they could only survive in the prairie and depended on that habitat for food sources and/or nesting spaces. Many prairie insects rely on certain prairie plants to complete their life cycle; without the host species, the insects of those species perish (Ellis 2008, 11) (Figure 16).

![Figure 16: Prairie Life.](image)

**CULTURAL HISTORY**

**Native American Presence in Illinois**

Humans are thought to have arrived in Illinois around 12,000 years ago (Larrabee and Altman 2001, 14; Hickey 1989, 13 and 19; and Mazrim 2007, 147). As the glaciers receded, big game followed the cooler edge of the glacier, and the nomadic *Paleo Hunter* groups followed on the game trails (Hickey 1989, 19).

Historically, the Native American population was very nomadic, traveling from space to space to meet their needs. However, even as they gradually became settled, Native Americans were not permanent dwellers of east central Illinois. This is because east central Illinois’ environment was not suitable for large human populations (Hickey 1989 23-24). Instead, the Native Americans settled along the rivers in the western part of the state and only ventured into east central Illinois for hunting expeditions (Hickey 1989 23-24). About five hundred years ago the large town cultures deteriorated and, with Euro-Americans settling in the east, several other Native American tribes were forced westward into Illinois (Hickey 1989, 25). They called themselves *Illiniwek*, lived mostly as woodland people, and lived in east central Illinois for many years before Euro-American settlement (Hickey 1989, 25-26). By the summer of 1832, at the conclusion of the Black Hawk War, most of the Native Americans were gone from Illinois,

French and Euro-American Presence in Illinois

In 1673, as French trader Louis Joliet and Father Jacques Marquette explored the Mississippi and Illinois River, the prairies caught their attention. East-central Illinois supported hunting, trapping, and trading but had no major settlements due to the harsh environment and the fact that the French preferred to live in the small nucleic communities in the Mississippi floodplain.

For nearly a century the French residents of the Illinois Country had settled in small, nucleated villages in the floodplain along the Mississippi River. Villagers lived in close proximity to one another, and each family farmed long strips of land immediately adjacent to the village, much as their grandfathers had in rural France. The result was a series of tightly knit communities (both physically and socially), surrounded by land that was left as it always had been (Mazrim 2007, 64).

Because the French chose to live in the nucleic communities, they did not have an adverse effect on the Native Americans. In fact, they often did business with the Native American population (Mazrim 2007, 51). France claimed this region until 1763, when they surrendered it to Great Britain by the Treaty of Paris.

This area was ceded to the United States in 1784 and became a part of the Northwest Territory. In 1803, the area of Indiana, Illinois, and Wisconsin were made a separate territory, with Illinois being recognized as a separate territory of the United States in 1809. On December 3, 1818, Illinois entered the Union as the twenty-first state. Due to the harsh environment in east-central Illinois it was among the last areas to be settled within Illinois. On January 18, 1826 Vermillion County was formed; Champaign and Iroquois Counties were formed in 1833, and thirty-three years later, on February 17, 1859, Ford County was formed (Ford County Illinois Central Committee 1959, 42).

The early Euro-American pioneers were much different from the Native Americans and French colonists in their settlement patterns. They would scout out large tracts of land for cultivation, pasture, and their home and would avoid living near anyone else (Mazrim 2007, 24 and 64). With that type of settlement, there was little tolerance for the seasonal use patterns of the Native Americans, and that forced them even farther west.
The Land Ordinance of 1785, distinguished by the Jeffersonian Grid, brought significant change to the land west of the Appalachian Mountains by applying a rectangular survey system (Rogers 2001, 267). This system changed settlement from relying on natural topography to a “purely mathematical system that would ensure an orderly, nondisputatious parceling of land” (Rogers 2001, 267-268). This system brought order to the land, which helped to delineate property lines and allowed the government to control the selling of land for ownership and development (Corner 1996, 8). This established a national grid that marked the country according to a rectilinear grid following the lines of latitude and longitude. This form of planning uses the Gunter’s Chain as a method of measurement (Corner 1996, 31 and Rogers 2001, 268). “Ten square chains defined an acre, and 640 acres fit into a square mile” (Corner 1996, 31). This also helped define governmental boundaries such as 36 mile square townships (Corner 1996, 31 and 46 and Rogers 2001, 268). There were problems with this method due to the layout and the ecosystem of certain regions (Corner 1996, 31). As mentioned the French farmed long strips of land and lived in nucleic villages because they used a method of laying out the land applying perpendicular lines to the river’s edge (Corner 1996, 31). This method was “more responsive to its physiographic context” and “because each occupant had access to the river, the fertile floodplain soils, and higher protected land at each lot, they all shared the benefits and the dangers of settling along the river” (Corner 1996, 31).

To these new inhabitants, the prairie seemed like a vast ocean and quite forbidding. They perceived the prairie as unsafe due to disease, fires, and wild animals. There were insects (some causing disease such as malaria), the summers were hot and humid, and the winters were harsh and windy, and occasionally there were prairie fires (Hickey 1989, 16 and Ellis 2008, 15). These fires often destroyed fences, buildings, crops, and livestock. In some instances even the lives of the settlers were taken. At first, the settlers did not realize the prairie held soil that would create the basis for the economy in Illinois because it had no trees. They thought it was not fertile and would be unsuitable for crops. Adding to that thought was the settler’s inability to cultivate the root bound prairie (Mazrim 2007, 76 and Ellis 2008, 15). For these reasons, the settlers built their homes in timber tracks along the streams and prairie groves - the islands of timber surrounded by prairie (Mazrim 2007, 76 and Ellis 2008, 15). By constructing their homes here, there was wood for fuel and construction, easier ground to cultivate, vegetation to pasture their
grazing animals, and timber which provided safety from the occasional prairie fires (Mazrim 2007, 76 and Ellis 2008, 15).

Inventions and laws change the land

The settlers were quick to learn that the prairie actually had very fertile soil, and, before long, the prairie was plowed under. In 1837, John Deere invented the self-scouring steel-bladed plow, which could break through the sticky, root bound soil. Even though this was a difficult job, usually taking a professional with a team of oxen, the prairie ecosystem was gone by 1890 (Ellis 2008, 16). After development, some of the first settlers acknowledged that the changes to the prairie happened quickly. Within sixty years the grasslands were changed forever (Mazrim 2007, 24). What has been left behind are only remnants of the original prairie located in pioneer cemeteries, along railroad right-of-ways, and in areas less suitable to agriculture due to sand deposits and steep loess hills (Ellis 2008, 16).

Another invention that contributed to the demise of the prairie was the lawn mower, patented in 1830 by Edwin Budding. The mower helped define the modern landscape aesthetic of the smooth, evenly cut lawn (Rogers 2001, 313 and 319). Motorized models were patented in the 1890s, modern rotary mowers were not available until the 1940s in America, and new and improved models have been coming out ever since. The lawn mower helped to democratize the ideal of controlling nature. Nassauer explains that “scenic aesthetic and the aesthetic of care are culturally ingrained and conceptually well developed and are resistant to change. The scenic landscape aesthetic is drawn from the eighteenth century picturesque, in which the power of nature began to be seen as beautiful, as long as it was controlled” (Nassauer 1997, 68).

Draining the land

Illinois originally had an estimated 8 million acres of wetlands...Since Illinois became a State in 1818; more than 95% of these have been drained. (Nature Conservancy 2008, Chapter 2, 14).

In 1850, the Swamp Lands Act formed taxing bodies to drain the land, and, by the 1870s, clay drainage tile systems emerged (NRES 420 Restoration Ecology class notes). Hickey states that, in 1878, the adoption of an amendment to the State Constitution created the drainage
section, which allowed cultivation of Champaign County (1989, 16). As the Grand Prairie was settled, agriculture and drainage transformed the land of central Illinois, along with the image of prairie life. That image was reshaped from a dangerous, disease-ridden swamp, not fertile enough to support crops, to an agricultural conquest (Urban 2005, 648). The perceptions, eventual drainage, and agriculture changed the land forever. People felt they were doing something positive by draining the land because they were eliminating disease and creating an economic profit base for Illinois (Urban 2005, 653).

**History of cemetery**

Thy growth, to be resolved to earth again,
And, lost each human trace, surrendering up
Thine individual being, shalt thou go
To mix forever with the elements,
To be a brother to the insensible rock
And to the sluggish clod, which the rude swain Turns with his share, and treads upon. The oak Shall send his roots abroad, and pierce thy mould.

So live, that when thy summons comes to join
The innumerable caravan, which moves
To that mysterious realm, where each shall take
His chamber in the silent halls of death,
Thou go not like the quarry-slave at night, Scourged to his dungeon, but, sustained and soothed,
By an unfaaltering trust, approach thy grave, Like one who wraps the drapery of his couch About him, and lies down to pleasant dreams.

The American ideal for cemetery has been informed by well-known examples, the ideas of people interested in burial, public health concerns, consideration for dignity after death, and literature. Dr. Jacob Bigelow, known for his work at Mount Auburn Cemetery, in Cambridge, Massachusetts, was influenced by William Cullen Bryant’s poem “Thanatopsis.” That poem gave voice to his belief
that the rapid dissolution of the uncoffined body laid to rest in nature constituted a sweet surrender of individual existence. At the same time, memory of the individual life lived … honored in epitaphs inscribed on monuments…inspire others to lives of goodness and achievement (Rogers 2001, 334).

The way the burial of the dead is handled changes from one generation or culture to the next. The Northern European Barbarians and Western Christian cultures believed that dissolution of the body was inevitable and rapid dissolution was desirable, with the Barbarians placing bodies high in trees to be consumed by birds of prey (Linden-Ward 1989, 19). Puritans thought praising the memory of the dead was worshiping them and cautioned against making the dead saint like. Therefore, they used the burial grounds to “aid in realization of the common inevitability of death” (Linden-Ward 1989, 25). New Englanders regarded graveyards as common areas and often the graveyards doubled as pasture for grazing animals (Linden-Ward 1989, 25). There was a time when burial pits were commonplace. At the Saint-Innocents cemetery, founded during the tenth century in Paris, the dead were buried in trenches (Linden-Ward 1989, 29).

The placement of cemeteries was also of great concern. Historically, there were cemeteries next to churches, in the center of town, and in rural areas. Overcrowding, smells, public health concerns, and privacy to the mourners were issues facing the cemeteries located in town and next to churches, whereas grave robbers were a concern for those burial areas and rural burial (Rogers 2001, 332 and Linden-Ward 1989, 11 and 161).

“The Reverend Hosea Ballou explained, ‘Our fleshy bodies, like the grass of the earth, are composed of the elements of nature; these elements support both the grass and our fleshy bodies; and as the grass finally withers and returns back from whence it came, is decomposed and joined with the elements of which it was composed, so do our bodies return to the earth from whence they came’” (Linden-Ward 1989, 172). Those words, along with those of “Thanatopsis,” epitomize Jacob Bigelow’s belief in natural process as a beautiful aspect of death. “Bigelow and his associates began to consider the idea of natural decay of the dead ‘in the embrace of natural’ beautiful…citing the discovery of remains” of bodies found entangled with tree roots (Linden-Ward 1989, 171). Bigelow and a landscape design consultant, General Henry Dearborn, worked in conjunction with the Garden and Cemetery Committee of the Horticultural Society to create a new type of cemetery. In 1830, the land was secured and, by 1831, Mount Auburn Cemetery was founded (Rogers 2001, 334 and Linden-Ward 1989, 11). It was originally
a place for the dead to return to nature in peace and private away from the center of the “bustling city” and “a place mourners could visit without publicity and without interruption” (Linden-Ward 1989, 171 and 217). Eventually, and until the mid 1860s, it became a place for “genteel recreation” (Linden-Ward 1989, 319). After the Civil War, people’s perception of the cemetery as a “pleasure ground” changed to a “repository for the dead” influenced by the “grim and ugly deaths” which brought a halt to the romanticism of death (Linden-Ward 1989, 319 and 338). The cemetery was once again a place for mourners visiting graves, not for the general public’s enjoyment (Linden-Ward 1989, 319). Because people enjoyed the natural setting of Mount Auburn Cemetery, they became interested in creating park space away from death, which inspired the first proposals for the first public parks (Linden-Ward 1989, 319 and Rogers 2001, 337).

Cemeteries began to see changes in maintenance by the mid-1800s. Linden-Ward pointed out that Mount Auburn began to feel the pressure to have well-mown turf around that time (1989, 217). As the image of highly manicured cemetery space became more familiar, new cemeteries emerged representing the ideals of places such as Mount Auburn Cemetery. Cemeteries became places where people felt safe and comfortable visiting the resting places of their loved ones. The knowledge that the final resting place of loved ones would be highly maintained was looked at as an act of respect and helped put surviving family members’ minds at ease. It was almost as is if cemetery maintenance became visual evidence that the loved one was not forgotten (Figure 17).

![Figure 17: Examples of modern cemeteries in central Illinois.](image)

The highly maintained lawn ideal of modern cemeteries is in sharp contrast to the settler cemeteries that dot the landscape and coincide with remnant prairie (Figure 18). Settlers plotted
out the land for cemeteries before the land was plowed, and the burials took place in prairie (Ellis 2008, 16 and Larrabee and Altman 2001, 87). High ground or knolls were sought as areas to bury the dead in order to avoid flooding. Native species persisted in cemetery prairies even after mowing became standard. Among the six sites represented in this thesis, there is evidence that some of the prairies were mown and some were seeded with turf grass, yet, because of infrequent maintenance, the prairie species persisted.

Despite good intentions, the fact remains that the “task of maintaining old graveyards is enormous” (Sloane 1991, 240). Old graves fall apart from dirt, freezing and thawing, acid rain, wind, and other weather conditions, along with vandalism and aging (Sloane 1991, 240). If people were to create a modern-type cemetery in a typical prairie cemetery context, eventually there would probably be no one there to care for it because of the enormous responsibility. If it becomes a neglected space that once had biological diversity, it would be vulnerable to the attack of invasive and overly dominant plants.

Could we challenge conventional notions of what a cemetery can be?

**Cemetery and Nature Preserve Regulations**

Whatever the rift that separates their regimes, nature and culture have at least this much in common: both compel the living to serve the interest of the unborn. Yet they differ in their strategies in one decisive respect: culture perpetuates itself through the power of the dead, while nature, as far as we know, makes no use of this resource except in a strictly organic sense. In the human realm the dead and the unborn are native allies, so much so that from their posthumous abode – wherever it be – the former hound the living with guilt, dread, and a sense of responsibility, obliging us, by whatever means necessary, to take the unborn into our care and keep the story going, even if we never quite figure out what the story is about, what our part is, the end toward which it’s progressing, or the moral it contains….we may rest assured that there exists an allegiance between the dead and the unborn of which we, the living, are merely the ligature (Harrison 2003, ix).

As this passage suggests humans are compelled to keep the story going while nature is only concerned about the survival of the next generation. Cemetery regulations are a way to
keep the story going, by protecting cultural heritage, whereas natural conservation regulations are a way to help the survival of nature’s next generation.

The way cemeteries are cared for depends on the agencies that regulate them. Cemeteries are either registered or unregistered, and both categories include active (allowing burials) and inactive (closed to future burials) sites.

In Illinois, the first laws protecting historically significant cemeteries were enacted in 1851. Before that time, a cemetery could be used however a landowner or municipality wished. Since that time, the state legislature has passed many laws regarding the management, care, and maintenance of public cemeteries. The laws encourage local government and private organizations to maintain, regulate, and protect cemeteries. In 1989, the Illinois Historic Preservation Agency (IHPA) Human Skeletal Remains Protection Act was passed; it “protects all unregistered graves, graves artifacts, and grave markers (including prehistoric burial mounds) that are over 100 years old and are not located in a cemetery that is registered with the State Comptroller’s Office under the Cemetery Care Act” (http://www.illinoishistory.gov/cemetery/laws.htm 2009). “The Human Skeletal Remains Protection Act offers protection from all disturbances including, but not limited to, excavation (including cultivation), vandalism, removal, defacement, or desecration in any way (20 ILCS 3440/1). The agency prefers that graves and cemeteries be undisturbed and preserved in place” (illinoishistory.gov 2008).

The Illinois General Assembly established the Illinois Nature Preserves Commission (INPC) in 1963 and charged it with creating a system of natural areas representative of Illinois landscape (http://dnr.state.il.us/INPC/index.htm 2009). The Illinois Natural Areas Preservation Act (525 ILCS 30) governs the INPC and gives it responsibility for preserving, protecting and defending natural areas and endangered species habitat for public benefit (http://dnr.state.il.us/INPC/index.htm 2008). The nature preserves are private and public lands that have rare plants, animals, or other unique natural features.

Understanding the regulations related to the care and protection of cemeteries and nature preserves and knowing what agencies are involved is vital to identifying the rules and regulations governing the design of cemetery prairies.

Illinois legislation recognizes two types of cemeteries, registered and unregistered cemeteries. Registered cemeteries are regulated through the Illinois Comptroller’s office. Unregistered cemeteries are often small, inactive, usually abandoned and are under the jurisdiction of the Illinois Historic Preservation
Agency (Human Skeletal Remains Protection Act 20 ILCS 3435, IAC 4170). The primary distinction is that unregistered cemeteries are legally regarded as historic resources. Pioneer cemeteries managed for natural vegetation generally fall into one of two categories: active cemeteries (registered and unregistered) which the prairie/savanna community lies outside of the burial area and unregistered cemeteries that are closed to future burials where the grave markers are found within the natural community (Moorehouse and Hassen n.d., 4).

The Illinois comptroller’s website concerning cemetery care states, “legally, an abandoned cemetery is the private property of the person whose land it is located on, whether or not that person has any ties to the cemetery. While a land owner is legally prohibited from destroying or damaging the cemetery in any way, he/she is not obligated to either maintain the cemetery or allow others to access it for the purpose of cleanup or visitation” (http://www.ioc.state.il.us 2008). IHPA requires permits for the removal of graves in an abandoned cemetery but prefers for them to not be removed. INPC guidelines allow for the maintenance of burial plots in cemetery prairies, which includes the maintenance of markers and the care of any burial space. The guidelines allow for a trail system to access the burial stones. The guidelines also protect native species from being removed or destroyed, whereas invasive species can be removed (http://dnr.state.il.us/INPC/protection.htm 2009).

The IHPA’s website addresses concerns about the addition of fencing to historical cemeteries. Metaphorically, the statement works to explain why the prairie species should stay in the cemetery. It states, “not all cemeteries were originally enclosed with fences. If you add a fence to a cemetery that never had one before, you would be changing its content because fences have meaning” (http://www.illinoishistory.gov/cemetery/faq.htm#laws 2010). Likewise, if you maintain a cemetery prairie in a manner that favors modern turf-grass standards “you would be changing its content because” the vegetation has “meaning.”

These regulations are important to the future design of the cemetery prairies, even though they may seem to contradict each other. In the case of the IHPA and the addition of fencing, it is a suggestion to keep the integrity of the original cemetery. The INPC’s guidelines allowing maintenance of burial areas is set to appease people wanting to protect the cultural heritage of a cemetery and prevent damage to grave markers. Those regulations provide a guide to the care of the cemetery prairies and, so long as the spaces are not desecrated, allow for design implementation to protect them.

The current status of the six cemetery prairies studied in this thesis is as follows:
• Two are on public land and dedicated as nature preserves. They are currently closed to new burials, and graves are found throughout the prairie.
• One is on private land and is dedicated as a nature preserve. It is currently closed to new burials, and graves are found throughout the prairie.
• One is on public land and is not dedicated as a nature preserve. It is currently closed to new burials, and graves are found throughout the prairie.
• One is on public land and has an active cemetery, but the prairie is separate from the cemetery and dedicated as a nature preserve. The graves are currently separated from the prairie.
• One is on public land and has an active cemetery but is not dedicated as a nature preserve. The graves are currently separated from the prairie but could become intermingled if the cemetery association feels expansion is necessary.

(see table in Appendix B).

Vegetation of the cemetery

The control of exotic herbaceous plants and aggressive native shrubs is one of the greatest threats to the integrity of the cemetery prairies. The plants that cause the most problems can be divided into two main categories: disturbance adapted species and grave plantings (Moorehouse and Hassen n.d., 7). The most common disturbance species include white sweet clover (Melilotus alba), wild parsnip (Pastinaca sativa), wild asparagus (Asparagus officinalis), Kentucky bluegrass (Poa pratensis) and smooth brome (Bromus inermis). In the meanwhile, the principal grave plantings that present the biggest concern, by spreading from the initial planting location adjacent to a tombstone and covering large areas of the cemetery, include orange day lily (Hemerocallis fulva), garden iris (Iris germanica), cypress spurge (Euphorbia cyparissias), star-of-Bethlehem (Ornithogalum umbellatum), lily-of-the-valley (Convallaria majalis), common periwinkle (Vinca minor), live-forever (Sedum purpureum), yucca (Yucca flaccida) and common lilac (Syringe vulgarism) (Moorehouse and Hassen n.d., 7).

Following a death, families often show their respect by decorating the grave with plants. While this is recognized as part of cultural heritage, occasionally the non-native plantings of flowers, shrubs, and trees spreads to the extent that it directly impacts other grave markers and traps moisture, which can lead to faster stone deterioration (Moorehouse and Hassen n.d., 7). To respect the cultural heritage of the cemetery, plants that are not native to the prairie but prove to be harmless are left alone, whereas aggressive plants that can lead to damage of the prairie and grave markers are removed or controlled.

The uncontrolled spread of non-native plants is a concern to the natural vegetation management. Typically if the planting remains in its original location and does
not impact other graves it is not removed. If it does spread to other graves and threatens their preservation the plants should be controlled. When hand-pulling is not possible to control the spread of aggressive non-native plants within the cemetery herbicides may be used. However, since these chemical are harsh, grave stones should be covered to protect them from spray drift (Moorehouse and Hassen n.d., 7).

LANDSCAPES: CULTURE DEFINES THE LAND THAT DEFINES CULTURE

The United States National Park Service defines cultural landscape as “a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values” (Slaiby 2003: 10 and http://www.nps.gov/csi/csihandbook/appendices/appendixB.htm 2010). The following information relates to activities that are influenced both naturally and culturally and are instrumental to actions and information in this thesis.

Fire

The overlap of human and environmental events is evident in fires on the prairie. Native Americans set fire to the land, but it is debated if they were solely the reason the prairie ecology was maintained in this manner, or if climate and natural occurrences such as lightning strikes, also helped to maintain this ecological community (Courtwright 2007, 159-160). Fires on the prairie moved fast, giving the people little time to react. Being in the line of the fire would have been an overwhelming experience, and the potential for loss was great. Due to property damage and loss, general safety concerns, and fear generated by the prairie fires, the settlers began to incorporate fire suppression techniques. Even today, the stigma of the prairie fire makes its use as a management technique controversial.

Travel

The earliest comers found paths and traces leading across the country which in a measure, aided them in finding the shortest cuts from timber grove to timber grove, but which were not of human origin. Before even the Indian came to hunt the wild animals, these animals, in search of water or pasturage, made their traces or paths, always choosing the best lines of travel and, so far as possible, the shortest lines of communication (Cunningham n.d., 1).
When it comes to travel, nature and culture often overlap. The development of roads can be traced back through to the glaciers. The land recognized by moraines and high ground formed easy places of travel between the great river valleys of east central Illinois. Herds of prehistoric mastodons and later bison created trails which Native Americans followed and turned from “wandering traces into a vital and unified system of highways” (Hickey 1989, 33-35 and Mazrim 2007, 56-61). Continuing that trajectory, French colonists and Euro-American pioneers also used the well-beaten paths. Those were eventually paved and became the predecessors to our modern road system (Mazrim 2007, 56-61).

In east central Illinois, the Ottawa Travel Road is an example of a trail of prehistoric origin, utilized until the early 1850s, and portions of the trail are still part of our modern road system. The trail began in Danville and wandered northwest following higher ground, fording streams, and detouring around seasonal obstructions. Until 1865, it was impossible to travel west beyond Ten Mile Grove, one and a half miles west of Paxton, without crossing a stream, so the trail divided, with one fork going west to Saybrook and the other to Ottawa (Ford County Historical Society and The Illinois State Historical Society).

**Historic uses for prairie plants**

The Native Americans and settlers found many uses for prairie plants. Pale purple coneflower (*Echinacea pallida*) was used for medicinal purposes; rosin weed (*Silphium integrifolium*) sap was be collected to make gum; compass plant (*Silphium laciniatum*) has leaves that grow in a north-south direction, thus helping travelers across the prairie; leadplant (*Amorpha canescens*) and purple prairie clover (*Dalea purpurea*) were used to brew tea; the stems of white prairie clover (*Dalea candida*) were used for brooms, and its roots were used as something sweet to chew; New Jersey Tea (*Ceanothos americanus*) was used to make fires when timber was scarce, and that plant was also used for soap; wild bergamot (beebalm) (*Monarda fistulosa*) was used as a perfume and for medicinal purposes; white wild indigo (*Baptisia leucantha*) used medicinally, and its seed pods were used as rattles for children; the entire plant of smooth sumac (*Rhus glabra*) was used for various purposes: roots for dye, stems to make baskets, tannin from the leaves tan leather, and bright red berries for tea; and the various woody species growing on the prairie were used for building materials, shade, and as a source of food from the harvest of nuts and berries (Ladd 2005 and Champaign County Forest Preserve.
Environmental Education). This is just a sample of how the prairie plants were used by the Native Americans and European settlers.

THE IRONY OF THE CEMETERY PRAIRIE

There are several ironies regarding the cemetery prairies. In the final resting place of the settlers, life continues to spring to life with a lush cover of grasses and wildflowers. When the settlers arrived, they were in isolated areas surrounded by prairie and now the prairie is isolated surrounded by human development. Even though the settlers quickly and aggressively changed the prairie, they left patches undisturbed within their cemeteries (Larrabee and Altman 2001, 87). In the end, the people who worked to conquer the prairie actually ended up preserving the prairie. They have no immediate family to bring sentimental gifts to their graves, but each year the very plants they worked to remove come back as healthy as ever. Figure 19 is a collection of images depicting cemetery prairies wherein grave markers and prairie plants coexist.

Figure 19: Fire and rebirth in the cemetery prairie.
CHAPTER 4:  
DESIGN VISION

The natural environment should manage itself. However, due to human influence, the ability of natural processes to occur has been skewed. Humans want to take control and “tame” nature, oblivious to repercussions until challenged by them. It is my intention to advance protection and restoration of cemetery prairies and to elevate those fragile remnants of the Grand Prairie by proposing design interventions that respect the past while fostering new experiences.

The appearance of cemetery prairies is at odds with the manicured look most people expect for a cemetery. Tall grasses, such as big bluestem (*Andropogon gerardi*), little bluestem (*Schizachyrium scoparium*), and Indian grass (*Sorghastrum nutans*), tower above the tombstones. Prairie wildflowers, such as shooting star (*Dodecatheon meadia*), pale purple coneflower (*Echinacea pallida*), leadplant (*Amorpha canescens*), blazing-star (*Liatris aspera*), prairie dock (*Silphium terebinthinaceum*), compass plant (*Silphium laciniatum*), downy gentian (*Gentiana puberula*), purple and white prairie clover (*Dalea purpurea* and *D. candida*), cream and white wild indigo (*Baptisia leucophaea* and *B. leucantha*), yellow coneflower (*Ratibida pinnata*), and black-eyed Susan (*Rudbeckia hirta*) wash the site with color that changes throughout the growing season. At select sites one can also find endangered prairie species such as the eastern prairie fringed orchid (*Platanthera leucophaea*) and Mead’s milkweed (*Asclepias meadii*) (McClain 1997, 48-58). The designs presented through this thesis will afford the public an opportunity to see and understand the prairie plants, as well as to witness their ecology and cultural heritage. The design can only be deemed a success when those factors are addressed in a way that preserves the integrity of the site, both culturally and ecologically.

The cemetery prairies are more valuable than most people realize because they hold a story, allow us to see what the original prairie looked liked, and become invaluable as sources of seed. The grave markers tell a story of their own by giving insight to the lives of the settlers, the hardships they faced, and the care and love of their families.

For the purpose of encouraging understanding and acceptance of the cemetery prairies, a region- and site-specific trail design is proposed, allowing the public to connect the natural areas on a larger plane. It also provides site-specific experiences of cemetery prairies by focusing on individual stories. As with any choice, there are pros and cons. Allowing the public to continue
to explore natural areas brings disturbance to the site, such as the edge effect and habitat destruction. However, through exploration, the public has an opportunity to gain knowledge and understanding, and their exploration could encourage expansion of the small remnants.

**REGIONAL SCALE**

**The Constellation**

At the regional level, the design vision is for a system of cemetery prairies across Ford, Iroquois, Champaign, and Vermilion Counties which read as a constellation linked through a trail concept. Webster’s New World Dictionary defines a constellation as an arbitrary group of fixed stars or any brilliant cluster or gathering. This inspired the concept for connecting the individual cemetery prairies because presently they appear as if arbitrarily across the landscape but have the potential to be seen as a brilliant cluster. Constellations have been used for centuries to help with navigation and understanding the night sky. The design idea was to take that concept and apply it to work on the ground. Once a constellation is created, the individual stars have meaning and become a tool for signaling environmental changes or for finding one’s way across the land and sea. Applying the constellation to the ground allows these spaces to read as one, helps give them more purpose, creates opportunity to compare the scattered remnants to what once existed, and establishes a better understanding to the significance of the cemetery prairie.

By focusing on several sites, as opposed to an individual prairie, a stronger relationship is developed. The figures that follow are the progression of the process of imaging the stars on a ground plane, linking the cemetery prairies, and creating the constellation, the basis for the trail (Figures 20, 21, 22, 23, and 24).
Figure 20: Stars superimpose to the ground plane (constellation map http://www.astronomy.com/en/sitecore/content/Home/News-Observing/Intro Sky/Get to Know the Night Sky/2010/10/The starry sky.aspx).

Figure 21: Remnant prairies across Illinois including locations of Illinois Nature Preserves and cemetery prairies, pertinent to this thesis, seen as stars (dnr.state.il.us/inpc/NPdir.htm 2008).

Figure 22: Development of the cemetery prairie constellation.

Figure 23: Cemetery prairie with stars, image created by author.
Figure 24: Aerial image of portions of east central Illinois with proposed Ottawa Heritage Trail and Cemetery Prairie Constellation (aerial image from http://maps.live.com).
Regional trail design vision

A brochure and promotional material are used to inform the public about the Ottawa Heritage Trail (Figures 25 and 26). The brochure is a guide to inform the public about the changing landscape, as well as ecological and cultural history. It provides information about the significance of this project, notes other amenities along the trail, and gives directions to the sites and other places of interest. The development of promotional materials provides information to the public about the trail and helps generate awareness and interest. To actually implement this project, one of the first steps would be to identify and work with grassroots initiatives, landmark committees, genealogical societies, park districts, the Illinois Nature Preserve Commission, and other public organizations to see what they would like to accomplish and to generate more public interest and attachment.

Figure 25: Brochure concept contains map, cultural and environmental heritage information, timeline, images.
Along the Ottawa Heritage Trail signs provide a wayfinding element (Figure 27). Along with the signs, an environmental corridor, drawing upon the Illinois Department of Natural Resources’ Roadsides for Wildlife program, also provides a wayfinding element. The roadsides, associated with the trail, are planted with native vegetation with an unnaturally high proportion of wildflowers to help draw attention to the trail. Research by Joan Nassauer has shown that areas with “unnaturally high concentrations of wildflowers” helps landscapes become culturally sustainable, help in attaining place attachment, and acceptance of the public (1995, 168).
SITE SCALE

Each site in this study area may pale in comparison to monumental sites such as the Grand Canyon, Yellowstone National Park, or Niagara Falls, but each remnant cemetery prairie holds magnificent treasures of its own and is significant to east central Illinois. Due to their size, getting lost within a site is not a concern. However, it is necessary for the design to confront people’s preconceived notions and uneasiness with the prairie and issues with walking on prairie vegetation.

Many people not familiar with walking through the prairie can have an increased level of fear, especially if they are more comfortable walking on pavement, short turf, or gardens designed with vegetation below the ankles. Just as prairie vegetation may disturb the visitor, the visitor disturbs the prairie by walking on the vegetation. That disturbance brings its own set of issues. If people continually trample vegetation and the plant has no time to recover, it will be lost. The designs proposed here address that problem by implementing a trail through the prairie. Focusing on a trail design to encourage visitation and help the vegetation is an important component of the design.

Site design

Each site includes a place to park, a covered visitor interpretation area, a monument with information inscribed, a place to unwind, and a trail. Figure 28 consists of concept drawings for the covered visitor interpretation area (kiosk), a proposal for a future viewing platform if the cemetery prairies are expanded, and the idea for an elevated trail.

Figure 28: Concept drawings of kiosk, viewing platform (for large prairie restorations), and raised trail.
The elements of the design are environmentally sensitive, ideally using materials recovered from other projects, and having little to no negative impact on the land. It is important that these elements add to the aesthetics of the cemetery prairie and do not distract from it.

**Parking and interpretation area**

Currently, there are many issues regarding parking at cemetery prairies. In most cases, there is only one grassed space for a vehicle to park so other vehicles have to be parked alongside the road. This creates issues if there is more than one vehicle, if the ground is wet there is a possibility of getting stuck and creating ruts, and there are safety concerns due to traffic on the road. To alleviate these issues, the design for the cemetery prairies establishes spaces for at least two vehicles with the possibility to expand to four parking spaces.

The covered interpretation area gives the visitor a chance to get to know the history and significance of that individual site without having to immerse themselves in the cemetery prairie. It also acts as a trailhead for those ready to explore the cemetery prairie. The area directly adjacent to the visitors’ interpretation area is planted with typical prairie species with a higher concentration of wildflowers. The visitor would find information describing the cemetery prairie and its cultural and environmental significance, as well as any information pertinent to that specific cemetery prairie and the local community. There are also interpretive signs providing information about the significance of how the cemetery prairie is maintained. The signs explain why the remnant cemetery prairie are not mowed, when and why burns are conducted, the significance fire has to the biodiversity of the prairie species, what the cemetery would have looked like at the time the settlers began to use the land to bury their dead, and provides information about how the cemetery is cared for including information about the effect fire and vegetation have on the grave markers. Finally, there is also information explaining ways to incorporate prairie into your own life.

**A trail in the prairie**

There are two proposals for the trail in the cemetery prairie. The first proposal uses the existing footpath found at the entrance of most of the cemetery prairies. The second design is an elevated trail. Each design requires judicious planning to avoid rare species while incorporating a design that takes the visitor on a journey through the cemetery prairie.
As stated, the first design uses the existing footpath and continues into the cemetery prairie, avoiding rare species. This footpath is easily seen when the vegetation is up and after a prairie burn (Figure 29). Where the footpath is not visible, the trail is laid out considering the journey of the visitor, while still avoiding rare species. This trail must be mown two to three times each year or mulched with environmentally sensitive material, so it does not destroy or distract from the cemetery prairie. If mowing is prescribed, the vegetation on the trail would remain native by encouraging low growing varieties of prairie species that will still benefit the prairie ecosystem. Even with the trail, visitors could still explore the prairie “off trail” and become even more informed. Historically, prairie plants have experienced extreme conditions and, as long as the site is not adversely impacted by open access (which can be determined through frequent monitoring), people should be allowed in the cemetery prairie.

Figure 29: Existing footpaths visible after prairie burn and through the seasons. Use to create trail. The burn pictures were taken at Loda Cemetery Prairie Nature Preserve during one of several prairie burns I attended while developing this thesis.
The second design, the elevated trail, gets people off the ground, preventing the prairie species from being trampled. This allows the prairie species to grow somewhat uninterrupted by passing below the grated trail. It also alleviates the public’s fears of not seeing all the way to the ground. This design was inspired by the grate system covering the American Society of Landscape Architects (ASLA) green-roof. The green-roof is covered by aluminum grating allowing visitors to walk over the plant material without damaging it (http://www.asla.org/greenroof/ 2009) (Figure 30). By incorporating the grated, elevated trail in the design, visitors would not cause as much compaction to the ground, and the plants could inhabit the area beneath the elevated trail. To increase the benefit of an elevated trail, it is made up of sections and removable so its presence does not create a hazard during prairie burns. As with the first trail design, this trail would need to avoid rare species, not negatively impact the environment, be experientially rich.

Regulations regarding the development of a trail in the cemetery prairies under Illinois Title 17: Conservation, Chapter V: Nature Preserves Commission, Part 4000: Management of Nature Preserves, Subpart A: General Provisions state, in part, that trails can be established in a preserve so long as they are proposed to the Commission in writing with the prior approval of the landowner and do no harm to protected species on site. (See Appendix C for details regarding the regulations associated with trails in a Nature Preserve).

The monument

An inscribed, transparent monument, measuring 15 feet high, with information unique to each site, is incorporated into each cemetery prairie (Figure 31). The monument is placed so that its four corners point to the cardinal directions of north, south, east, and west. The height is significant, as it becomes a visual cue to the root depth of some prairie plants with markings of other root depths, including the
familiar turf grass. Visitors are presented with a visual sense of the depth to which the roots can
go and the significance of plants able to send their roots so deep. By using a transparent
material, the line of site is less interrupted by the monument. The monument could be available
in a smaller version, in local communities, becoming collector’s items as each will have
inscriptions unique to that cemetery prairie. The void on the inside of the collector’s monument
could store a mix of prairie seeds for reseeding the prairies, for personal home use, or to be kept
as a memento.

Figure 32 presents the design concept for the cemetery prairies.

Figure 32: Design concept for cemetery prairie – glass monument, kiosk, elevated trail, and parking.

The sites

Loda presents a unique opportunity for implementing the site trail design, due to the
prairie restoration to the east, north, and west of the remnant cemetery prairie. This is the only
site with the trail presented because the trail design was able to avoid the remnant area,
preventing the possibility of destroying rare prairie species. Instead the trail leads visitors
through the restored prairie and alongside the remnant cemetery prairie. The other sites require
an extensive site analysis in order to identify rare prairie species, situate the trail so as to have the least negative impact, and establish the ideal path for visitors.

The following illustrations provide site context and site-specific information including images of the proposed design component to implement parking and interpretive areas at each site.

- Loda Cemetery Prairie Nature Preserve (Figures 33, 34, 35, and 36).
- Prospect Cemetery Prairie Nature Preserve (Figures 37, 38, 39, and 40).
- Pellville Cemetery Prairie (Figures 41, 42, and 43).
- Welles Cemetery Prairie (Figures 44, 45, and 46).
- Fairchild Cemetery Savanna Nature Preserve (Figures 47, 48, 49, and 50).
Figure 33: Aerial view (aerial image from http://maps.live.com).

Figure 34: Topographic map and location of Loda Cemetery Prairie Nature Preserve (dnr.state.il.us/inpc/NPdir.htm).

Figure 35: Loda Cemetery Prairie Nature Preserve proposed design.
Figure 36: Loda Cemetery Prairie Nature Preserve site context with proposed design and trail concept.
Figure 37: Aerial view (aerial image from http://maps.live.com).

Figure 38: Topographic map and location of Prospect Cemetery Prairie Nature Preserve (dnr.state.il.us/inpc/NPdir.htm).

Figure 39: Prospect Cemetery Prairie Nature Preserve proposed design.
Figure 41: Aerial view (aerial image from http://maps.live.com).

Figure 42: Pellville Cemetery Prairie proposed design.
Figure 43: Pellville Cemetery Prairie site context with proposed design.
Figure 44: Aerial view (aerial image from http://maps.live.com).

Figure 45: Welles Cemetery Prairie proposed design.
Figure 46: Welles Cemetery Prairie site context with proposed design.
Figure 47: Aerial view (aerial image from http://maps.live.com).

Figure 48: Topographic map and location of Fairchild Cemetery Prairie Nature Preserve (dnr.state.il.us/inpc/NPdir.htm).

Figure 49: Fairchild Cemetery Prairie Nature Preserve proposed design.
Figure 50: Fairchild Cemetery Prairie Nature Preserve site context with proposed design.
Figure 51: Aerial view (aerial image from http://maps.live.com).

Figure 52: Topographic map and location of Tomlinson Cemetery Prairie Nature Preserve (dnr.state.il.us/inpc/NPdir.htm).

Figure 53: Tomlinson Cemetery Prairie Nature Preserve proposed design.
Figure 54: Tomlinson Cemetery Prairie Nature Preserve site context.
Figure 55: Tomlinson Cemetery Prairie Nature Preserve proposed design concept with site context and additional interpretive opportunities at CCFPD Middlefork River Forest Preserve.
THE BENEFITS

The last word in ignorance is the man who says of an animal or plant: ‘What
good is it?’ If the land mechanism as a whole is good, then every part is good,
whether we understand it or not. If the biota, in the course of eons, has built
something we like but do not understand, then who but a fool would discard
seemingly useless parts? To keep every cog and wheel is the first precaution of
intelligent tinkering (Leopold 1966, 190).

There are many benefits to a project such as this that are specific to both the cemetery
and the prairie. To ignore either would be to deny both its individual and symbiotic potential.

Cemetery

First, it would benefit the historical records of the cemetery to undertake this project.
Necessary tasks would include photographing the grave markers and recording the burials within
the cemetery prairies. That information would be made accessible to the public in electronic
format. In an ever evolving world, an electronic database could help visitors find a certain grave
and understand the life of an individual long dead. It could tell a story such as that of the
soldiers heading off to war, times of disease that claimed multiple family members, or tragedies
of child birth. The database could also tell of the long life of a family member and the
contributions he or she made to life in east-central Illinois. If the cemetery was eventually erased
by time, the database would allow the information to be available in the future. Another
important step is to create a photographic record of each gravestone present in the cemetery.
This will provide a record of the burials in the cemetery as well as some insight into the styles of
headstones throughout the years.

Prairie

Despite good intentions, humans have not always understood the impacts of development
on natural resources. The prairie ecosystem is a vital resource to the health of the environment.
It increases biological diversity and provides habitat. Additionally, the deep-rooted plants can
sequester carbon, remediate the soil by absorbing pollutants, and help alleviate erosion. The
prairie ecosystem helps to maintain the natural hydrologic cycle by allowing storm water to
infiltrate the soil and then be absorbed by the roots of the plants. It also provides a unique
aesthetic quality not experienced through the turf grass landscape that has become all too
common. The remnant prairies hold information about the way larger prairies might appear and are a possible seed source for future restorations. Without remnant prairies, the opportunity to learn from its ecosystem is lost. By protecting the prairie, there is always the potential to learn from this environment, and for that reason, preservation of the prairie is critical.

**Opportunity for art, tourism, and connecting with the cultural and environmental heritage**

The proposed Ottawa Heritage Trail provides the opportunity for visitors to discover the story of the land and the inhabitants in east central Illinois. The trail delivers a story about the changes that occurred both naturally and at the hands of humans and provides a unique experience for tourists to immerse themselves in the history of the sites. It engages the visitors with the great outdoors while considering the future of the prairie ecosystem. Incorporating an interactive experience increases the opportunity to establish a long-term memory attachment to the cemetery prairie experience. By incorporating rubbing medallions unique to each cemetery prairie, an opportunity to take something away from the experience is provided without the threat of harvesting plants as a souvenir.

Incorporating a competitive art program that would be rotated and displayed at various cemetery prairies provides an opportunity to draw more interest. The art would need to add to the site and not distract from the prairie. It should also be environmentally beneficial and decompose after a period of time. The final stipulation is that it will not raise the temperature of a fire above the typical temperature of a prairie burn. This creates an opportunity to involve the public by creating a competition for artists to submit their ideas and be selected as the featured artist of the cemetery prairie exhibition space. This also becomes an opportunity to provide information to the public about the cemetery prairies. The addition of art adds to the quality of the ephemeral and helps tie together the idea of change in the life of cultures and the environment.

**Prairie plants, fire, and carbon sequestration**

The plants of the prairie peninsula are composed two plant types: cool season plants (C3) and warm season plants (C4) (Anderson 2006, 633). There are more forbs in the C3 category which contribute most of the species richness, while many of the dominant grasses are classified as C4 plants (Anderson 2006, 635). C3 grasses grow in the spring and early summer (Anderson
C4 plants begin growth later maximizing growth in mid-summer and are more efficient in photosynthesis, allowing them to uptake and store more carbon dioxide (Larrabee and Altman 2001, 30 and Anderson 2006, 627-628). Following are some of the plants represented in the C3 and C4 categories.

**C3 cool season:**
Grasses:
- wild rye (*Elymus canadensis*), Western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), porcupine grass (*Hesperostipa spartea*), prairie Junegrass (*Koeleria macrantha*).

Legumes:
- Illinois bundleflower (*Desmanthus*), leadplant (*Amorpha canescens*), purple clover (*Dalea purpurea*).

Forbs:
- pale purple coneflower (*Echinacea pallida*), yellow coneflower (*Ratibida pinnata*), drooping yellow coneflower (*Ratibida pinnata*), maximilian sunflower (*Helianthus maximilianii*), compassplant (*Silphium laciniatum*).

**C4 warm season:**
Grasses:
- big bluestem (*Andropogon gerardi*), little bluestem (*Schizachyrium scoparium*), Indian grass(*Sorghastrum nutans*), switchgrass, little bluestem, eastern gamagrass, hairy grama grass, and sideoats grama grass.

An added benefit to encouraging C3 species is that the forbs are showier and bloom early in the season, helping to attract visitors and encourage place attachment. If sequestering higher amounts of carbon dioxide is an objective, then encouraging the C4 species should be the focus.

Fire is an important element of the prairie. Although prairie fires frightened settlers and still incites fear and concern, it renews the land, and implementing fire discourages the growth of non-native plants. The more people know about the importance of fire and how to use it, the less scary it is, and the more it can be appreciated and respected for its benefits. Historically, without fire, prairies in Illinois would have slowly turned into forests, with only patches of prairie
remaining. This thesis is focused on raising the acceptance of the prairie. To meet that goal, the timing of prescribed burns is important. Nassauer points out that increasing the wildflower population increases public acceptance of a design by focusing on ecological quality (1995, 168). Therefore, it is important to promote C3 plant growth. If all fires are set in the spring, there is an imbalance between C3 and C4 plants. Alternating between spring and late summer/fall burn times can encourage C3 plants and reduce the competition with C4 plants (Anderson 2006, 635).

Suggesting late summer/fall burns does pose some issues that need to be addressed. Ideally, the fall burns would occur after the first frost, but, if crops are still in the field, the fire could spread beyond the prairie. To alleviate that concern, a plan should be worked out with local farmers and communities informing them when burns could occur. There should also be an increased number of burn control workers or volunteers for a fall burn, and establishing a sufficient firebreak would be crucial. When the weather is too irregular or the vegetation is too moist to take fire, it is possible to allow animals to graze on the prairie plants on a rotational basis. Fire destroys winter food, shelter, and cover for species living in the prairies. To minimize this effect it is necessary to only burn half of the prairie. One concern with burning only in the fall is that this could increase the competition with cool season weeds. Burning in spring and fall on a rotational basis should reduce that competition.

**Fire in the cemetery**

There is debate about the amount of damage fires could cause in the cemetery. Prairie fires are normally a cooler and faster fire, but, if there are many woody species or much thatch, the temperature can be higher, creating a potential to damage grave markers. If there is liquid on the grave marker, such as dew or rain, there is an increased risk that it could heat up quickly and cause pieces to chip off. In many cases, the grave markers are very old and are already experiencing the effects of weathering. If there is a consensus to try and save the grave markers, then heat shields could be used to protect them before prescribed prairie burns. An added benefit to a late summer/fall burn is that it would expose the stones for a longer period of time and allow visitors to get a good look at the stones without the competition of the plants.
The prairie’s power to sequester carbon

Plants sequester carbon through a process of absorbing carbon dioxide from the atmosphere during photosynthesis and sinking it into the ground. It is stored as biomass, which later decomposes into organic matter in the soil. Prairie plants have as much as two to four times more plant biomass underground as that found above ground, resulting in more carbon storage (Larrabee and Altman 2001, 30). “In a blessed paradox, what was once pollution becomes food for the grasses, and thus, eventually, for humans” (Larrabee and Altman 2001, 11). For that process to be successful, the prairie must, of course, persist. A large quantity of greenhouse gasses were released into the environment when removing native grasses to create cropland and was noticeably higher during the 1850s when prairie was removed at a much faster rate (Larrabee and Altman 2001, 32). This was just the beginning; current societies are releasing a far greater amount of carbon dioxide into the atmosphere, which gives reason to invest in prairie as a place to store carbon. Sequestering carbon in the soil, and thus removing it from the atmosphere, is a strategy for offsetting carbon emissions and addressing climate change. Sequestration of carbon in the soil also promotes soil quality and health.

Through an on-site educational component explaining carbon sequestration, visitors would have an opportunity to learn how they can contribute to the benefits and why this is important to do. Information could be made available explaining opportunities for sequestering carbon dioxide through means beyond the prairies, such as landscaping with native plants and converting turf grass and other shallow-rooted plants to natural prairies.

CREATING A CASE FOR LANDOWNERS AND COMMUNITIES

In 1948, Aldo Leopold said, “We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect” (1966, xviii-xix). Leopold also pointed out that people tend to implement conservation only if it proves to be profitable to them personally and tend to stop there even if more efforts may benefit the whole community but not them particularly. If there is no profit, we tend not to see the benefits to the environment (Leopold 1966, 243-246). If a conservation practice proves to protect the land and shows that it can increase the profit margin, the farmer or landowner would most likely implement the practice. On the other hand if some suggested practice would actually reduce profits, has a high cost to implement, or jeopardizes the business,
it will likely not be implemented. The ultimate goal would be to establish a way for landowners and communities to gain a profit by dedicating acres to prairie, creating habitat and a healthier ecosystem, and offsetting the carbon footprint by investing in the practice of establishing prairie.

**Creating the prairie node: the future design vision of the Prospect Prairie Node**

Figures 56 and 57 represent the Prospect Prairie Node, which is a sample study of the possibilities that exist for future expansion of remnant prairies. To be successful, farmers or landowners would dedicate, donate, or sell land for carbon sequestration. Prospect Node is a proposed destination along the proposed Ottawa Heritage Trail. It is composed of 200 acres, a commonly accepted minimum required for adequate habitat and species biodiversity. The node will buffer the existing remnant cemetery prairie on three sides, provide native habitat, and recreate wetlands that absorb storm water runoff from the surrounding area. It will utilize grazing animals and prairie burns to maintain vegetation, incorporate eco-burials, and provide a recreational trail currently lacking for the town. An eco-station is also proposed for educational purposes. At the eco-station visitors can experience sustainable practices, take classes about sustainability, and learn about eco-burials. Precedent studies to consider for this future endeavor would include Coffee Creek, Prairie Crossing, and the Urbana Park District’s Meadowbrook Park.
Figure 56: Process drawing of Prospect Node.
Figure 57: Prospect Prairie Node design concept – Base is an aerial of South-Eastern Paxton, Illinois; located in Ford County along proposed Ottawa Heritage Trail. Planning Study Area for Proposed 200 Acre Node with Eco-Station; connecting Prospect Cemetery Prairie Nature Preserve and Glen Cemetery; and serves as a community destination; incorporates a new concept of burial through eco-burials.
CHAPTER 5:
CONCLUSION

What is the price we pay when we lose a species or destroy the very places that provide for our subsistence? What are the implications when we leave nothing for generations to come? The earth has no places left untouched by humans either directly or indirectly, and that means “dire consequences to all living things” (Kaplan, Kaplan, and Ryan 1998, 2). For that reason, we cannot afford to let the ecologically diverse areas we have left to be overlooked, squandered, misunderstood, damaged, or unknown. There is a high price to pay when we control nature in misguided ways; the consequences are evident in such problems as erosion, floods, massive wild fires as a result of fire suppression, loss of habitat, deteriorating water quality, and loss of visual interest. When we have areas that are so rich in diversity, as are remnant prairies, it is important to maintain and even try to expand them. The biotic components of natural areas may have no place to expand into adjacent spaces due to development or other conditions. Nevertheless, protecting natural areas allows for plants to reproduce and create seed that can be distributed to other areas. The persistence of a healthy cemetery prairie into the future will require new attitudes towards burial and land care, not to mention economics. Changes will happen when environmental goals have equal or higher priority relative to economic goals.

The purpose of this thesis is to gather information from a variety of disciplines and use that information to propose a regional trail design, as well as site-specific designs, that value cultural influences and ecological integrity equally. Those concerns were engaged to help enhance the sense of place by identifying an ecological feature of the land with the goal of encouraging the survival of the prairie species.

The framework has been laid out, and what lies ahead is implementation, measuring the success, and expanding the approach to more sites. Although many recommendations have been proposed, implementation would be guided by levels of importance. For instance, establishing more native species in the Roadsides for Wildlife program would depend on the availability of native species, cost, and the ability to establish the plants in areas that may experience herbicide drift. Another example would be the initial change that would have to occur in public opinion regarding care of cemeteries and remnant prairies. Changing opinions is a difficult undertaking and requires skilled and dedicated people.
George Santayana has said, “Those who cannot remember the past are condemned to repeat it” (in *The Life of Reason*, Volume 1, 1905). Similarly, Winston Churchill stated, “Those that fail to learn from history, are doomed to repeat it.” Will we be a species that fades from existence because we fail to learn from history by ignoring the need for biological diversity? Landscape architects need to be on the forefront of responsible design and to consider the ecology and biodiversity of all designed spaces. It is time to expand the design of cemeteries and other open areas. Just as Jackie Bowring proposed in her “Life after Death” cemetery design, we can and should develop alternatives to our modern, highly manicured spaces.

Although we may never fully understand the complexity of our planet, we should take time to appreciate, respect, and understand it to the best of our abilities.

Our growing acknowledgement of the impact of humans on nature may be producing more than cognitive confusion: a debilitating sense of species guilt threatens to inhibit our ability to deal with environmental problems. If humans have always shaped the natural world to suit themselves, and if we have always been upsetting the ecological balance and are only doing so much more decisively at present, perhaps the end of nature was inevitable, and necessarily our fault. For some, this version of original sin is seductive; for others, the knowledge of how implicated we are in environmental degradation leads simply to despair (Baldwin, De Luce, and Pletsch *Beyond Preservation* 1994).

One may say that humans have the characteristics of an invasive species, taking up space, outcompeting other species, depleting resources, and creating a less biologically diverse ecosystem. There is still hope, though, that humans have the mental ability to help the planet be a healthy and abundant place to live. It would be much better for humans to be considered the protectors, not the destroyers, and known as part of nature, not better than it. Daniel Chiras quotes from Albert Camus, “man is the only creature that refuses to be what he is” (Chiras 1992). What Camus was saying is that humans tend to believe that they are superior to all other creatures on Earth. In actuality, humans just possess different skills than other creatures. The charge now is to use those skills to protect what will otherwise be lost. In the end the goal is to avoid decimating the ecological biodiversity of the world around us because, when individual species are gone, they are gone (figure 58).
THE PRAIRIES:
“...I behold them for the first,  
And my heart swells, while the dilated  
sight  
Takes in the encircling vastness. Lo! they  
stretch  
I airy undulations, far away  
As if the Ocean, in his gentlest swell,  
Stood still, with all his rounded billows  
fixed,  
And motionless forever.  
Motionless?--  
No--they are all unchained again. The clouds  
Sweep over with their shadows, and, beneath,  
The surface rolls and fluctuates to the eye;  
Dark hollows seem to glide along and chase  
The sunny ridges.  Breezes of the South!

...For this magnificent temple of the sky--  
With flowers whose glory and whose multitude  
Rival the constellations! The great heavens  
Seem to stoop down upon the scene in love,--  
A nearer vault, and of a tender blue,  
Than that which bends above our Eastern  
hills.

...As o’er the verdant waste I guide my  
steed,  
Among the high rank grass that sweeps his  
sides  
The hollow beating of his footsteps seems
A sacrilegious sound. I think of those
Upon whose rest he tramples. Are they here--
The dead of other days?--and did the dust
Of these fair solitudes once stir with life
And burn with passion? Let the mighty
mounds
That overlook the rivers, or rise
In the dim forest crowded with old oaks,
Answer. A race, that long passed away,
Built them…”

William Cullen Bryant (circa 1832)
(Engel and Julius 1985, 5-9).
# APPENDIX A
## COMPARING PRAIRIE AND CEMETERY

(Created during data gathering process)

<table>
<thead>
<tr>
<th>Historic Value</th>
<th>Prairie</th>
<th>Cemetery</th>
</tr>
</thead>
<tbody>
<tr>
<td>The percent of prairie left in Illinois is very low and Prospect Cemetery is one of the last remaining remnant prairies.</td>
<td>Were cemeteries in central Illinois, used for anything else besides burial. Park...</td>
<td></td>
</tr>
<tr>
<td>Remnant prairie is threatened (one postage stamp example)</td>
<td>Settlers view of management, &quot;honored to be buried under the blazing stars&quot;</td>
<td></td>
</tr>
<tr>
<td>Some of the native plants found in Prospect Cemetery Prairie are the only ones found in Ford County.</td>
<td>Some headstones moved to new cemetery and bodies left behind, some bodies exhumed and moved to new cemetery along with headstone, some headstones and bodies left at Prospect Cemetery (State archeologist and historian studying this for the site)</td>
<td></td>
</tr>
<tr>
<td>Why prairie survived when associated with cemetery</td>
<td>Why cemetery was located on particular sites and why prairie was still there</td>
<td></td>
</tr>
<tr>
<td>How to honor natural heritage</td>
<td>How to honor cultural heritage</td>
<td></td>
</tr>
</tbody>
</table>

| Native plants were here before settlers arrival | Prairie provided the source for our economy | Settlers broke ground and develop a way of life by living off the land. |

| Native plants provide a genetic history and seed bank | Cemetery provides a story into our past: headstones provide family ancestry, veterans, other information | |

| Prairie is protected (how, when, why this happened) | Views on management of cemeteries changed (when did this view change and why) | |

<table>
<thead>
<tr>
<th>Management</th>
<th>Low management: To begin intensive management is needed to restore prairie eventually less intensive management once native plants are reestablished</th>
<th>Intensive management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable environment (if left as prairie)</td>
<td>Unsustainable environment (if intensively managed)</td>
<td></td>
</tr>
<tr>
<td>Biological diversity</td>
<td>Monoculture</td>
<td></td>
</tr>
<tr>
<td>Burning vs mowing</td>
<td>Mowing</td>
<td></td>
</tr>
<tr>
<td>Native prairie plants</td>
<td>Grass</td>
<td></td>
</tr>
<tr>
<td>Remove invasive species: pulling by hand, pick up trash (which could include artificial flowers)</td>
<td>Ornamentals and artificial flowers</td>
<td></td>
</tr>
<tr>
<td>Can provide seeds for establishing prairie and genetic diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How does burning or mowing of prairie affect other prairie species (future research)</td>
<td>Concern burning prairie could cause damage to headstones</td>
<td></td>
</tr>
<tr>
<td>Mowing or disturbing native species causes an edge effect; degrades biological diversity</td>
<td>Control plant height to prevent plants from covering headstones and make it easier to walk in and see what is going on at the ground level</td>
<td></td>
</tr>
<tr>
<td>Nature preserve identify prairies for protection</td>
<td>Headstones need repair and maintenance because they are old and fragile</td>
<td></td>
</tr>
<tr>
<td>Less time spent managing</td>
<td>More time spent maintaining if not left as prairie</td>
<td></td>
</tr>
<tr>
<td>Prairie is protected through Nature Preserve Commission regulations: can not remove native plants...</td>
<td>Nature Preserve Commission regulations allow the maintenance around burial areas: can maintain around headstones, move burial sites,...</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aesthetics</th>
<th>Native plants have aesthetically pleasing attributes</th>
<th>Headstones have intricate designs and can be fascinating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some view prairie as unkempt (&quot;just a bunch of weeds&quot;)</td>
<td>Some view cemetery in unkempt</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other factors and future concerns</th>
<th>Fear of nature: the unknown, want to control nature (ticks, snakes, other critters, tall plants that block views, unsure of what might happen if in the prairie)</th>
<th>Fear of death: the unknown, want to control burial space, to tame nature in cemetery, and dead people can be a scary topic to some</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vandalism of prairie: rare species being removed</td>
<td>Vandalism of headstones: damaged</td>
<td></td>
</tr>
<tr>
<td>Food and habitat for wildlife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degrading prairie</td>
<td>Increase cost to maintain</td>
<td></td>
</tr>
<tr>
<td>Invasive species taking control of remaining prairie</td>
<td>Reliance on fossil fuels</td>
<td></td>
</tr>
<tr>
<td>Prairie could lose to human pressure for control</td>
<td>Human's trump ecology most of the time</td>
<td></td>
</tr>
<tr>
<td>Prairie could be saved by people who respect nature and want to preserve what is left</td>
<td>How should we treat the remains in the cemetery, Does anyone care about the settler's buried in this cemetery</td>
<td></td>
</tr>
<tr>
<td>Education and tourism potential: to learn about prairie species, explain how it was and still is to some extent the source of life and economy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Ecology and tourism potential: to learn about settlers and their lives | | |
### APPENDIX B

**STATUS OF CEMETERY PRAIRIES**

<table>
<thead>
<tr>
<th>Site Name</th>
<th>County</th>
<th>Protection Program</th>
<th>Burials</th>
<th>Graves***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomlinson Pioneer Cemetery Prairie</td>
<td>Champaign</td>
<td>Nature Preserve</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Welles Cemetery Prairie</td>
<td>Champaign</td>
<td>none</td>
<td>no**</td>
<td>no</td>
</tr>
<tr>
<td>Prospect Cemetery Prairie</td>
<td>Ford</td>
<td>Nature Preserve</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Loda Cemetery Prairie</td>
<td>Iroquois</td>
<td>Nature Preserve</td>
<td>no*</td>
<td>no</td>
</tr>
<tr>
<td>Pellville Cemetery Prairie</td>
<td>Vermilion</td>
<td>None****</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Fairchild Cemetery Savanna</td>
<td>Vermilion</td>
<td>Nature Preserve</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

* Cemetery remains open to new burials but is not in the prairie.
** Cemetery remains open to new burials but is not in the prairie if cemetery association feels cemetery needs the space could become burial space.
***There could be unmarked graves in all of the sites.
****Department of Natural Resources and Pheasants Forever habitat area to the south and east of the cemetery prairie.
APPENDIX C

ILLINOIS NATURE PRESERVE REGULATIONS: TRAILS

Title 17: Conservation

Chapter V: Nature Preserves Commission

Part 4000: Management Of Nature Preserves

Subpart A: General Provisions.

Section 4000.260 Trails

a) The establishment or rehabilitation of trails in a nature preserve may be proposed in writing to the Commission with the prior approval of the landowner. Trails shall conform to the objectives of the nature preserve as stated in the master plan or management schedule. Trails shall be laid out so as to affect only part of the preserve and shall have minimal impact on natural features. Trails should have no adverse impact on endangered or threatened species or fragile or limited natural communities or features, pursuant to Section 11 of the Illinois Endangered Species Protection Act [520 ILCS 10/11].

b) The design and routing of any trails other than natural wildlife paths shall be specified in the master plan or management schedule. Trails shall be adequate to provide for permitted use of a preserve and to prevent erosion, trampling of vegetation, and other deterioration, but otherwise shall be kept to a minimum. Use of paving materials, footbridges, and elevated walks is permissible when provided for in the master plan or management schedule. Synthetic materials, painted or chemically treated wood, or stone or earth materials from outside the preserve may be used in trail construction only as provided in the master plan or management schedule.

c) Trail construction shall not threaten the continued existence of any population of a native plant or animal species in a nature preserve. No plant species listed as endangered or threatened pursuant to [520 ILCS 10/7] or designated in the master plan as a species of management concern shall be removed, damaged, or cut in trail construction or maintenance.

d) Any proposal for trail development or rehabilitation should address the suitability of the site for providing handicapped accessibility, considering factors such as the type of natural communities, soils, slope, topography hydrology, size of the nature preserve, and any threatened and endangered species habitat. Providing access to disabled persons is encouraged; however, public access is not a requirement of nature preserve dedication and is secondary to protection of the nature preserve. Consistent with the Americans with Disabilities Act of 1990, P.L. 101-336, modifications to provide handicapped accessible trails are not required if such construction would harm the features for which the preserve was dedicated or where conditions such as steep slopes or saturated soils make it infeasible to meet regulations.

(Source: Amended at 18 Ill. Reg. 2290, effective January 31, 1994)

(For a full list of all regulations related to nature preserves you can see them at http://dnr.state.il.us/INPC/protection.htm).
REFERENCES


Corner, James, and Alex S. MacLean. 1996. Taking Measures Across the American Landscape. New Haven: Yale University Press.


Daniels, Stevie. 1995. The wild lawn handbook: Alternatives to the traditional front lawn. New York, New York: Macmillan USA.


United States. Congress. House. Committee on Resources. Subcommittee on National Parks and Public Lands. 1997. *Hearing on H.R. 588, to amend the national trails system act to create a new category of long-distance trails to be known as national discovery trails, to authorize the American discovery trail as the first trail in that category, and for other purposes; and H.R. 1513 ... the Lincoln National Historic Trail ... : Hearing before the subcommittee on national parks and public lands of the committee on resources, house of representatives, one hundred fifth congress, first session ... June 10, 1997--Washington, D.C.* Washington: U.S. G.P.O. : For sale by the U.S. G.P.O., Supt. of Docs., Congressional Sales Office.


