Rootstalk

A PRAIRIE JOURNAL OF CULTURE, SCIENCE, AND THE ARTS

VOLUME III, ISSUE 1, FALL 2016

Rootstalk, *Fall 2016*
Volume III, Issue 1
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A note on this issue's multimedia features: In order to access all the media in this latest issue of *Rootstalk*—including content featuring embedded sound files—you'll need to download the interactive PDF version (approximately 61 MB) and, once you've done so, open it using the Adobe Acrobat Reader. If you don't already have the Adobe Acrobat Reader installed on your computer, you can download a free copy from www.adobe.com.

Cover image: Rachel Melis, "Caged Eaglet"
from "Unsexed and Unsphered: Volume 1"
2011, 7 ½ x 5 ¾" (closed). Hand-painted copper engravings on gampi paper and letterpress-printed text on Rives heavyweight paper.

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"Fluoresce," Watercolor on recycled paper, 12" x 9", by Shelby Prindaville, 2014

Publisher's Note

Photo courtesy of Jon Andelson

Jonathan Andelson

Director, The Center for Prairie Studies, Grinnell College

Where is the Prairie?

We call *Rootstalk* "a Prairie Journal of Culture, Science, and the Arts." A few words, then, about the word *prairie*. We think of prairie as the ecosystem that dominated North America's central portion, roughly from Illinois to the Rocky Mountains and from southern Canada to Texas. It comprised thousands of species of plants, animals, and microorganisms in soil, water, and air, all shimmering in a web of life. But note the use of the past tense. Much has changed in the prairie region.

Rootstalk's published in Iowa at Grinnell College, and the fact of the matter is that in Iowa and contiguous states, the prairie has virtually disappeared. An overwhelming human presence has risen, bringing with it industrial agriculture on a scale unprecedented anywhere. In 1850, tallgrass prairie covered 80 percent of Iowa; today, less than one-tenth of one percent of the original Iowa prairie remains—surely one of the most rapid and complete destructions of an ecosystem in human history. So: what does it mean to say *Rootstalk* is a prairie journal?

Here's our answer: we resolutely believe prairie remains a living presence in the actions and thinking of those who live here. Prairie ecosystem processes took thousands of years to make the Midwest's soils among the most productive in the world. Farming is paradoxically both the main beneficiary of the prairie ecosystem and the primary cause of its demise. Midwestern agriculture is a direct consequence of the prairie ecosystem.

Another prairie legacy is the region's characteristic settlement pattern: a blanketing of family-run farms, a scattering of small and mid-sized towns, and a few larger cities. This is how agricultural production and the population supporting it were organized, and it reflects also how that production was marketed. In recent decades we've seen the pattern shifting: farms are fewer and larger, and many small towns are shriveling while cities grow.

For 150 years, agriculture—hence the prairie—has shaped the region's human presence. From the planned removal of the Indians and the influx of white settlers, to the later arrival of African-Americans to work in the coal mines and factories, the region's myriad peoples and stories have all been impacted by the prairie. As agriculture began its mid-twentieth century pivot toward industrial methods of production, people left farms for cities. Latinos entered the region to accept difficult jobs in the meat-packing industry, and many with advanced educations departed for the coasts. Artists, writers, and musicians documented and commented on the changes in the region, and through time religious leaders sought to address the spiritual needs of those experiencing all of these changes.

To us at *Rootstalk*, then, the prairie is an ecosystem, but much more. The prairie is a geographical region host to generations of rich and sometimes difficult history. It is a suite of memories and ideas about wholeness, diversity, loss, conflict, community, and change. Today, many in the region are working to protect and restore prairie. Perhaps this is a harbinger of and model for a broader renewal in a challenged region.

"*Summer Haze,*" Oil on canvas, 12" x 60," by Jane Pronko, 1988

Editor-in-Chief

Photo courtesy of Mark Baechtel

Mark Baechtel has nearly 30 years of publishing experience behind him. He received his B.A. cum laude in print journalism from The American University in Washington, DC, and his M.F.A. in fiction-writing from the Iowa Writers' Workshop, where he was selected as an Iowa Arts Fellow and a Summer Teaching/Writing Fellow. He is author of *Shaping the Story*, a textbook guide to short story writing (Longman, 2003) and has taught writing and publishing classes at the University of Iowa, Grinnell College and various art centers, as well as working as a professional book editor. His writing has appeared internationally in newspapers, magazines, journals and anthologies, and he has been a regular book reviewer for *The Washington Post*. He is currently polishing the stories in a collection of short fiction, entitled *What Moves and What Is Still*, and is at work on a novel entitled *Renovation*.

Developmental Editors

Photo courtesy of Jeremy Epstein

Jeremy Epstein hails from the Boston area, but if he had had any say in the matter he probably would have grown up in the woods of northern New England, or perhaps on the coast of Maine. A dedicated student at Grinnell College, he likes dancing, cooking, and exploring the little hills of Iowa on his bike.

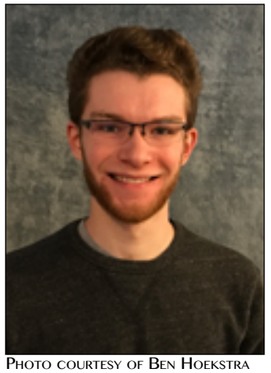

Photo courtesy of Ben Hoekstra

Ben Hoekstra was born in Mason City, Iowa in 1997 and has lived in the Midwest ever since. He graduated from Mason City High School in 2015 and is now in the class of 2019 at Grinnell College. He is a chemistry major involved in instrumental and vocal music at the college and intends to pursue an advanced degree in chemistry after graduating from Grinnell.

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Photo courtesy of John P. Lee

John P. Lee *is a native of Mason City and graduated from Mason City Newman High School and the University of Northern Iowa. He has taught at Mason City High School since 1995 and currently teaches American History and American Government. He was elected to the Mason City City Council in the fall of 2011.*

The Cost of Opportunity: Big Pork Comes to Mason City

John P. Lee

Mason City is a mid-sized Midwest rural community in North Central Iowa. Its population in the 2010 census was 28,052. Although our town has grown into a significant retail center for North Iowa, and there has been great buzz around the world in regards to our architectural and cultural history, Mason City (www.masoncity.net) has fallen on hard times. From the early 1900's to about 1980, it was a growing city with great industry and retail. After the farm crisis of the 1980s and with its aging demographic, it has been slowly declining in population. Many industries left or closed during the recession of 2007-08. In the late 1970's, our graduating classes had been between 500-600; they have since fallen to just under 300.

I am an American History and American Government teacher with over 20 years of experience. As with many American History teachers, I have taught theory of politics, economics, and interpretation of history. But when I was elected to Mason City's city council in 2011, my decisions and thoughts were no longer located merely in the world of theory. My decisions were going to have consequences, for better or for worse. I ran on three basic pledges: I would help to build for Mason City's future while maintaining its rich cultural past; I would continue to work toward the enhancement of amenities for individuals and families, and I would listen to all citizens, helping to create an environment of compromise and open dialogue. In the spring of 2016, these pledges seemed to collide. An economic deal between Prestage Farms (www.prestagefarms.com), a North Carolina-based large-scale turkey and pork producer, and Mason City would be proposed and debated until the final city council vote May 2nd, 2016.

I received a call in late February 2016 from our local Economic Development Coordinator, Chad Schrenck. He wanted to fill me in on a possible development which would be the largest tax revenue source for the city, four times larger than that produced by the next closest industry. At the meeting, I learned the company in question was going to be a pork processor, the Mason City plant was going to have a $100 million guaranteed valuation, and it planned to hire up to 2,000 employees. It seemed like the kind of home run economic developers look for, the kind which could be a game-changer for Mason City. We did talk a little about the cultural impact a plant of this size would have on our community. These 2,000 new workers would come primarily from Bosnia, the Democratic Republic of the Congo, Central America, and Southeastern Asia—demographic groups generally not well represented in the rural Midwest. I immediately realized that there would be a push-back, but grossly underestimated the magnitude and severity of the opposition.

[The proposed Prestage pork-processing plant] seemed like the kind of home run economic developers look for, the kind which could be a game-changer for Mason City.

Over the next couple of weeks, I started researching meat packing companies both small and large. One book I came across was *Postville U.S.A; Surviving Diversity in Small-Town America*, (http://scholarworks.uni.edu/facbook/186) written by University of Northern Iowa professors Mark Grey and Michelle Devlin and former Postville City Councilman Aaron Goldsmith. This book became the basis for all my research and questions. The book details the lead-up to the May 12, 2008 Immigration and Customs Enforcement (ICE) raid on the Agriprocessors kosher meatpacking plant in Postville, and the ensuing fallout. At the time, the authors say, this was "the largest raid of a single-site employer in United States history, strip[ping] the meat plant of most of its workforce, and cut[ting] Postville's population by more than 20 percent." The authors don't lay guilt for this disaster at the feet of any one person or group, but rather discuss how many influences and entities came together in the event: Orthodox Jews, Hispanics, the American Midwest, ICE, the U.S. judicial system, and corporate interests. By the end of the book, Professors Grey and Devlin and Mr. Goldsmith had many suggestions concerning how the two parties—the corporations and the local communities—might have worked together for their mutual benefit. To me, the most important conclusion was simple: any company like Agriprocessors must realize its role in making such a venture a success, and it must be willing to meet the needs of the community in which it is located.

I ended up meeting with Professor Grey in person and having several phone conversations with him. When the City Administrator and I met him in Cedar Falls in late March, he gave us some questions to ask representatives of Prestage (by now, the name of the company had been made public). Most of the questions concerned hiring practices, where the workers would be coming from, and whether there was a plan of for helping workers assimilate into the local area. Nowhere in the discussion did we talk about environmental concerns, or the impact that slaughtering 10,000 hogs a day would have on the local environment.

Our first meeting in the process of coming to a development agreement was very significant. At this meeting, my fellow councilman Alex Kuhn and I were very optimistic, but we both made comments and expressed concerns. Councilman Kuhn's comments centered more on the workers' pay and how much we would rebate tax revenue to Prestage; mine concerned the funding gap to the schools. Since the money we received from property taxes always lags behind expenses by a year, the schools would have to come up with the money up front. Plus, the property taxes would not be enough to allow us to recoup the money lost the previous year. By my calculation, there would be a five-year funding gap before the revenues caught up to the debt. My concern was simple: the year the company opened with a po-

tential for 351 new households and 700 new students in our local school system (David Swenson, ISU), the cost to the school would be immediate. However, property taxes are all paid a year later, meaning that the tax revenue we would depend on to help defray these expenses would lag 12 months behind. Even assuming the students came in speaking English and didn't require any extra services or support, just the sheer number of students would require the schools to hire new staff and incur additional expenses. That would mean, under the most optimistic projections, the schools would potentially have to come up with a million or so dollars to prepare for this new influx of students, regardless of the students' language background. If the new students came in needing support from ESL (English as a Second Language) and teachers needed more training to educate, as well as the support of more paraprofessionals, it would create a catastrophic demand in a system already on a stretched budget. The revenue the schools received simply could not cover those costs.

Photo courtesy of Sandy Moffett

As I was waiting for specific numbers regarding the funding, over the next couple of weeks things started getting really loud. I would estimate that over a three-week period I received over 1,000 emails concerning the proposed plant, with probably about 80 percent of them against the proposed plant. Additionally, I received nearly 100-150 phone calls from similarly opposed citizens. However, when I was out and about in town, most of the people who came up to speak to me about the project were in favor of it. Most people's concerns fell into three basic areas.

First, they were concerned about the impact the Prestage facility would have on the Environment—specifically, the potential impact on air or water quality, and the impact on the Jordan aquifer from which Mason City draws its water.

Second, people were worried about cruel treatment of the animals. What would be the conditions in a facility slaughtering 10,000 hogs a day? How would the animals be penned?

Third, my constituents wanted to know what impact the influx of new citizens would have on Mason City's culture, as well as what the cost would be of absorbing a large group of new citizens into our population.

The most common and visceral argument was the one concerning environmental impact. The city had not commissioned an environmental impact study, which, in retrospect, it should have. But city staff did work closely with the Iowa DNR, and DNR's conclusions were favorable for the city and Prestage. Prestage intended to use new technologies to greatly reduce the smells of the rendering. The company's plan also called for the plant's waste to be pretreated and for the hogs to be confined in such a way that ground run-off of their waste would not be a threat to the environment. The company also advanced the argument that the risk for pollution was minimal anyway, as there was no river or stream for the waste it to run into.

These were not concerns which I considered as I weighed how I would vote on the proposal. I thought that the smell would not be any different than many other smells common in Iowa. I did not believe the smell would be a daily or even weekly event. Most of the people who argued that the plant would produce a horrible stench brought up towns like St. Joseph, Missouri, or Sioux City, Marshalltown or Storm Lake, Iowa. They argued that if you visited these towns, you would find out how horrible it smells. However, I discovered that this isn't always the case. When I visited Marshalltown, for instance, there was no vile smell. Councilman Bill Schickel went to St. Joseph and he said that while there

was a slight noticeable odor in the industrial area, he wasn't sure what building it was coming from, and at all events, he wouldn't say that the smell was vile. Many of the people who were arguing about the smell were mostly talking about Concentrated Animal Feeding Operations, or CAFOs. People opposed to these type of facilities often misuse or misunderstand this term. CAFOs can house animals and not 'confine' them in tight quarters. Hogs which meet the technical definition for being "free range" can nonetheless be seen as being confined in a CAFO because of their sheer numbers. I felt the CAFO opponents were misrepresenting the argument, and also were attacking farmers. Here is where many of the big worries lie.

[O]ver the next couple of weeks things started getting really loud. I would estimate that over a three-week period I received over 1,000 emails concerning the proposed plant...

As regards the second concern—about cruel treatment of animals—I would say that this argument had little effect on my decision. Full disclosure: I love my barbeque. I felt I would be a hypocrite if I condemned facilities such as the one being proposed for how it raised its animals. Americans want good meat at a great price, and companies like Prestage try to accommodate our appetites. Also, Iowa law is very clear on these types of operations; if the design and operations meet the requirements of the Master Matrix, (http://www.iowadnr.gov/Environmental-Protection/Land-Quality/Animal-Feeding-Operations/Confinements/Construction-Requirements/Permitted/Master-Matrix) then a local or country government cannot prevent construction of a CAFO in the community. This is battle for the state, not the cities. My focus of concern was always finding an answer to the question: "Should we be incentivizing Prestage to come to our community? And if so, by how much?"

The third argument was the most involved, and probably the most problematic. How do you have a public discussion about different ethnic groups, hiring practices, housing issues, crime rates, and language barriers, without sounding racist? One of my conversations with Professor Gray concerned this exact topic, and he gave me fair warning. Gray said that housing would be an issue for many different reasons, that crime rates ought to be an absolute concern, and that the language barrier between many workers, the local businesses, and—most importantly—between local police and city staff, should receive serious attention. Gray said the different cultures, their expectations and cultural practices would be a concern, and he urged that any discussion of these issues should occur between the city, its citizens and the company; however, he stressed that it ought to be kept from crossing the line into racism.

There have been many studies which touch on these issues. One article, citing a study done by Professor Georgeanne Artz from Iowa State University, appeared in 2012 in Choice magazine, an online publication. In this article, entitled, "Immigration and Meatpacking in the Midwest," Professor Artz looked at hundreds of communities and the impact on hard and soft cost of the type of plant Prestage represented. In our case, these costs would include the 'hard' costs of tax rebates to companies, as well as the 'soft' costs created by additional demands on social services and city staff by the new residents. While hard costs can be predicted and recorded; soft costs are much more difficult to predict or to even record as they occur. If the Prestage plant opened, it would create a drain on city staff time, as staff worked through the issues that would certainly follow, leaving them with less time to work on other issues that would arise in the normal course of meeting the day-to-day needs of the city.

Professor Artz argues that there is no clear relationship between crime rates and slaughter facilities. In another study, however—this one from Michigan State University, entitled "Slaughterhouses and Increased Crime Rates"—researchers argued there *is* a correlation. These articles are good examples of the sorts of conflicting 'evidence' that were presented in this hostile

public debate. Each side found information that supported its stance and its claim to the truth. My job as a city councilman was to sort through all of this data and try to make the best decision based on the information it provided.

On March 22nd, the Mason City City Council voted unanimously to move ahead with negotiations with Prestage, and thus the formal application to the Iowa Development Economic Authority for state funds began. This was the beginning of the public discourse. At an April 5th meeting, another unanimous vote was taken to proceed with negotiations. However, at this meeting Councilman Kuhn warned City staff and Prestage that if he didn't see terms more favorable to Mason City, he would vote 'no' at the next meeting. At the meeting, I voiced a concern to Prestage that they needed to be partners with the town and they responded positively with a promise for better terms. However, the April 5th vote decided if city staff would continue to negotiate with Prestage and did not finalize conditions of our deal.

As the days slowly became weeks, and the weeks began to feel like years, it was coming closer and closer to May 2nd—the day scheduled for the final vote, the day when all this research and theory must be weighed and a decision reached. How would the council vote?

The second official vote took place on April 21st. That night, the vote was five to one with councilman Kuhn the only dissenting voice. This April 21st vote set a public hearing on the final development agreement between the City of Mason City and Prestage Foods. I voted "yes" to set the hearing. By now I was becoming skeptical on whether or not this was a good idea, but felt we needed to continue to move ahead and remain positive. To me, it seemed best to stay upbeat so that if this development passed—whether I liked it or not—Mason City and Prestage would start off their relationship on the best possible footing. Additionally, I felt that changing from a "yes" vote to a "no" vote would be easier than changing from a "no" vote to a "yes" vote—I did not want to lock myself into a position from which I could not return. I also couldn't see a reason to vote "no" to set a public hearing; Councilman Kuhn told me he didn't see a path to a "yes," and therefore voted against the hearing on April 21st.

Through a discussion I had with Kuhn the night of the second vote, he made it very clear that he felt the city needed to recover most of the property taxes to be able to pay for the extra demand a plant of this type and scope would place on the local services. I did not talk with him again after the second vote until about an hour before the final meeting. Over the course of the next couple of weeks, I had conversations with some of the other councilmen and staff. It appeared that this resolution was going to pass, but I had great reservations concerning the cost and the impact on the local school district. About one week before the final vote, I received the estimates of costs and revenues that the schools were expecting.

> [W]as I ready to "kill this deal?" In fact, I had come to believe this was not the best agreement for Mason City.

Frankly, the numbers shocked me. They were much worse than I had anticipated. Up until that moment, I had tried to look at this emotionally charged topic through the lens of logic, and what the numbers and scientific studies told me. At this point, I could not just disregard the numbers that concerned me. John Adams famously said, "Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passion, they cannot alter the state of facts and evidence." To me, this proposed plant, based on the 50 percent tax rebate to Prestage over the next 10 years, was going to cost the city more money than it was going to bring in.

Public opinion made up another important part of this equation—one which is really impossible to quantify. Freedom of speech is the cornerstone of our American republic, and the full and fair trial of all ideas in the public arena should be seen as a freedom-of-speech issue. The job of concerned citizens should be to win that public argument by convincing unsure voters of their position. The Prestage debate provides a prime example of the significance of public debate and the reason it's important to 'win' it. In most situations, 20-30 percent of the people will always be in favor of a measure, and another 20-30 percent will oppose. The middle 40-60 percent will determine the winner. During the Prestage debate, the opposition was much more vocal in stating its position and its arguments.The citizens in favor were much less vocal, and were not really even seen in the public eye. I would say approximately 30-35 percent of Mason City's citizens were passionately against bringing in the factory, and about 10-15 percent were passionately in favor of it. The other 50 percent were indifferent. I considered this, along with the discussions I had with the different professors and the studies I had read, and it seemed to me that, for a plant of this magnitude to work, the people would have to really support it, not be indifferent to it. The local citizenry would have to be willing to very involved in the success of this type of industry.

The meeting On May 2nd promised to be another seven-hour marathon. The previous two meetings had both been about that long, and the final vote promised to be the same. Going into the meeting, I knew I was most likely a "no" vote, as was Councilman Kuhn. I had talked with Councilman Schickel before the meeting and was aware of his concerns, but I didn't know he, too, had changed his vote from "yes" to "no." After about six hours of citizen comments, it was the turn of the councilmen to speak. Before I talked, Councilman Schickel—who was at home recovering from a medical procedure—was put on speakerphone. In his speech, Shickel said his position was a "no." At this point, I realized—with two votes surely being "no" and three votes surely being "yes"—that I would be casting the deciding vote. A tie vote would mean the deal would not have a majority and would not go forward.

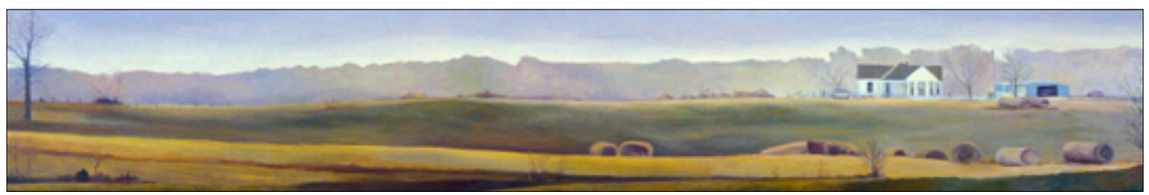
I had to make the decision quickly—was I ready to "kill this deal?" In fact, I had come to believe this was not the best agreement for Mason City. I made my speech to that effect, and stuck with my "no" vote. With the final vote being a three/three tie, the Prestage deal failed.

In *Postville U.S.A.*, Grey, Devlin and Goldsmith speak directly to the topic of community support. If a community doesn't support a venture as it is developed, then in time it is doomed to fail, and the divide between the citizens voting for and against will only worsen. Regardless of whether a given project is judged to be a 'good' or a 'bad' idea, the perception of the community is what will determine the outcome. Henry Ford once remarked "If you think you can or you can't you are right".

Ford's statement sums up the battle for me. If 70 percent or so of the community had wanted the Prestage plant, then maybe rolling the proverbial financial dice would have been worth it. As it was, I was not willing to make that wager.

Like most people in Mason City I felt conflicted concerning this issue. The decision-making process took a very large emotional toll on this community and the ramification are still being felt. The debate created personal divides between very good friends and even spouses. People still come up to me to thank me for my vote, and on a few occasions, people have told me I made the wrong decision.

They say time heals all wounds; Mason City is going to put this expression to the test.



"*Leeway*," Oil on canvas, 12" x 60," by Jane Pronko, 1987

Photo courtesy of Michael Cavanagh

Michael Cavanagh (https://www.grinnell.edu/users/cavanagh), Professor Emeritus of English, was raised in the San Francisco Bay Area, but has taught his favorite authors, mainly poets, at Grinnell, for almost four decades. He has spent much of that time trying to make peace with Iowa, not an easy thing to do for a Californian. In this endeavor his granddaughter Kate Cavanagh has helped. Cavanagh's book on Seamus Heaney, Professing Poetry (https://muse.jhu.edu/book/20889), *came out in 2009. He has just finished a book on John Milton's* Paradise Lost, *geared to first-time readers of that fabulous poem. Cavanagh's poems have appeared in several magazines.*

A Girl's Song

For Kate

Michael Cavanagh

Whenever I think of leaving home
And being anywhere but here,
I see clouds like soft potatoes
And rains with their droplets watering my hills.
Whenever I hear the hateful wind blow dirt along the roads
I hear cardinals singing in the bare trees.
Whenever I feel I want to be alone
I think about that poor cottonwood in the next field.
Whenever I think about my Grandma and Grandpa
Who are gone from sight,
I think of a sky you can see anytime.
Once in my dreams I was in that sky.
I heard a beautiful voice below me.
I shot from the sky in a blaze
To a place just outside my bedroom window
Where now I stand,
Where I love being a girl,
Where someday I will be a woman,
With my feet on the ground,
Looking up always at the sky,
In Iowa.

Photo courtesy of Jane Pronko

Paintings by Jane Pronko

Jane Pronko (http://janepronko.com) was born in East St. Louis, Illinois. She has lived and worked in the Kansas City Area since graduating from the University of Kansas.

Her work is represented in a number of public, corporate and private collections in the US, Europe and Japan. She is best know for her paintings of urban landscapes of Kansas City and New York, NY.

"Dorothy Doesn't Live Here Anymore," Acrylic 24" x 36," by Jane Pronko, 1979

Photo courtesy of Chris Wiewora

Chris Wiewiora *(www.chriswiewiora.com) earned an MFA in Creative Writing and Environment at Iowa State University. After graduating, he worked a variety of odd-jobs including crossing guard, gardener, carpenter's assistant, dishwasher, and bus driver. His nonfiction has been published on* The Awl *(www.theawl.com),* The Billfold *(www.thebillfold.com),* The Hairpin *(www.thehairpin.com),* The Rumpus *(www.therumpus.net), and many other magazines beginning with the definite article "the." He hosts the author interview show BOOK CENTRAL on the Story City/Ames community radio station KHOI—"Heart of Iowa."*

Cardinal

Chris Wiewiora

On Fridays, the café at Frederiksen Court in Ames, Iowa, offers one dollar off all Starbucks drinks. I use the café as my need-to-pee location on the bus route I drive. My CARDINAL bus cycles around the volleyball courts and picnic tables in the grassy median of Freddy Court's several dozen dorm buildings, and then loops around Iowa State's central campus. The route is shaped like a figure eight, but riding the wheel doesn't feel like infinity. Maybe it's because a cup of coffee fits perfectly in the triangle space made between my radio speaker, tally counter, and dashboard.

~

Today, another end of the week in April, Lauren wears a septum piercing. She glances up at me and then away as if an invisible thread pulls her nose ring to the espresso machine. She shouldn't be ashamed to be a student—one of my former students—and working a service job. I want to tell her I worked at a coffeeshop and it paid my rent as well as supplying my caffeine throughout my undergraduate studies.

Then, I wonder if she's embarrassed to see me driving for CyRide—a bus system named after the school's mascot of a cardinal caught in a cyclone. I was a graduate student. I was her teacher. And this—riding the wheel—is the job I have with my degree and experience?

I don't think she thinks this about me. She was one of my innovative students from the College of Design. I remember when she suggested that ISU install a ski lift-like rail system like the one that connects the campus of West Virginia University. WVU has the same enrollment as our school, and their system has a lower cost than CyRide.

Drivers wouldn't be keen on their chauffeuring jobs transitioning to automated ferries, but isn't that the future? If gas engines are kneeling to electric batteries, then won't drivers eventually be phased out? I want to tell Lauren that now I know the future is not a savior; it's a gravedigger at worst and a zombie at best.

~

Back in 2003, Ames considered installing light rail. The plan called for it to run from downtown through campus and then out west where most of the students live. Maybe the tracks could have also gone north to the Mall. Basically, the light rail would mirror an L—zipping up and down Grand Avenue and then along Lincoln Way.

Light rail would have cost Ames only three million dollars. The total cost would have been 60 million dollars, which state and federal government grants would have paid. So, the city would have paid five percent. Still, the city thought the cost too much.

Who knows what the university would have contributed, but ten years later, ISU began to push enrollment toward 40,000 students. When I attended, the campus already felt maxed out as it corralled over 30,000 students and CyRide's ridership increased by one million passengers per year. ISU's student body fees pays 60 percent of CyRide's budget. When I started driving, CyRide projected 10 million dollars for operating expenses to provide an estimated seven million rides per year.

~

In the loop, outside Freddy Court's café, Ryan gets out of his bus and strides over to my window. I'm waiting to start my "extra" shift where I help out the scheduled bus. Ryan talks faster face-to-face to me than when I've heard him on the radio. *WhenyoustartCARDINALyouwannaholdbackatthecafeuntilthefirstbuscyclesaroundthevolleyballcourtsandthenfollowasextra.* His oval wraparound sunglasses settle under his mop of brown hair. The lenses look like alien eyes. Ryan is a full-timer who's trying a little too hard to become a lifer. He gives obvious advice to new drivers like me. There's no amount of niceness that gets you into the top-twenty with benefits. It's only how much you have ridden the wheel—your seniority—that boosts you up the list.

Ryan holds up his hand and splays out his fingers, opening a space between his middle and ring finger. Live long and prosper. I don't know if I can by riding the wheel.

~

I mostly ride the smaller wheel of CyBrids on CARDINAL because of its bulkiness. The CyBrid hybrid bus's roof is higher than that of other buses, and that makes clearance under overhanging buildings and trees a hazard. So, CyBrids are used for routes around campus, where there aren't any awnings to skirt under or boughs draping into the street. While CyBrids guzzle less gas, they're 3,000 pounds heavier than the other buses in the fleet, and they tear up the roads more with that additional weight. Nonetheless, though the steering is smoother, the brakes apply in three clinches and build up lots of rebound. CyBrid's batteries charge up as the bus slows down. The brakes create heat from friction while stopping and the bus stores that energy in its battery. After releasing the brake pedal I have to wait for a clunk—the sound of the CyBrid's engine shifting back into drive—before pressing on the gas, so the bus doesn't lurch. Students going to and from class are more forgiving of the start and stop of a CyBrid than citizens riding through the city.

~

It's warm and sunny and cloudless. I've got all the windows open. I slant the front vent to suck air in and then send it along the ceiling to the tilted rear hatch. I've not used the a/c yet, and I'm trying to see if I can get to the end of the semester without blasting the Freon.

Students wear cotton hoodies; maybe a rayon sweater. Some wear shorts and their pale skin gleams whiter than the still-patchy snow on the ground, unless they do sessions at Sun Tan City and look rusty.

~

422 CARDINAL to CARDINAL EXTRA, 10-32? I ask the bus in front of me if they're supposed to skip the stop, because it's time for me to roll.

10-77. I've got some time here, still. My extra disagrees.

10-76 to the front of Freddy, I say, indicating that I need to get rolling because my watch says I'm already late.

10-36 is 9:42 and 10,11,12 seconds… Dispatch interrupts to offer the correct time.

I set my watch back.

~

In the 1860s Billy Childs and his brother had operated the stagecoach line with his horse drawn carriage through Ames. Then, on July 4th, 1891, Ames's first engine-driven public transit system rolled along tracks laid on the rutted dirt road from downtown to the campus of Iowa Agricultural College. The Dinkey train—fondly named from a corruption of its small, "donkey" steam engine—pulled three passenger cars. Actually, two locomotives with cattle catchers comprised the Dinkey: one with a flat Victorian roof and ornate lettering and another with a curved roof and simple, block lettering; both read Rapid Transit and #2 along their sides.

From 8am until 9pm, after the Childs' operation was taken over by the Dinkey, a man named Hank conducted one-hour roundtrips. He would blare the whistle three times to signal that he would depart from downtown in five minutes, and then he would sound two toots as he set the Dinkey chugging out of the depot. Sometimes, the Dinkey linked a flat car behind the passenger cars for mail, luggage, and bicycles. The Dinkey cut through central campus and ended its route next to Morrill Hall at a terminal building still called the Hub.

Photo courtesy of CyRide

Sixteen years after the Dinkey's first trip, after the town council and the school approved more tracks to create a loop around campus, the Fort Dodge, Des Moines, and Southern Railroad bought the Ames Street Railway Company and replaced the steam engine with a trolley. They bought two electric streetcars; one numbered 86 and the other 88, eventually renumbered as 286 and 287. CyRide continued the numbering with mini-buses in 300-series, CyBrids in the 400s, and the other buses continuing to count up.)

By 1912, the streetcar's 20-minute interval trip was engineered down to 15 minutes. Daily, two thousand passengers rode to and from the school and downtown. During the transition from steam to electric, the fare had stayed the same and continued to cost one nickel for almost the next twenty years. Eventually, the cost to ride rose to seven cents to compete with the unregulated Hutchinson Bus Line, but in 1929 the trolley ceased rolling. In 1930, the tracks were removed.

~

The air crackles and my arm hair stands up straight. Gray dyes the clouds. This weather reminds me how big the sky is out here. The sky stretches past the disked-up bare fallow soil until the corn sprouts up its green maze.

Another day—one which I decide is a mocha day—I wish I was home, but I'm about to ride the wheel. My book *Darkness Sticks to Everything* fits perfectly into a slot created by the space between my driver side window and my dashboard. I take a sip of my drink and I read a poem each time I return to the start of CARDINAL.

~

Vivica wears her braids pulled into a bunched ponytail and drapes them over the collar of her CyRide polo. She's a type-A personality. In conversation with other drivers, Vivica gloats when she's right about a sports score and huffs about a news item she doesn't believe, but which the other driver has proven. She works as much as she can between her classes. I don't know what she's studying, but I imagine it's a management degree.

Yesterday at the dispatch window, Vivica said she needed to swap shifts with me so she could do her taxes. She wanted me to drive her Friday evening YELLOW—a mini-bus route which rides along downtown and past the highway, without relief or an extra, and which feels especially stressful during the end of week rush to get out of town—but I have a nice loop-de-loop of CARDINAL throughout the day. I drive it in the morning and then in the late afternoon just after every student has driven back home or headed out for dinner before the beginning of their weekend. I wanted to tell Vivica that she should ask for an extension, but I said, If you need to do your taxes, then give away your shift.

Today Vivica is my extra and she demands *10-32* (continue to next bus stop). She wants me to leave early. I know dispatch hears us on the radio and they'll say something to reprimand her later, but now I say *10-12 at Freddy.* I guess she didn't get her shift swapped, but I'm standing by, waiting for my departure time to expire.

There's a hate that ebbs from me. It's not the hate the ignorant passenger shows for the guy riding the wheel; it's the slow burn of resentment at the maliciousness passenger shows to passenger and that passenger shows to driver.

~

Riding the wheel on Friday evening is a perfect time for me to add to my list of ISU vanity plates. When students pull out of their dorm parking spaces and drive out of town I watch their bumpers for the yellow backgrounds and red lettering. Most of the jumbled alphabet and assorted numbers have to do with ISU athletics' motto CYCLONE NATION.

WE ARE 1
EYE ST
GO2ST8
ALUMCY
CYFAM
CYBIRDS
CY4US
ALLN4CY
FANS4CY
CYS1FAN
CY LUV
NUTZ4CY
FARRCYD
EXCYTBL
DCY4
IAMCY
CYCLOWN

~

An international student runs from one Freddy stop to the one where I'm closing doors. The only reason I spot him is a group of guys who have already boarded laugh and point. I open my doors and they groan.

Hey guys, I holler behind my shoulder. I don't even get on the PA. You'd want me to stop for you.

As I roll along Wallace Road after the stop sign at Beach Road the chord is pulled and the STOP REQUESTED bell bings. The bell bings. It bings. And it bings.

At the stop by Food Sciences, I park. The guys tap the rear door attempting to break the sonar. I haven't unlocked the doors. Only pull the chord once, I say. The guys begin shouldering the door. I activate the rear door and it hisses open.

The international student exits with this pack of guys. Apparently, they are his friends.

~

There's a hate that ebbs from me. It's not the hate the ignorant passenger show for the guy riding the wheel; it's the slow burn of resentment at the maliciousness passenger shows to passenger and that passenger shows to driver.

I have to let this hate go. I have to treat students like they treat me. I have to treat students like nothing.

It hardly helps.

~

A student stands at the last stop out of Freddy Court holding a half-eaten can of corn with a plastic spoon jammed into the cooked kernels. He digs around in his pocket for his wallet. He doesn't need to show me his student ID. The circulator routes like CARDINAL are free, but I don't stop him or any other student who

shows me their ID so they don't lose the good habit for fixed routes. However, I can't have him eating on my bus and so I put out my hand and say, Either my bus or your corn.

The student places the can into the red plastic bucket sitting on a shelf behind the front doors that serves for passenger trash. I ride the wheel into campus. The student pulls the bell for a stop by the Memorial Union. He walks forward to exit, reaches into the bucket, grabs his can, steps off my bus, and scoops out some corn into his mouth.

~

The four-sided clock tower rises on my right above an irregular cluster of round maples and oaks along with a smattering of pine spires. Every weekday, a music professor—whose only two duties are teaching an online music appreciation class and training a half-dozen future campanilers—takes an elevator up the clock tower and, at 11:50AM, plays the fifty bells for a twenty-minute live concert. I've heard the theme from Super Mario Brothers on a Friday, "America the Beautiful" on the anniversary of 9/11, and "Somewhere Over the Rainbow" around graduation.

Lecturer guy glances at my nametag and says, Hey, Chris, would you mind dropping me off on the other side?

An updated school tradition says that a student can only become a true Iowa Stater if they are kissed under the Campanile at midnight. During homecoming, on central campus, sets of first-semester freshmen can be found staring at the internally lit dials edging all the way up. Their lips are pouted and puckered and prepared.

The original tradition was a little different. It held that a woman at Iowa State College—who had never been kissed—could become a true coed if she was kissed under the Campanile on the stroke of midnight. Afterward, the coed had to drop jellybeans in front of the door of each of her dorm house's rooms. If she was a senior, then she had to leave lemon drops.

~

During my first year at ISU, students walked out of classes at noon to protest for Occupy Iowa at the Campanile. It was a Thursday and I didn't have to teach or take any classes. I stayed home as one hundred people gathered during the lunch hour. I thought that there weren't clear demands, that the cause didn't have a center, that it didn't affect me.

Some of the other graduate teaching assistants attended the protest and lofted cardboard signs above their heads. One read ENOUGH. They had had enough and they wanted enough. By 1pm, after the lunch hour, they walked off campus to Lincoln Way and dissipated.

They were part of a group I joined: people looking for jobs who had done the right thing. We had gone to school, had done internships, and then—nothing. Or not nothing, but the lowest of the low. We were reaching down to jobs where other people were reaching up to work.

Six hours away, in Chicago, I've heard of the clear demands: Fifteen and a union. But that's what I get already at CyRide and it's not enough. What about health insurance, what about consistency of hours, what about physical hardship, mental struggle, and respect?

I'm riding the wheel instead of someone else.

~

By the stop for Student Services, a guy stands on one foot, the other bent back at his knee in a cast. I close the space between my front tire and the curb. I attempt to deploy my wheelchair platform. The alarm sounds, but the lift sticks. A mechanical grinding gnashes. Other drivers must have thrown grit on the front door's entrance instead of out on the cement and the rock-and-sand wedged down to clog up the gears.

I look at the guy and raise my shoulders.

He sets a determined jaw, adjusts his crutches, and leaps up.

~

I put my left hand on the door lever as a fattish nerdy girl waves her arm across Union Drive on the sidewalk by the copy shop. Bumper-to-bumper cars exiting the parking lots for Eaton, Martin, and Helser Halls stream in front of her. I know her cat-eye glasses frames and curly brown hair and body stuffed into tights. I think of her as someone who plays board and card games at Mayhem Collectibles down on Lincoln. She's the girl who disregards the crosswalk and walks in front of my bus to make me wait every Friday on CARDINAL.

It's my turn, on this round of our game, today. I turn my hand on the lever. Close and go.

~

At the end of CARDINAL route, a guy walks forward to my seat. He always spikes his blond hair and keeps his goatee trim. He wears a corduroy jacket over his Oxford button-down tucked into jeans. I think he's a lecturer or a graduate student, because he's just casual enough to dress below a professor and above an undergraduate, and why would he be on my CARDINAL route unless he lives in Freddy Court or he walks north from the car pool lot down by Haber Road's railroad underpass.

Lecturer guy glances at my nametag and says, Hey Chris, would you mind dropping me off on the other side?

I have to loop around Freddy's median because a bus can't fit through the archway on Haber. I say, No problem. I ride the wheel just before the stop so no one else mistakes me for the next bus.

"Thank you, Chris," lecturer guy says.

I wish I knew fancy dressed lecture guy's name because there's a certain humanity—even if it's forced politeness—in acknowledging a person beyond what they look like, what they do.

~

A student walks out of the Freddy Court café, two frozen wheels of pepperoni pizza under one arm and a case of Mountain Dew in his hand. He's ready for a Friday night at home. No more classes, no more bus.

Photo courtesy of Jenny R. Bethurem

"*Fathom,*" Watercolor on recycled paper 16.5" x 24.5," by Shelby Prindaville, 2015

Photo courtesy of Amanda Gray

Amanda Gray is a recent graduate of the Miami University (Oxford, OH) Project Dragonfly (https://www.projectdragonfly.org) program for Master of Arts, Biology. With the program she has had the opportunity to participate in field research in Mexico, Namibia, Peru, and at home in Central Ohio. She has worked in various research fields for ten years, and currently is employed in research and development for a large consumer gardening company. Amanda has a passion for wildlife and sustainability, and spends her free time exploring the outdoors with her husband and dogs.

"One Clover, and A Bee": Improving Biodiversity through Community Engagement

Amanda Gray

To make a prairie it takes
a clover and one bee,
One clover, and a bee,
And revery.
The revery alone will do,
If bees are few.

Emily Dickinson

Many people are interested in gardening, beautifying their lawns, and environmental conservancy; however, it can be unclear how to combine these different interests for the purpose of increasing the number and diversity of native pollinators. In the spirit of the "National Strategy," I designed and led a community engagement project which immersed locally-minded plant-enthusiasts from my Ohio community in wildflower prairie improvement. From an environmental perspective, my focus was on the change in local flora before and after the project, and the potential outcomes that shift could have on pollinator populations. From a community perspective, I focused on the importance of involving community members in the process of improving biodiversity, and increasing participants' understanding of the conservation issues involved. Through this project I have also learned a great deal about the importance of "native-scaping," or using native plant species to support native wildlife, through researching the species present in the wildflower blend made available to the project. Throughout the development, hurdles, and continuing follow-up of this com-

munity project I have grown as both a student and as a conservationist.

Background

Growing up in the suburbs outside of Cincinnati, Ohio, I did not have much experience with natural prairie landscapes. However, traveling cross-country, as my father's work took him to many different states, allowed me to grow my interest in the grassy plains and colorful hillocks of the areas west of the Mississippi. After moving to Columbus, Ohio, for college, and undertaking a Master's degree focused on wildlife conservation, I gathered life experience and a deeper understanding of my environment and its shifting challenges. North American prairie landscapes became of particular interest to me when I discovered that near my home outside of Columbus are several restored prairies in Columbus Metro Parks—natural playgrounds where families can explore nature with the benefit of clear trails and maps.

The more I learned about these grassy, life-supporting breaks in the woodlands, the more fascinated I became: How is life affected by the variety of plants in a space? How many plants or plant species are required to support a single pollinator, a variety of which were ever-present in the prairie, but not near my home? Can a person, a team, or a community create long-term change for prairies and their inhabitants? Does it really take—as Emily Dickinson suggests—just one clover and a bee?

This article describes the process through which I have attempted to answer some of these questions by more deeply understanding the human-nature dynamic and the ways our actions might positively affect pollinators in the future.

In the state of Ohio, the transformation of prairies and forests into farmland and residential properties has negatively influenced the pollinator population to an extreme extent, resulting in the extirpation, or regional extinction, of many species from their native habitat. By influencing the diversity of flora in a region through farming, clear-cutting, and other "improvement" practices, humans have inadvertently affected the suitability of the environment for pollinators and other animals (Haaland & Gyllin, 2011).

Ohio is host to several conservation-minded facilities including the Grange Audubon Center (http://grange.audubon.org/), several zoos, a freshwater mussel research station, the Ohio Wildlife Center (https://www.ohiowildlifecenter.org), wetland research parks, a peregrine falcon camera site, metro parks, and the Ohio Wildlife Federation (http://www.ohwf.org), Many of these sites offer community education programs for ongoing conservation efforts. At Battelle-Darby Creek Metro Park (http://www.metroparks.net/parks-and-trails/battelle-darby-creek) near Columbus, Ohio, American bison are being used to maintain a tall-grass prairie restoration project. The conservation work at Battelle-Darby Creek has consisted of the restoration of over one thousand acres of wet and tall-grass prairie in the Darby Creek region through controlled burns and seeding practices (Metro Parks, 2012, 2013). Restoration of the Darby Plains Prairie, which existed in the region prior to the American westward expansion, is hoped to encourage improvement in regional biodiversity.

In Ohio, the transformation of prairies and forests into farmland and residential properties has negatively influenced the pollinator population to an extreme extent, resulting in the extirpation, or regional extinction, of many species from their native habitat.

Since bison are now accessible to researchers and conservationists in the Central Ohio region, park-staff educators can teach more efficiently about the role of keystone species such as bison in prairie restoration. Bison are pivotal in maintaining the health of prairies through their selective grazing and wallowing habits. Through the effective use of these large herbivores, Battelle-Darby Creek Park has become a haven for many important plants and, in turn, pollinators.

The pollinator population in North America has suffered declines due to a variety of factors, including habitat loss and disease (vanEnglesdorp et al., 2008). For example, migratory pollinators such as the Monarch Butterfly (*Danaus plexippus*) and Ruby-Throated Hummingbird (*Archilochus colubris*) have been greatly affected by the loss of prairie landscape, normally rich with a variety of wildflowers and grasses. The cyclical way in which pollinators and plants interact has affected plant-life as well; with fewer pollinators there is a decrease in the successful seeding of wild plants. The removal of any player in the prairie cycle will cause a "Butterfly Effect," creating detrimental outcomes for all species in the long term.

One third of the food consumed on Earth is produced through pollination; in the U.S. alone, this amounts to an estimated $15 billion in agricultural products (Calderone, 2012; Pollinator Health Task Force, 2015). The United States of America has issued its "National Strategy to Promote the Health of Honeybees and Other Pollinators" in an effort to combat the lasting effects of habitat loss, pestilence, and disease. With approximately 75 percent of all plant species reliant on pollinators for reproduction, and with one-third of the food humans eat being dependent on those plant species, the decline of pollinator populations is tied directly to the health of the human race (Ellsworth, 2014; Dirzo et al., 2014).

Field sketch courtesy of Amanda Gray

While the negative impacts caused by urban sprawl are much publicized, there are practices which we can undertake to significantly improve our world. Humans can improve the pollination cycle through seeding of natural meadows and prairies, or through developing "Native-scaped" home gardens—the transformation of garden and yard space into natural habitats for local wildlife by planting more native plants and reducing non-native species (Sempill-Watts, 2014). These practices encourage migratory stopovers by birds, butterflies, and other wildlife, which similarly add attraction and value to the property. Unfortunately, the seed mix donated to this project was a blend including many non-native plant species. It was through learning more about the species in the mix that I came to better understand the importance of regionally appropriate plants being used in seed blends and natural control methods for preventing non-native plant proliferation.

What do we mean by "biodiversity?"

Biologist E.O. Wilson said: "Biodiversity is the totality of all inherited variation in the life forms of Earth, of which we are one species. We study and save it to our great benefit. We ignore and degrade it to our great peril."

Biodiversity is the variety of life present within a given ecosystem. Ecosystem diversity is the supportive structure for a habitat—the variety of biological organisms in an area and their interconnected, interdependent roles in the environment (Primack, 2010). Maintaining ecosystem variety through management practices is a balancing act, requiring identification of keystone species, understanding how they help maintain the health of other species in their environment, and balancing conservation focus and potential impacts of biodiversity shift. As one species increases another may decrease due to competition for resources—creating balance can be difficult, as outcomes are not always predictable.

Everything—all life and all conditions—within an ecosystem ties together in a complicated web. To approach a biodiversity improvement project, when you perform a survey of a possible area of conservation effort, you must review not only the major players, but also the support system. For instance, if you're work-

ing on a monarch butterfly project, you have to look for the presence and variety of milkweed plants in the area. Are there enough to support a population? Are the preferred varieties present in abundance? Is the soil healthy enough to support a variety of milkweed plants? If your aim is to promote biodiversity, then each aspect of the habitat will affect the ultimate outcome.

So why is biodiversity important? Contrary

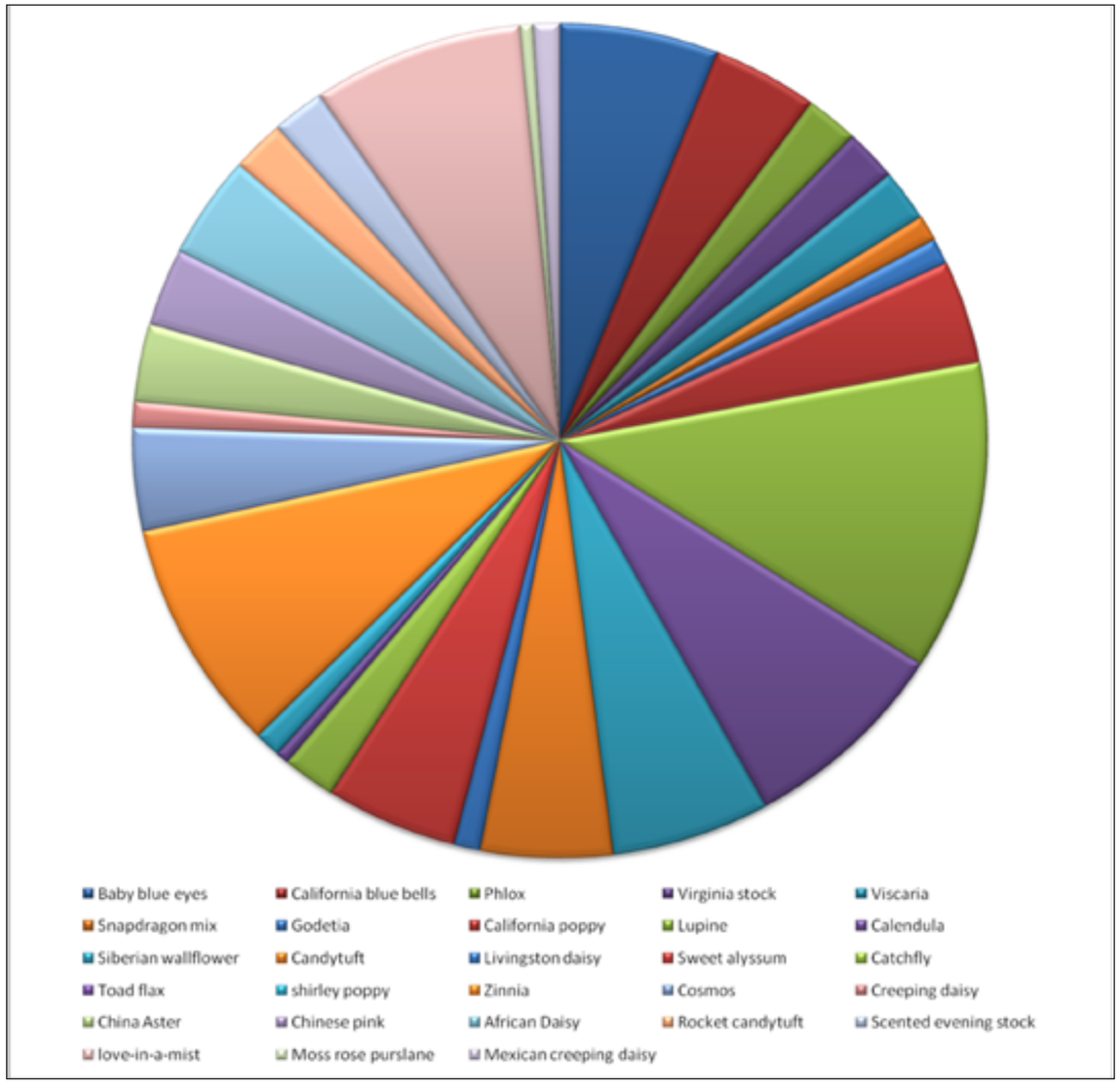


Figure 1: composition of seed mix

to Emily Dickinson's lovely lines, above, I believe that making a prairie takes more than "one clover and one bee." What would happen, for instance, if the species of clover mentioned in the poem were to fall victim to a specialized fungal infection, or if especially harsh weather conditions struck, and the clover died off? In such a situation, there must be a habitat support system in place to ensure the survival of that bee and its brethren. We depend on pollinators to help us manage crops and ensure bountiful harvests, that means that losing a pollinator species within an agricultural region will, eventually, haunt the human race. There is a growing movement within the agricultural industry to mitigate the potentially negative effects of "monocrops," or single species plantings, by surrounding farm fields with a variety of seeded wildflowers to support pollinator populations. In some states, transportation departments are also seeding wildflowers along the grassy edges of highways and roadsides to encourage pollinator habitat.

The Project

To improve pollinator and wildflower biodiversity in my little corner of the earth, I led a team of ten community members, including neighbors, friends, and coworkers, in an excursion to a 250-acre registered tree farm in Licking County, Ohio. This property, owned by my husband's family, is close to our hearts: we lived there as caretakers after completing our undergraduate degrees. There are several habitat types on the property, including tall-grass prairie, a pine and hardwood forest, and a five-acre lake.

On a brisk, but sunny, early Spring morning, my team gathered over hot coffee and donuts and listened intently as I instructed them on the importance of pollinator habitat and the effects of habitat destruction. The Ohio Prairie Association (http://www.ohioprairie.org/) has many excellent FAQ's, maps, and a significant level of background information for those interested in learning more about Ohio's prairie ecosystems; this gave me an extensive platform on which to build my educational portion. I laid out our sowing activity using mapping guidelines from Ohio's CP42 Conservation Reserve Program (CRP) Pollinator Habitat (https://www.fsa.usda.gov/Internet/FSA_File/cp42_habitat.pdf) practices, covering the entire acreage of a field in a large block.

The original purpose of my study was to learn about the impact of flower biodiversity on animal biodiversity, and to better understand the role of community engagement projects in biodiversity. The importance of native species was not something I was very focused on until I began to dive deeper into this project. A gardening firm donated a large bag of wildflower seed mix to our project. Not all seeds in the mix (Figure 1) are native Ohio species, but for the purpose of creating a diverse landscape and due to the cost limitations of this project, I judged that including some non-natives would help us to reach our ultimate goal. The location is also fairly contained, being surrounded on all sides by forest and in a small valley, which should help to prevent wind-carried seed spread. On a positive note, the seed manufacturer has since changed their recipe to remove potentially invasive varieties. I will also be performing surveys of the field to determine which plant species have been successful over time.

I gave each participant a bucket of wildflower seed mix to sow in an approximately three-acre tall-grass field (Image 1) which had been previously analyzed through photographs from the previous summer for wildflower species. My initial survey of the area showed that it is covered primarily in tall grasses with a few nat-

Image 1: Sowing the field

urally occurring wildflowers—nine identified species. The acreage was regularly managed by mowing at the end of the growing season around mid-October. Continuing this management system will help enable this field to become a long-lasting, healthy pollinator habitat with high wildflower species diversity (Jones & Hayes, 1998).

The Numbers

Forty pounds of wildflower seed, comprising of 37 different species, was sown across the three acre treatment area (129,000 ft^2) (Image 2). In this treatment area, seeds were sown at an application rate of 0.00031 lbs/ft^2, slightly higher than the recommended label rate. With approximately 450,000 seeds per pound, participants sowed around 18 million seeds during this one event. The whole event took approximately two hours from the start of the educational session to the final discussion after sowing. The participants then enjoyed a day of recreation on the family property.

Considering that a germination test on the donated seed showed that approximately 90 percent of the seeds are viable, and allowing for five percent to be eaten by birds and rodents, there is potential to increase the number of wildflowers in the three acre area by 15.3 million. Sowing this volume and diversity of wildflower species has the potential to provide food and shelter for many pollinator species, and increase the pollinator biodiversity for the region, including preferential pollinator populations (Fründ, Linsenmair, and Blüthgen, 2010), and an increase by this amount may have an exponential effect in the long term. Future surveys will tell me which species in the blend were successful, which were not, and which may need removed if some of the non-natives show too much success.

Image 2: Sowing area outlined in red

Why Lupine?

Hartweg's Lupine (Lupinus hartwegii) made up the largest percentage component of this wildflower mix. With the predicted 85 percent rate of successful germination, the potential exists for approximately 46,000 lupine plants to emerge in the spring to support pollinator populations. Previous research with a similar Lupine species, Lupinus perennus, indicates that higher densities of Lupine are more impactful on pollinator populations than a larger coverage area at lower densities (Bernhardt, Mitchell, and Michaels, 2008), which is one reason that the selected three acre area was chosen for this project.

Lupine is an important habitat item necessary for the endangered Karner Blue Butterfly (Lycaeides melissa samuelis), which has not been seen in the central Ohio region in decades. Karner Blue larvae are thought to feed exclusively on Lupinus perennis, and our hope is that planting a dense population of Lupine could encourage expansion from an existing metapopulation of Karner Blues—in Ohio, currently found only in their habitat near Toledo—down to Licking County and this new environment, creating a healthy local population (Hanski, 2011).

Changing Perspectives

Prior to this event, a verbal survey showed that most participants felt mild enthusiasm and interest in improving wildflower biodiversity. "It's just not something I would normally think about," said one participant, "I know it's important, but I don't really understand why," voiced another. After participation and learning about the goals of the project participants showed increased enthusiasm, with several people requesting seed mix to spread in their own gardens and yards. Containers of seed mixed with growing media were distributed to interested participants.

Dettman-Easler and Pease (1999) discuss that participation in a conservation activity may raise general interest in a conservation effort and improve community outlook on conservation goals. Associating a place of personal interest with a conservation effort will also improve the outlook on goals, as community members have access to see the continuous effects of their efforts.

By inviting a small group of community members to sow seed, there is a potential impact for thousands of pollinators and many more animals, and humans, along the food chain. These ten community members showed an interest in the activity, and excitement about their ability to impact the natural world in a positive manner. Each individual had a potential impact of growing approximately 38,250 plants, each of which might support hundreds of pollinator species, which may support thousands of herbivores and millions of humans.

Next Steps and What YOU Can Do!

While the project I led shows the potential impact that a group of community members can have in a single morning's activity of sowing seed, the actual ecological impact of this event may not be measureable for years as the flowers grow, attract pollinators, seed, and restart the cycle. Future seeding and management may be needed to encourage healthy prairie growth and control of the non-natives present in the field. Healthy growth, development, and reproduction of these plants will depend on weather, regional suitability, and pollinator presence. These surveillance activities offer an additional opportunity to involve community members in the prairie development process, and will be a fun challenge to undertake!

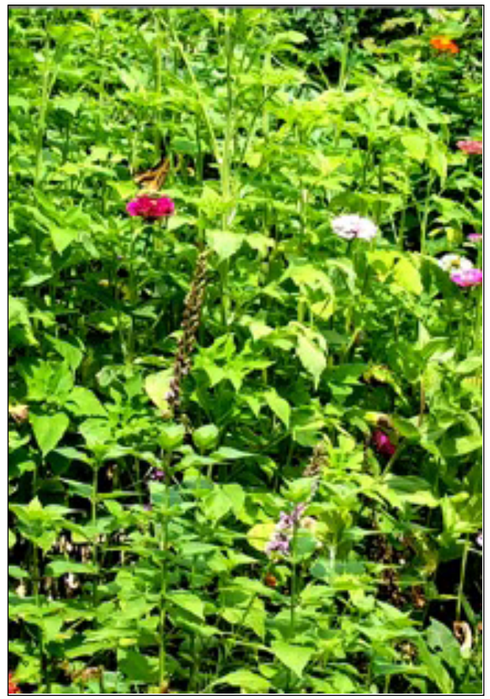


Image 3 (top left) and 4 (above): Wildflower update

Future work on our attempt to establish this rare species in an expanded habitat could include a survey of larvae on the site after seasonal reoccurrence of lupine in the field. If you are interested in creating your own lupine habitat you can order Lupine perennius seed from prairie nursery sites such as the one you'll find by entering this URL into your browser: http://www.prairienursery.com/store/native-plants/lupine-lupinus-perennis#.WMDF5GUwbxv.

Supporting pollinators supports crops for human consumption, and increasing prairie biodiversity helps to restore natural balance to the prairie landscape. If individual community members take a small amount of time out of their weekends to sow seeds, plant local flora, and support pollinators within their own backyards, wherever those may be, the impact may be evident sooner than previously thought possible.

The change-effect potential of a small group of community members is astounding, and there's tremendous potential for natural-landscape restoration programs to have dramatic positive effects in our communities. Anywhere there exists a vacant lot, a field left fallow, or a high maintenance roadside green space, there is potential for a pollinator oasis which will ensure a future for an indeterminate number of species.

If you know of an opportunity in your community to improve habitat for pollinators, I encourage you to talk to your neighbors, community boards, and local businesses to gather support for a restoration effort. Pull together your research from the articles mentioned here, and online resources such as: the American Prairie Reserve (https://www.americanprairie.org), the Prairie Nursery (http://www.prairienursery.com/), The Pollinator Partnership (http://www.pollinator.org/), and many others. While "one clover and one bee," may not be enough, one person and one community can make a difference.

Special thanks to Dr. T. Lewandowski for her assistance on this effort and to the Sinsabaugh family for their continued stewardship of the land. See the Endnotes for a list of Gray's references.

Photo of Gray copper butterfly courtesy of Ken Saunders

Photo courtesy of Ken Saunders, taken May 26, 2014. Perched in a black walnut tree, this bird was captured at Arbor Lake, a city park in the southwest part of Grinnell,Iowa

Birds of the Prairie: Cedar Waxwing

Bombycilla cedrorum

The cedar waxwing is a sleek, silky brown and gray bird with crested head, rakish black mask, brilliant red wax droplets on the wing feathers, yellow band on the tail tip (some individuals have orange or reddish tail tip), and measures approximately 7 inches from bill tip to tip of tail. The name waxwing comes from the waxy red secretions found on the tips of the secondaries of some birds. The exact function of these tips is not known but may be to help attract mates. Cedar waxwings are gregarious and fly in compact flocks. Their diet consists of berries and insects which are often caught on wing. (Description adapted courtesy of Ken Saunders).

Song: Cedar waxwings have two common calls: a high-pitched, trilled *bzeee* and a sighing whistle, about a half-second long, often rising in pitch at the beginning. [Description courtesy of the Cornell Lab of Ornithology. (http://www.birds.cornell.edu)].

Click the icon below to hear an audio recording of the cedar waxwing's call, captured by Margery Plymire, courtesy of The Macaulay Library (http://macaulaylibrary.org) at the Cornell Lab of Ornithology.

Photo courtesy of Liz Queathem

Liz Queathem is Senior Lecturer in Biology at Grinnell College. She is interested in how people value nature, the role the environment plays in well-being and health, and environmental sustainability. Currently in her research, she is focused on human exercise. She is interested in how people feel when they exercise, and why they feel that way. Liz enjoys volunteering with the Imagine Grinnell Foundation (http://imaginegrinnell.org) and Grinnell Parks and Recreation. She likes kayaking, hiking, throwing frisbees for her border collie Skye, and playing Scottish tenor drum with bagpipe band Turlach Ur (http://www.turlachur.com).

Confronting Climate Change with Love: A Review of Cornelia Mutel's *A Sugar Creek Chronicle*

Elizabeth J. Queathem

As quite literally the largest problem of our time, climate change's sheer enormity can make it seem an insurmountable subject. In the words of Naomi Klein, this changes everything. How can an author who loves nature avoid this topic with a clear conscience? And yet, how can she hope to face this juggernaut undaunted? My high school English teacher, Michael Niflis, whose opinion I greatly respected, could not imagine how any intelligent person could look at the world around us without considering depression a rational perspective – and yet, if we choose to believe we cannot change the world, we acquiesce to our own impotence, which is a moral failure. Al Gore's books about climate change dominate through sheer force of data, but nobody will ever read them for enjoyment. His Climate Leadership Trainings, which seek to empower anyone and everyone to become a peer educator, involve many terrifying film clips of floods and hurricanes, as well as graphs and tables, but he explicitly acknowledges the need to avoid overwhelming people with either data or fear. Most of all, he argues, we must convey a message of hope, if we are to convince anyone to take action.

In Cornelia Mutel's beautiful new book, *A Sugar Creek Chronicle* (University of Iowa Press 2016; https://www.uipress.uiowa.edu/books/2016-spring/sugar-creek-chronicle.htm), she also writes about climate change, and there is certainly no shortage of data here, but her book is fundamentally about not fear, but love. Mutel gave us a sneak preview of her book in the Fall 2015 edition of this publication. She explores change on an intimate scale, on her own property, in a Midwestern woodland, openly acknowledging the personal grief that any lover of nature must feel upon learning about the dire state of the earth. If E. O. Wilson is right, and biophilia, the love of the living world, is truly a fundamental human trait, then there must be many of us who share Mutel's passionate attachment to nature – and not just nature in general, but the familiar and particular creatures of the landscapes that have shaped us, where we joyously greet the rugged bark and lobed leaves of a bur oak like an old and trusted friend. Of her sons' reminiscences about their outdoor childhood, she writes, " . . . their stories tell me that this house, this plot of land remain their planet's center, a stable refuge, a dreamscape to which our sons mentally return when times get rough. Our home and the surrounding woods have nurtured them, protecting and providing stability for their spirits even after their bodies left to roam elsewhere." Mutel ties the childhood she has provided for her children to the idyllic childhood she took for granted, rambling her Madison neighborhood looking for caterpillars, and working in the garden with her beloved mother. The plangent notes of a time and place that are irretrievably lost resonate with her fear that we now face a larger passing away, not of a personal neighborhood or family member, but of the comfortable and reliable rhythms of seasons worldwide on which not only nature, but civilization depends.

Photo courtesy of Justin Hayworth

In coffeeshop chat, many Midwesterners who have survived bitter winds when it is thirty degrees below zero will chortle that global warming sounds pretty good to them. Indeed, a polar vortex that sweeps down from the Canadian shield in the dark of midwinter can make an immediate increase in temperature seem attractive. In a climate where everyone has air-conditioned houses because it is already warm and humid in the summer, even a rise in summer temperatures seems unlikely to increase human suffering significantly at first glance. Furthermore, the imminent sea rise that is already worsening the effects of hurricanes and inundating coastal Florida frightens no one in Iowa on a personal level, and there are sound reasons why this is so. Mutel would have to drive more than 900 miles from Iowa City to reach the nearest Florida beach. But the beauty of Mutel's book lies in the way it tenderly describes the intimate violence that climate change wreaks on the homey little wild places that remain in the heartland of Iowa. The fencerows and margins that are left unplowed by the behemoths that harvest our crops, as well as small scattered woods and fragments of restored prairie, provide safe harbor for the dwindling remnants of the vast wildlife populations that once roamed Iowa's ocean of tall grass and abundant rivers and wetlands. Mutel lovingly documents the migrations of birds, the phenology of spring ephemerals, and all the drama of the changes in weather that we expect to accompany each season in the same way that we expect our parents to be the way they are: because they have always been so, within our experience. She informs those of us who may have felt safe by virtue of geography that we are in fact threatened, just like everyone else on the planet, and she does this by bearing witness to all the small lives that are harmed right now by the changes that are taking place too swiftly for adaptation to be successful. At the same time, she demonstrates that even those who may not give a fig for nature should be very afraid at the

prospect of what climate change will do to agriculture, a primary economic driver in a state where more than 99 percent of the original prairie has been plowed under to raise crops and livestock. Gullywashers that strip fields of priceless topsoil alternate with flash droughts that sear plants with abrupt heat. The nurturing climate where human agriculture evolved, which has made our croplands so successful and obviated the need to irrigate, may become a thing of the past unless we take immediate action.

Mutel weaves a tapestry of the mundane and the holy, the trivial and the profound, a deeply personal life and the objectively measured data of science. Throughout her life, nature has been not only an object of study, but a touchstone and a healer. Her mother's midlife death from cancer at the beginning of her own first year of college plunged her into a natural depression, from which she emerged under the healing influence of an arboretum. Her courtship took place in the Colorado Rockies, with a partner whose love of nature was equaled only by her own. When she underwent her own first bout with cancer, she remembers the moment when she overcame her fear that her fate would mirror that of her mother. She was watching blackbirds and geese flying overhead. Like Basho, she finds in the natural world a resonance with the rhythms and patterns of her own life, and a powerful source of strength in even its most fragile denizens.

As it becomes more and more difficult to avoid the powerful evidence that the climate is changing, deniers may fall back from their initial denial to argue instead that it isn't caused by humans, or it won't be that bad, or even that anything that hastens the Apocalypse and the Second Coming actually serves the greater good, no matter how destructive and heartbreaking we may find it in the moment. Some arguments are hard to counter. Religious historian Prasenjit Duara argues that, whereas humans used to find transcendence only in religion, or political doctrines such as Marxism, perhaps the time has come when we need to seek transcendence in sustainability. On our own soil, in the prairie, Cordelia Mutel has produced a book that calls for just such transcendence. Other countries, such as Germany, have acknowledged what is required and stepped up to the task, as have many cities, and some states, here in the U.S. Mutel ends on a note of hope, and her lovely book is solid evidence that, despite dark threats to end funding for climate change study, we still have reason to be hopeful for our future, as long as such writers persist. Perhaps her affectionate portrait of the dear and familiar place where we all live can spur more of us to spirited resistance against the forces that would destroy it. As I write this, on the winter solstice, I hope we will see the return of the light.

"Flint Hills Fencerow," Acrylic 16" x 18," by Jane Pronko,

Photo courtesy of Rachel Melis

Closeup: Rachel Melis

Rachel Melis is an Associate Professor of Art at the College of Saint Benedict & Saint John's University (https://www.csbsju.edu) in central Minnesota. She received her MFA from the University of Wisconsin-Madison, and received her BA from Grinnell College in 2001. Grinnell's Center for Prairie Studies—which started in 1999, during her time as a student at Grinnell—has had a great impact on her work. Melis says the art she has produced since her undergraduate days has been influenced by what she learned about prairie art and ecology from professors including Jon Andelson, Mark Baechtel, Jackie Brown, Tony Crowley (former Grinnell Art Professor), and her fellow-students in Grinnell's Environmental Action Group. Melis has lived in three prairie states since Iowa—Wisconsin, Kansas, and Minnesota—and says that in each one, she has found inspiration from the land and people around her for her artists' books, prints and installations.

As a descendent of nineteenth-century prairie homesteaders, Melis makes work that concerns aspects of the prairie region which she feels many, including her ancestors, have overlooked. She strives with her work to record, re-imagine, re-image and re-print the vitality, diversity and importance of the Midwest's native plants, ecosystems, and peoples. Her work also celebrates writers from the nineteenth-century and today who have observed closely the complexities of Midwestern and rural life. Currently, Melis is creating images about bird, plant, and food metaphors used by and about women and children.

Though she does produce art in traditional two-dimensional forms such as paintings, pastels, and prints, most of Melis's pieces borrow from the tradition of printed books, artists' books, and books-as-installations. She has shared a sampling with *Rootstalk* for this issue; if you want to see more of her work you'll find it at her website at http://www.rachelmelis.com.

I created the two works on this page using letterpress-printed text, paper, and linen thread or found vines and pods to convey the processes of carrying and settling. Books and envelopes serve as containers for ideas, just as pods are containers for seeds. Books, envelopes, and seeds all require a certain amount of destruction (at least having their spines "broken open," if not prairie fire and wind) if they are to be read or recreated. This piece was part of my MFA thesis in Madison.

"Seed Mix," Books vary in size between 2" x 1" and 3" x 3", 2004.

Using the process I outlined above, I created the installation at right in Kansas. In both installations, I compare seeds to human-created paper books and ephemera/envelopes.

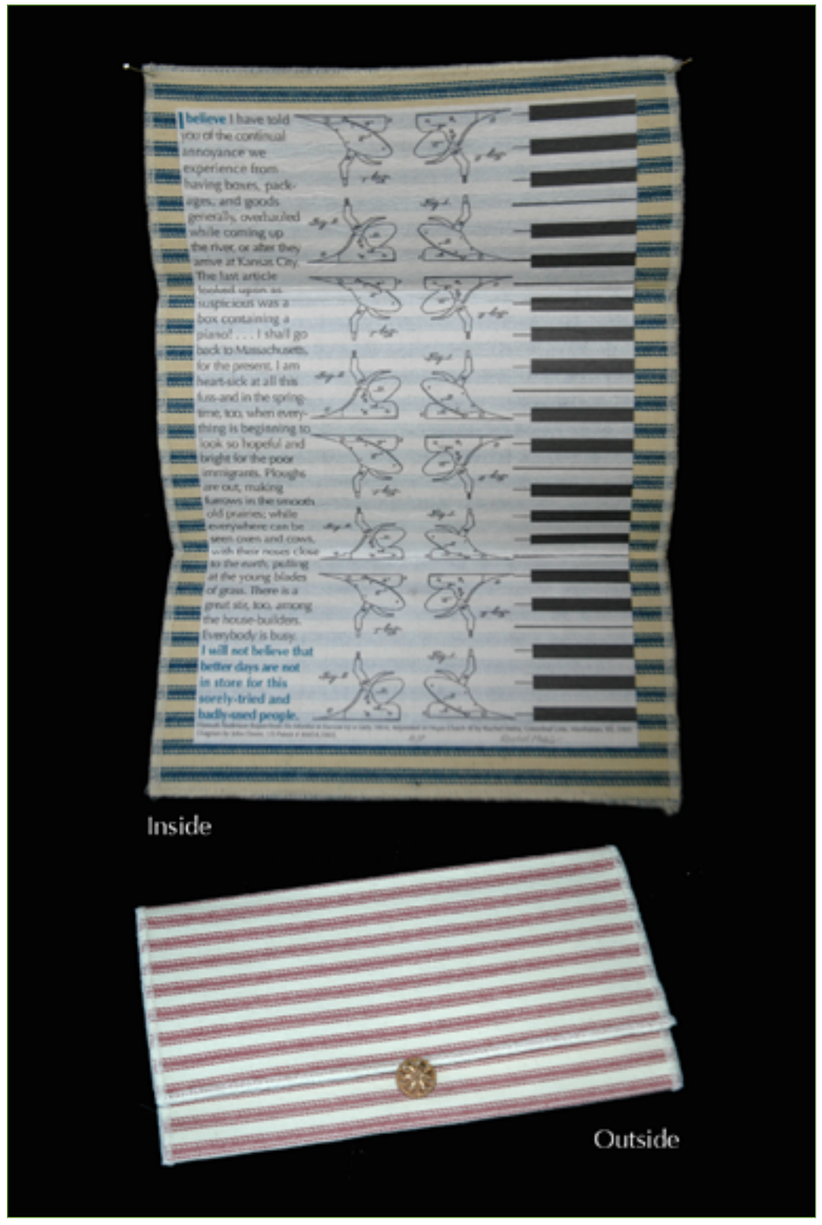
"Carry On," (Detail) jarred version 4" x 1.5", Sand vine, Letter-press printed paper envelopes, and corked glass jars, 2006.

When I brought the "Carry On" installation from Kansas to Minnesota, I canned and jarred it.

Concerning what's guiding the creation of her current work, Melis says: "I'm focused on the lives of Midwestern women past and present, particularly how women's work causes and reacts to social, environmental, and biological transformations."

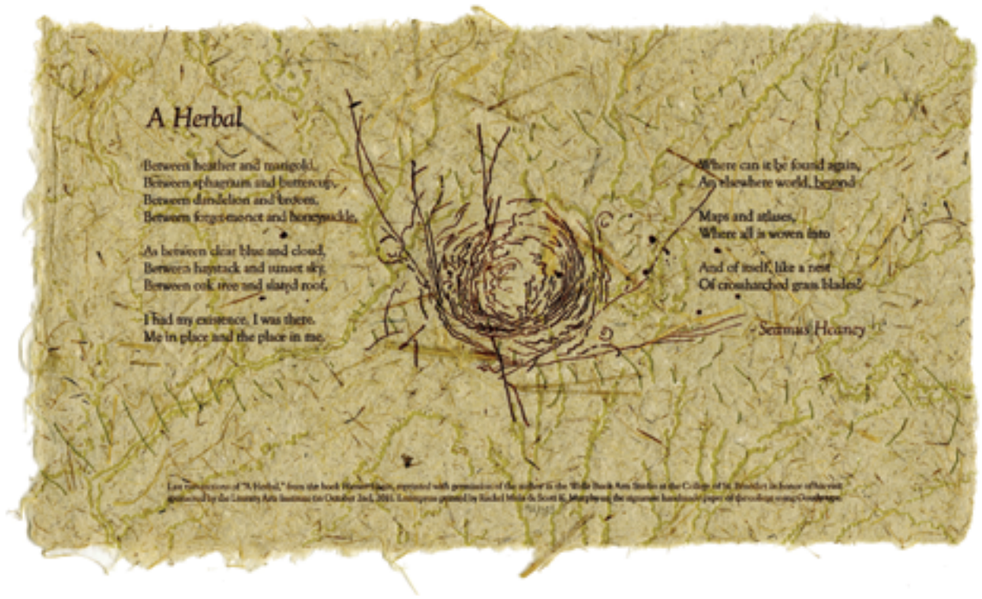
"Hope Clutch," 11" x 1.5," archival ink-jet prints and found fabrics, 2005.

Purses are also human-made artifacts which, like books and seed pods, contain things we wish to carry forward into the future.



"Hope Clutch," (detail) 11" x 1.5", archival ink-jet prints and found fabrics, 2005.

The purse-book is part of a series of excerpted letters by a woman, Hannah Anderson Ropes, who lived on the Kansas prairie for six months before returning to the east coast and serving as a nurse in the Civil War. I chose passages from her work that conveyed the strong presence of the prairie landscape and her emotional response to it.



"'A Herbal' by Seamus Heaney," (designed and printed with Scott K. Murphy) 6" x 11", Letterpress-printed text and image on handmade paper, 2011.

Along with her individual artistic practice, Melis creates collaborative broadsides celebrating her institution's Literary Arts Institute's visiting authors—particularly those whose work stems from a sense of place. "For this print, my colleague and I used paper made by one of our former students, Ellory Roske, It mixes fibers symbolic of the College of Saint Benedict's relationship to its land: native Big Bluestem, invasive Reed Canary Grass, and the Flax historically grown by the Sisters of Saint Benedict for clothing. Saint Bens has gone on to use this 'signature paper' to create letterpress printed broadsides given to each student admitted to the College."

Concerning the image on our cover, *"Caged Eaglet"* from "Unsexed & Unsphered: Volume I," Melis says: "This image comes from a book which pairs two texts by another nineteenth-century women's author, Caroline Kirkland, who wrote about her experiences 'out west' before writing about women's rights 'back east.' My illustrations emphasize her use of birds as metaphors for women and explore links between her suffragette politics and her encounters with various cultures and communities in the forests of Michigan."

Photo courtesy of Ethan Starr Evans

Ethan is a second-year philosophy major at Grinnell College. His studies revolve around the intersection between written word and visual image, the notion of the self within society, and environmental ethics. Ethan hails from Kentucky, but spends most of his time in Iowa, either in school or at Mustard Seed Community Farm (http://www.mustardseedfarm.org).

Fingerprints

Ethan Starr Evans

I found myself wandering
the contours of your finger
prints, ridges labyrinthian
curling in on themselves.

In the soil I found a door
carved from stone—a
staircase to the spaces
between your arteries.

I found sprigs of oak
poking through cellular
membrane; prairie
growing luminescent
across your skin.

Wasps sail from aster
to legume. Grasshoppers
start to mate and die.
The structures we create,
steadily dissipating into
your bloodstream.

Within openings in knobby
hills subterranean caverns
hold pools of water with
blind fish that dart
at every ripple.

I find you among them.

Photo courtesy of Ken Saunders, taken February 25, 2012, at Otter Creek Marsh Wildlife Management Area in Tama County, Iowa

Birds of the Prairie: Sandhill Crane

Grus canadensis

The Sandhill crane is a fairly large, elegant bird with a wingspan of 6 to 7 ft. measuring 40" to 48" from tip of beak to tail tip. The adult is pale silver/gray and its feathers are often stained a rust color from iron-rich mud. It has long black legs, a long neck, a white cheek, a crimson crown and tufted rear feathers that form a bustle. In flight, the neck is extended and wings beat with an upward flick. Sandhill cranes form extremely large flocks, numbering into the tens of thousands, during migration and on their wintering grounds (Description adapted courtesy of Ken Saunders).

Song: Sandhill cranes give loud, rattling bugle calls, each lasting a couple of seconds and often strung together. They can be heard up to 2.5 miles away. [Description courtesy of the Cornell Lab of Ornithology. (http://www.birds.cornell.edu)].

Click the icon below to hear an audio recording of the Sandhill crane's call, captured by Gerrit Vyn, courtesy of The Macaulay Library (http://macaulaylibrary.org) at the Cornell Lab of Ornithology.

Photo courtesy of Molly Beth Griffin

Molly Beth Griffin *(http://mollybethgriffin.com) is a graduate of Grinnell College and Hamline University's MFA Program in Writing for Children and Young Adults (https://www.hamline.edu/cla/mfac/). She is the author of two picture books,* Loon Baby *(https://www.amazon.com/Loon-Baby-Molly-Beth-Griffin/dp/0547254873), and* Rhoda's Rock Hunt *(https://www.amazon.com/Rhodas-Rock-Hunt-Molly-Griffin/dp/0873519507), as well as the award winning young-adult novel* Silhouette of a Sparrow. (https://milkweed.org/book/silhouette-of-a-sparrow *She teaches at The Loft Literary Center (https://www.loft.org) critiques manuscripts, and hosts a monthly Picture Book Salon. She lives in South Minneapolis with her partner and their two children.*

Claudia McGehee *(http://www.claudia-mcgehee.com) is the author and illustrator of several children's picture books that celebrate the natural world. She uses scratchboard and various print-making methods to create sturdy images of the denizens living in prairies, woodlands and water-ways that inspire her. She lives in Iowa*

Sanctuary

Text by Molly Beth Griffin
Illustration by Claudia McGehee

Photo courtesy of Claudia McGehee

We fly north,
just as our ancestors did,
from the warm wintering lands
to the nesting grounds of the arctic.
We have deep memories of this migration,
memories that are centuries old:
knowledge of the route,
and of the dangers,
and of the few safe places
along the way.

Follow the flock,
ride the thermals,
glide on crosswinds,
stay together.

Other flocks join us
until we are many.
We all push on,
following the flyway,
guided by the sun
and the stars
and the magnetic pull of the earth,
watching for familiar landmarks
that steer us along our ancient path.

It is such a long trip.
We are not yet halfway there,
but already our bellies rumble,
our wings ache.
Where,
where is our sanctuary?

At last:
the prairie, the fields, the river,
the land that stretches out flat, flat, flat
to the flat horizon.
It is safe here.
Here is where we can stop to rest
and eat our fill.
Here,
here is our sanctuary.

We circle before settling in,
surveying an area that is both familiar
and new.
We have watched
the prairie shrink,
and the wetlands disappear,
and the water level sink lower.
We must work harder now
because more power lines crisscross our sky,
and more fences zigzag through our fields
waiting to ensnare us.
The food is getting scarce,
and the safe places that are left
are more crowded
than ever before.

But there is still a river for sleeping,
and fields with food to eat.
This place is changed
and yet unchanged.
And so before we move on
we still stop here a while,
grateful for the rest.
This,
this is our sanctuary.

At sunset, we swoop down on the icy river
already crowded with birds
standing one-legged
on shallow, submerged sandbars.
We join them,
huddling together to stay warm.

Darkness descends,
and with it, the bitter cold.
We purr to each other,
gathered close for warmth and comfort.
The air fills with our low droning sound,
a deep thrumming that means
all is well.

We hunker down together,
sleeping,
necks folded over our backs,
heads nestled into our wing feathers,
icy water licking our stick legs.
The water will raise an alarm,
letting us know through vibrations
if danger is approaching,
but tonight all is still.
We are safe,
safe in our sanctuary.
And so the night slowly passes
until dawn begins to creep
over the eastern horizon.

Another day
and the bustle of waking.
We are noisy at dawn.
We call to each other,
bump and jostle each other,
pick the ice from our legs with our beaks,
dance our wings in the wind.
We preen and bathe
and stain our feathers with rust
from the muddy river bottom.
We make ready for the day,
a day without pressing north,
a precious day of rest.
We can rest,
rest in our sanctuary.

It is light now,
though the sun isn't out today,
and we are all awake,
trumpeting, croaking,
squawking at one another.
The biggest of us push through the jumble,
red foreheads leading the way,
and then lift up into the air on wide gray wings,
testing the wind,
pumping hard for a minute
before settling down into the flock again.

Now, it is time to look for food.
We must ready our bodies to continue north
some day soon.
Around the wide fields we fly,
our gray shapes cutting through the sky in V's.
Deep wing beats
take us from the river
to the nearby fields
where we will spend this cold day gleaning—
along thick stripes of highway,
amid cows huddled in the fierce wind,
beneath huge spidery farm equipment
waiting in the fields for the weather to turn.
Despite the harsh wind and frigid snow,
our bellies urge us on.
We must fatten up
on the bugs and frogs and seeds of the prairies,
gorge ourselves
on the leftover grain that litters the fields.
We are nourished,
nourished by our sanctuary.

As night falls,
we return to the safety of the river
for another peaceful night's sleep.
But after a few days of this blessed respite,
the time comes to finish the migration.

One chilly morning,
readiness ripples through the crowd
and suddenly we are on the move.
In a sudden swirl of motion
we rise up
until the air fills with our dark outlines,
our long necks extended forward,
our long legs stretched out behind,
our thin bodies anchoring our wide, graceful wings.
Bird after bird.
Flock after flock.

Fat and rested, we can carry on:
follow the flock,
ride the thermals,
glide on crosswinds,
stay together.

We are leaving,
leaving our sanctuary,
hoping it will still be here
when we return.

Study for "Sanctuary," (Potato Print) 4" x 8," Claudia McGehee, 2013

Notes on Inspiration: How "Sanctuary" Came Together

Molly Beth Griffin

Claudia McGehee

On the Platte River in Nebraska

Each spring and fall, Nebraska's Platte River is a way-station for migrating birds. During the peak of the sandhill crane Migration, this area hosts about thirty thousand of these magnificent birds per mile.

Although Sandhill Cranes have proven to be very adaptable to the changing landscape (feeding mainly off of fallen grain in agricultural fields instead of their centuries-old diet of bugs and frogs from the prairies and wetlands), the fact remains that their "sanctuary" lands are becoming less and less hospitable to them. Conservationists work tirelessly to preserve pieces of these ancient flyways to help the cranes continue their age-old migration patterns. The cranes rely on one another to complete each journey safely, but unknowingly they also now rely on their human advocates.

I'm grateful to the guides at Rowe Sanctuary (http://rowe.audubon.org) in Kearney, Nebraska for offering me their expertise and infecting me with their enthusiasm for these creatures and their twice-yearly migratory feat. I bless them for working to protect these amazing birds and for sharing their beauty with the public. We all must follow their example—we must each embark on a migration of the heart that begins with curiosity, respect, and awe, and ends with action.

A Snowy Day and a Bowl of Potatoes

The illustration began very spontaneously on a winter's day; it was very impromptu. It was a snow day for our daughter, which meant the studio was closed for usual business. I saw it as an artsy opportunity to spend some time with Lucy, to make some potato prints with her. I had just read Molly Beth's manuscript, and I'd been researching sandhill cranes a bit, and loved their gangly forms.

There is some technique to this. I used a combination of paring knife and x-acto blades to whittle the potato (a great big baker used here!) I carved around an initial sketch, excavating around the outline. It's best to use real printer's ink and brayers (a hand-tool used historically in printing and printmaking to spread ink) to smooth the ink onto the surface.

I did several quick studies. I made several prints of groupings—all about 4" by 8" or so. I created a couple of poses in flight, rendered in potato—a delightful medium!

I would advise anyone wanting to use this method to find your smoothest-toothed watercolor paper for the actual print-making. The potato's starchy make-up creates interesting surface textures. One potato, two potatoes, three cranes, four...

—Adapted with permission from Claudia McGehee's blog, "Illustration for All Seasons" (http://claudiaillustration.blogspot.com)

Photo courtesy of Abby Aresty

Dr. Abby Aresty *(https://abbyaresty.com) is a composer and sound artist who uses technology to facilitate unexpected interactions between people, the built environment, and the natural world. Her work has been featured locally and nationally in such outlets as NPR and the* Seattle Times.

Photo courtesy of Eden Marek

Eden Marek's (https://marekulous.wordpress.com) *true passion is sculpture and papermaking. She likes working in repeated, modular units and in ways that examine the structural and tactile qualities of the material.*

The Sound of Touch:

"Branches" Is A Prairie Collaboration

Abby Aresty and Eden Marek

"Branches" is a joint work, joining the media of sound artist Abby Aresty and visual artist Eden Marek. Their partnership yielded "sound sculptures" which they created at Grinnell College during the 2014-2015 academic year from found organic materials. The artists said that their sculptures are inspired by the relationship between sound and touch, "one that is particularly powerful in the prairie."

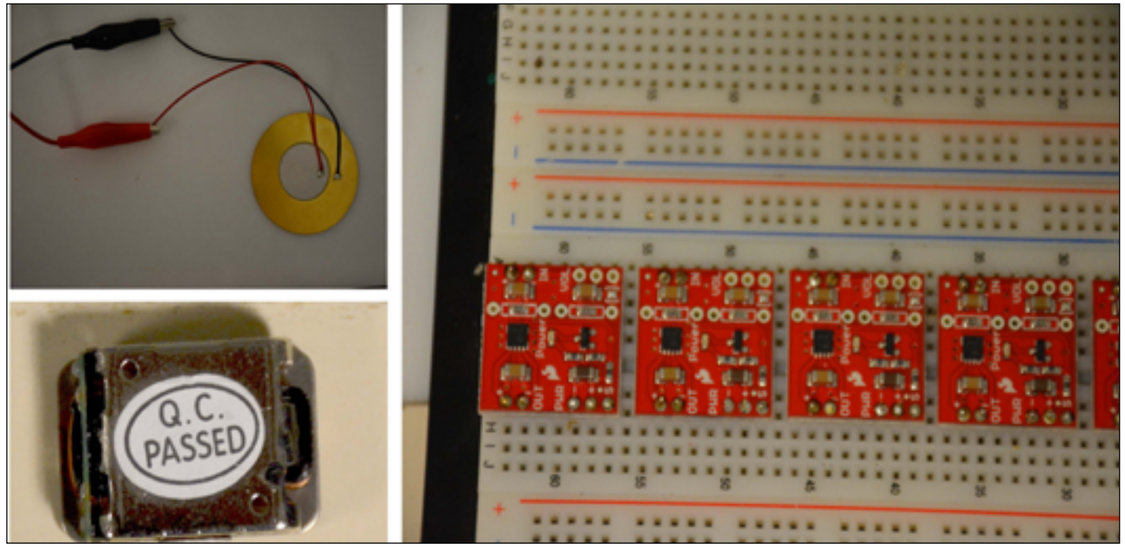
"One's sense of touch is particularly important in the prairie," Aresty said. "Without the ability to reach out and touch, it is all too easy to overlook the tremendous variety of grasses, flowers, and trees which make up the prairie. And yet, prairie can be hard to come by these days. Branches, a collaboration of artists Abby Aresty and Eden Marek, are what they refer to as sound sculptures: interactive works that allow participants to engage with the complex textures of the prairie from a distance. Combining handmade paper and custom electronics, the artists transform ordinary branches into art objects which bridge sound, vibration, and touch to create a truly immersive experience.

Each sculpture consists principally of a branch, chosen for both its visual aesthetic and acoustic potential, hand-made abaca fiber paper, and a surface transducer that converts an electrical signal to the vibrations made audible by the branches. Audio cables, small mono amplifiers, and a sound source, such as an iPod, are also used. The soft, subtle, pattern of creaks and groans that emanates from the sculptures evokes the sounds you might hear if you held a stethoscope to a tree trunk on a windy day.

In these images, Eden Marek is lifting sheets of handmade paper off their frames, and draping them over branches to dry. She made the paper from prairie grass and over-beaten abaca fiber, using them to create what she and Abby Aresty refer to as *sound sculptures.*

Photos on pps. 2- 6, courtesy of Abby Aresty

Here, Abby Aresty is setting up a small amplifier to increase the audio signal which will be sent through the piezo disc attached to each of the branches.



Various components used in the speakers including amplifiers, a piezo disc, and a surface transducer, which sometimes replaced the piezi elements, depending on the available space on the branches.

the completed "Branches" installation, (detail) 2016.

"The soft, subtle pattern of creaks and groans that emanates from the sculptures evokes the sounds you might hear if you held a stethoscope to a tree trunk on a windy day."

You can hear a "Branches" audio excerpt in SoundCloud by entering this URL: ***https://soundcloud.com/abbyaresty/branches-documentation***. To capture this recording, Abby Aresty played the left and right channel from the audio file from her work "Arrangements" (next page) through two different branches, recording each branch with a contact microphone and a shotgun microphone.

"Arrangements," Water, microphone and prairie materials, by Abby Aresty

Listen to the Podcast

To listen to a 20-minute podcast in which Abby Aresty and Eden Marek explore the inspiration for "Branches," and their own personal experiences of the prairie, follow this link to our SoundCloud playlist: https://soundcloud.com/user-239159245-389989462/sets/rootstalk-a-prairie-journal-of. Produced by Abby Aresty, the podcast includes field recordings by Aresty, Marek, Elizabeth Hill, and Bernie Fischlowitz-Roberts.

"Branches" is by no means the only work in which Aresty and Marek have explored the intersection and relationship between sound and touch. In "Arrangements" (at left) and EcoSymphonic Board (below), they explore and invite participants to interact with organic materials gathered on the prairie.

"Echo Symphonic Board," by Eden Marek

Photo courtesy of Tilly Woodward

Tilly Woodward

Tilly Woodward *(http://www.tillywoodward.com) graduated from Phillips Academy, Andover (http://www.andover.edu), holds a BFA from the Kansas City Art Institute (http://kcai.edu) and an MFA from the University of Kansas (http://art.ku.edu/mfa-visual-art). She is Curator of Academic and Community Outreach at Grinnell College's Faulconer Gallery (https://www.grinnell.edu/faulconergallery). Her work has been exhibited in more than 191 museums and galleries nationally and can be found in museum, corporate and private collections in Israel, Ghana, Uganda, India, and throughout the United States. She has received numerous grants and awards including two Fellowships for Drawing from the National Endowment for the Arts, and has initiated many arts outreach projects designed to help communities address specific social issues, foster creativity, build tolerance and compassion. She is well known for her highly realistic, meticulously detailed oil paintings.*

Tilly Woodward at work in her studio, 2016

"Horsehair Nest and Sliding Bar Bit," 2006. 11"x8.5", oil on board, 2016

"Tinder," 11 x 8.5, oil on board, 2016

Photo courtesy of Lanny Haldy

Lanny Haldy received his B.A in physics and M.A. in history at the University of Iowa. He has served as Executive Director of the Amana Heritage Society (http://www.amanaheritage.org) since 1983. He and his wife Andrea reside in Middle Amana. Lanny has been on many local boards including Amana Colonies Trails, the Amana Library Advisory Panel, and currently serves as President of the Amana Colonies Historical Sites Foundation. In addition he has served as an officer for several state and national organizations, including the Iowa Museum Association (https://www.iowamuseums.org) and the Communal Studies Association (http://www.communalstudies.org). In his retirement he plans to continue living in the Amana Colonies and remain active as a volunteer for local organizations.

Long Player: 33⅓ Years in a Local History Museum

Lanny Haldy

Since June 15, 1983, I've had the good fortune to serve as the Executive Director of the Amana Heritage Society, a local non-profit historical society in Amana, Iowa. I was born and raised in Middle Amana and live in the house of my childhood. Having done my graduate work in history at the University of Iowa I am doubly fortunate to be a historian in and of my own home town.

The Amana Heritage Society was formed in 1968 with a mission to collect, preserve and interpret the Amana Colonies' cultural heritage. Amana has a rich German ethnic heritage and was founded on strong religious conviction, but its communal organization—and the landscape, villages, buildings, material culture and cultural traditions which communalism fostered—is what put it on the map, or at least on the National Register of Historic Places, a status it received in 1965 as one of the largest National Historic Landmarks in the United States. My good fortune again: we have a great story to tell, relevant to today, about the power of religious faith and cooperative labor, the place of individuals and families in a community, and sustainability to name just a few themes.

The Amana Heritage Museum in the village of Amana began with the acquisition of a historical communal-era residence, the Noe House, which was converted into a museum with exhibits on its two floors which trace the history of the community from Europe to Amana. The property included the adjacent washhouse/woodshed, virtually unchanged since the early 20th century, which is also open to museum visitors. In 1975 we added the neighboring village schoolhouse to the museum complex. Today the second floor of the schoolhouse houses the museum offices, curatorial

workspace, and the library and archives. The main floor has the visitor reception area, the museum bookstore, and a 60-seat auditorium in which we show a 20-minute orientation video to museum visitors.

The Amana Heritage Society also owns or leases other historical properties in the Amana Colonies. Two have become central points of our interpretation: the Communal Kitchen in Middle Amana (leased from a private individual) and the Homestead Church (acquired from the Amana Church Society). As the places where people ate together and worshipped together, these buildings are ideal settings for visitors to learn about life in communal Amana and the religious beliefs and traditions of the Amana people. These spaces give visitors a clear sense of how life was different in communal Amana. The Heritage Society owns three additional historical buildings: the Homestead Store, the Homestead Blacksmith Shop, and the Middle Amana Cooper Shop. We also rent the 1858 High Amana General Store which we use as a museum store.

One of the current points of emphasis in the museum profession is to encourage museums to be closer to the communities in which they are located and responsive to their needs. For example, the theme of this year's Iowa Museum Association conference is "Celebrating Community." For the Amana Heritage Society, that hasn't been much of a concern. The society has always been deeply grounded in the Amana community. The museum was founded by an ad hoc group of local residents, and community volunteers have continued to play a key role in the development and growth of the organization. The organization is governed by a Board of Directors consisting of nine volunteer members from the community. The museum's collections of artifacts, documents and photographs have all been built on donations from community members. In the beginning community residents and descendants donated items to the museum from their woodsheds and attics—artifacts, examples of Amana's material culture. We are still nearly overwhelmed with donations from individuals, but now we are receiving items from peoples' closets and file cabinets, mostly manuscripts and photographs.

The Amana Heritage Society takes an active role in the life of the Amana community. It is "at the table"

The Museum of Amana History. Photo courtesy of Jon Andelson

for discussion of community issues and concerns, participates in local events and programs, and its resources are used by the community to an extent most museums would envy.

Further, the Heritage Society is an important component in the Amana Colonies' sense of community identity. When the Heritage Society was founded many Amana residents and descendants were still somewhat embarrassed by their communal heritage, their German language, and their different religious traditions. In its early days the Heritage Society helped local residents realize that their heritage was something to be proud of and preserve; that their story was important to share. An oral history project undertaken in 1982 to commemorate the 50th year anniversary of the end of the communal system gave the community an opportunity to celebrate its heritage and culture. And it has continued to embrace those.

Knitting lesson, circa 1907. Photo by Bertha Shambaugh

The Heritage Society also helps to provide a wider context for our local history, demonstrating that we are not alone. Through its affiliation with organizations such as the Communal Studies Association and Silos and Smokestacks National Heritage Area, the Heritage Society helps show community members that our story is indeed part of larger historical patterns and themes. Through our association with the Communal Studies Association, we have learned that our community's religious and communal heritage is not unique, but rather has much in common with other religious and communal groups in the United States. The agricultural interpretive themes articulated by Silos and Smokestacks help us contrast Amana's villages and landscape with Midwestern family farms, as well as provide a general framework for understanding Amana's agricultural development.

My 33-some years have included several community milestones. In 2005 we observed Amana's sesquicentennial. While many communities use an anniversary like this to rediscover or reconnect with their history, in Amana the event was simply a good reason for a celebration. We are a community that is closely in touch with our history—on a daily basis—thanks in part to the fact that we host so many tourist visitors who are interested in our story. The year 2009 also saw a milestone, though not many people noted it: that year marked the point when our post-communal history exceeded the duration of the communal era in Amana. Our museum exhibits have been reworked to bring our story up to the present, and our guides will attest that visitors to Amana are just as likely to be interested in Amana's life after communalism and Amana today, as they are in our communal past.

In 2014 the Amana Church observed the 300th anniversary of its founding. We created a special exhibit at the museum in conjunction with the Church programs. The exhibit traced the history of the church through the history of its publications, and it gave us a way to focus on the European roots of our community's history. The printing heritage is probably the aspect of Amana histo-

ry that interests me most and I feel especially fortunate to have been around for this tri-centennial observance. From my first days at the museum we have worked to build the collections of books and manuscripts generated by the church and community. Today we can say we have in our collection every known publication of the community with the notable exception of the second edition of the church hymnal printed in 1729.

Our involvement with the community has been a constant over the years. Community support is as strong as ever. Another source of support, mostly financial in this case, has not been so dependable, though. Unlike that of most small local historical societies, our operating budget relies on a high percentage of earned revenue. "Earned revenue" is the museum world's term for income from admissions and store sales, and for us that translates directly to tourism and the number of museum admissions paid by tourist visitors. I long ago stopped trying to explain—much less predict—tourism's ebb and flow. It is what it is, as the saying goes, but over the past three decades, admission numbers have generally trended down. The good news is that the trend has recently reversed: the last three years have shown significant increases in visitors and hence revenue. We live with the unpredictability of tourism and earned revenue.

Despite the vagaries of tourist numbers there is a continuing interest in Amana's story. Even with more competition from other historical sites, the higher cost of travel, and a general decline in museum attendance nationwide, people still come to Amana and to the museum. In 2015 over 12,000 people visited the museum, representing all 50 states and 32 countries. Since we started keeping a list in 1985, the museum has hosted visitors from 116 countries. And although there might be fewer visitors overall, I think those who do come are better informed and coming for more of the right reasons compared to visitors 30 years ago. The internet has made a huge difference in preparing the potential visitor to Amana, both in what Amana has to offer and its history. For example, 30 years ago we spent a lot of time and energy explaining to visitors that Amana was not Amish. It was a major point in our visitor orientation and interaction. The Amana/Amish confusion still shows up occasionally, but it is increasingly rare. For the most part, people choose to come to Amana today knowing what it's about. Furthermore, while some visitors today might be coming to Amana for the dining, shopping or festivals, many more than in the past want a little history with their entertainment.

Some [visitors] are curious about how the communal system worked, why it ended, or how people adapted to the new way of life. Some focus on the religious roots, or the state of religion today...

People come to the Amana Colonies because of the history, culture, and ambience. We see many different interests. Some people are curious about how the communal system worked, why it ended, or how people adapted to the new way of life. Some focus on the religious roots, or the state of the religion today. I think the specific interests all stem from that fact that Amana, past and present, represents an alternative to ordinary American life and culture. Amana's communal heritage presents an alternative social and economic American experience. The landscape, village lay-out, and architecture of Amana had and still has a different look than other American towns. The friendliness of residents, the sense of community and Gemuetlichkeit give Amana a different feel than most other places. Visitors seem to appreciate all of those things.

So what has changed? The obvious I suppose: the passing of time means essentially the passing of generations and the demographic and cultural change that goes with it. For the Amana Heritage Society that has meant several things. First, it means that we have had to try to reach out to a new audience: more recent residents and business owners who might or might not have any Amana lineage. But while they might not have a family link, we have found there is a more concrete one, or perhaps I should say brick, stone, and wood.

Lanny Haldy addressing visitors in the Homestead Church Museum. Photo courtesy of Jon Andelson

The Amana landscape and built environment is still a very strong and direct link with our past. The history of the building and the people and families who lived or worked there provides an excellent opportunity to connect with a new property owner and community member. Another new audience that was a challenge to reach—but is easier now with websites and social media—is those people who are descendants of Amana but living far away, who nevertheless have a sense of belonging. Amana it seems still provides a "grounding" or foundation for many who might have lived here only in their youth or perhaps even not at all.

The passing of generations has also changed the way we do things at the museum. Thirty-three years ago we didn't have to worry about our "interpretive plan." Our museum guides were mostly Amana residents who had lived in the communal era. We simply let them talk to visitors and tell their stories. Museum patrons learned what life was like in the communal system from people who had actually lived it. I don't think you can do better than that. Now I find myself talking about my parents or my grandparents—retelling their stories. Still today we have knowledgeable museum docents/guides who talk with, interact with, museum visitors. There is a recurring emphasis in museum philosophy to provide the visitor with an interactive experience. Twenty-five years ago that might have meant pushing a button or opening a box. Today it's a touch screen. I strongly believe that the best interactive experience a museum visitor can have is interacting with another person—a museum guide. We know we reached people when they ask questions, express opinions, and/or share their personal experiences. I personally find it very rewarding when, while I talk about life in Amana, audience members start talking about their experiences. I remember one tour many years ago of about 15 people that included one Japanese-American woman. After I had spoken about daily life and family life in communal Amana, she remarked how much that reminded her of how her grandmother had described life back home. We made a connection.

Thirty-three years ago our primary resource for Amana history was the generation that had experienced communal living. Our primary resource was people and

our primary research tool was the telephone. When we had a question, we would phone someone we thought would know: "How did you….?" "Where was the….?" "Who was in charge of…?" Still today, our main resources—the ones used most often—are our collections of oral histories and historical photographs, both of which give history a personal face, a connection with people. For all the concern with utilizing technology in museums, ultimately it is the stories of people of the past that resonate with people today.

The same generation that gave us information, also provided us with another resource: knowledge of the German language and the old German script. One of our biggest challenges at the museum, and as a community, is to translate the huge body of German-language heritage into English. And one of our biggest frustrations is that we have so much material in German that is not utilized because of the language and script barriers. Over the years we have relied a lot on community members, on local Amana folks, to transcribe and translate, but increasingly we need to look elsewhere.

As I prepare to retire from my position this October, I find that my role has also changed. These days people, including younger people in Amana, ask me about the past. Thirty-three years ago I was doing the asking. Thirty-three years ago I was collecting, documenting and using Amana's historical resources. Now I've become one.

Middle Amana Kitchen House Museum. Photo courtesy of Jon Andelson

Photo courtesy of Ken Saunders, taken February 25, 2012, Otter Creek Marsh Wildlife Management Area in Tama County, Iowa

Birds of the Prairie: Short-eared Owl

Asio flammeus

The short-eared owl is a medium-sized birth that ranges 13 to 17 inches from tip of bill to tail tip. It has black-rimmed yellow eyes, a pale facial disk, and short ear tufts which are not always visible. Both sexes are similar in appearance with the female being physically larger. The short-eared owl hunts both day and night –mainly during dawn and dusk in the winter. When hunting it flies low over fields, with buoyant, floppy wingbeats, looking rather like a giant moth. Like all owls, their flight is silent due to special feather adaptations. It locates prey mostly by sound but also by sight. Diet while mostly rodents can include birds, reptiles, fish, rabbits, muskrats, large insects, and rarely bats. Short-eared owls inhabit open terrain including grasslands, marsh, dunes, and tundra that support high numbers of small rodents. Large complexes of grasslands and wetlands are ideal. (Description adapted courtesy of Ken Saunders).

Song: Short-eared owls are not especially vocal. The primary call, a series of a dozen or more hoots, is given by males during courtship flight and also from the ground or from an elevated perch. Both males and females may bark, scream, or whine when defending the nest and offspring. Females sometimes utter a chicken-like cluck. [Description courtesy of the Cornell Lab of Ornithology. (http://www.birds.cornell.edu)].

Click the icon at right to hear an audio recording of the short-eared owl's call, captured by Bob McGuire, courtesy of The Macaulay Library (http://macaulaylibrary.org) at the Cornell Lab of Ornithology.

Photo courtesy of Shelby Prindaville

Shelby Prindaville (www. http://shelbyprindaville.com) is the Art Program Director and Assistant Professor of Art at the University of Saint Mary (www.stmary.edu) in Leavenworth, KS. Prior to her employment at USM, Prindaville worked in various roles —including as an Instructor of Record and Gallery Special Projects Coordinator—at Louisiana State University in Baton Rouge, LA, while completing her Master of Fine Arts from the LSU Painting and Drawing Program in May 2013.

She received her Bachelor of Arts in fine arts with a concentration in sculpture from the University of Pennsylvania in Philadelphia, PA, in 2008. Her studio practice combines her interests in the sciences and art. This interest extends to her collaboration with LSU Chemistry Professor John A. Pojman, which has led to the development of new polymer clays used in her relief paintings and sculptures.

Paintings by Shelby Prindaville

Prindaville's artwork has been exhibited in various venues internationally and throughout the U.S., including Philadelphia, New York City, Washington D.C., Minneapolis, Kansas City, Baton Rouge, Fort Worth, and Los Angeles, as well as online. Her work is included in a number of public and private collections, and she has been awarded a variety of grants, prizes, and international and domestic residencies.

Of her work, Prindaville says: "I am interested in the human role in shaping an ecological balance and create images centered on the beautiful fragility and resilience of the natural world. I want viewers to interact and emotionally connect with my work and for that experience to demonstrate the joy of contemplative engagement with nature as well as provide a taste of the sorrow a disconnect with nature can bring. The passion that I have in preserving our biosphere and its flora and fauna has motivated me to try to use a variety of mediums and approaches in connecting with the public. My subjects in both two- and three-dimensional media are typically removed from strictly representational habitats and isolated in a space that allows room for viewer narratives while referencing the discovery and artifactual documentation of taxonomic illustrations and specimens.

"Perfect Form," Acrylic on sealed basswood panel, 12" x 12" x 7/8" by Shelby Prindaville, 2015

Photos courtesy of Jun Taek Lee '18

Prairie Meanders

An installation by Baz Kershaw, Susan Haedicke, and Lesley Delmenico

From September 10 to November 1, 2016, Grinnell College's Conard Environmental Research Area (CERA) (https://www.grinnell.edu/academics/areas/biology/cera) in rural Kellogg, Iowa, was home to Prairie Meanders, a hybrid art installation combining nature trails, gallery display, land art, and performance. The installation—cosponsored by Grinnell's Office of Community Enhancement and Engagement, the Center for the Humanities, the Public Events Concert Series, the concentration in environmental studies, the theatre and dance department, the Center for Prairie Studies, and CERA—sent visitors along maze-like pathways, experiencing global ecology on a local, human-sized scale.

Professors Baz Kershaw and Susan Haedicke, both of Warwick University (UK) (http://www2.warwick.ac.uk/), created the Meanders with a big assist from students of associate professor Leslie Delmenico from Grinnell's department of theatre and dance. Baz Kershaw, an emeritus professor of theater and performance studies at Warwick, is creator of Earthrise Repair Shop (http://performancefootprint.co.uk/projects/earthrise-repair-shop/), and has keynoted many international conferences and visited as researcher at universities on five continents.

While the Prairie Meanders were created by theater professionals, they were anything but a traditional theatrical experience. Kershaw and Haedicke laid out pathways through CERA's prairie setting, using varied stations to stop visitors, literally in their tracks, encouraging reflection on both the immediate surroundings—a 365-acre section of native prairie, oak savanna, and wetland under restoration since the College acquired it in 1968—and on the prairie's place in the larger world environment.

The installation began on the cusp of the harvest season, when the lush grasses and forbs formed gold, yellow and green walls of vegetation that recalled the garden mazes built on some English estates. It concluded as the winter was beginning to close in, and the installation's stations began to rise, bare artificial towers, as the flowers sensesced and the grasses fainted to the earth.

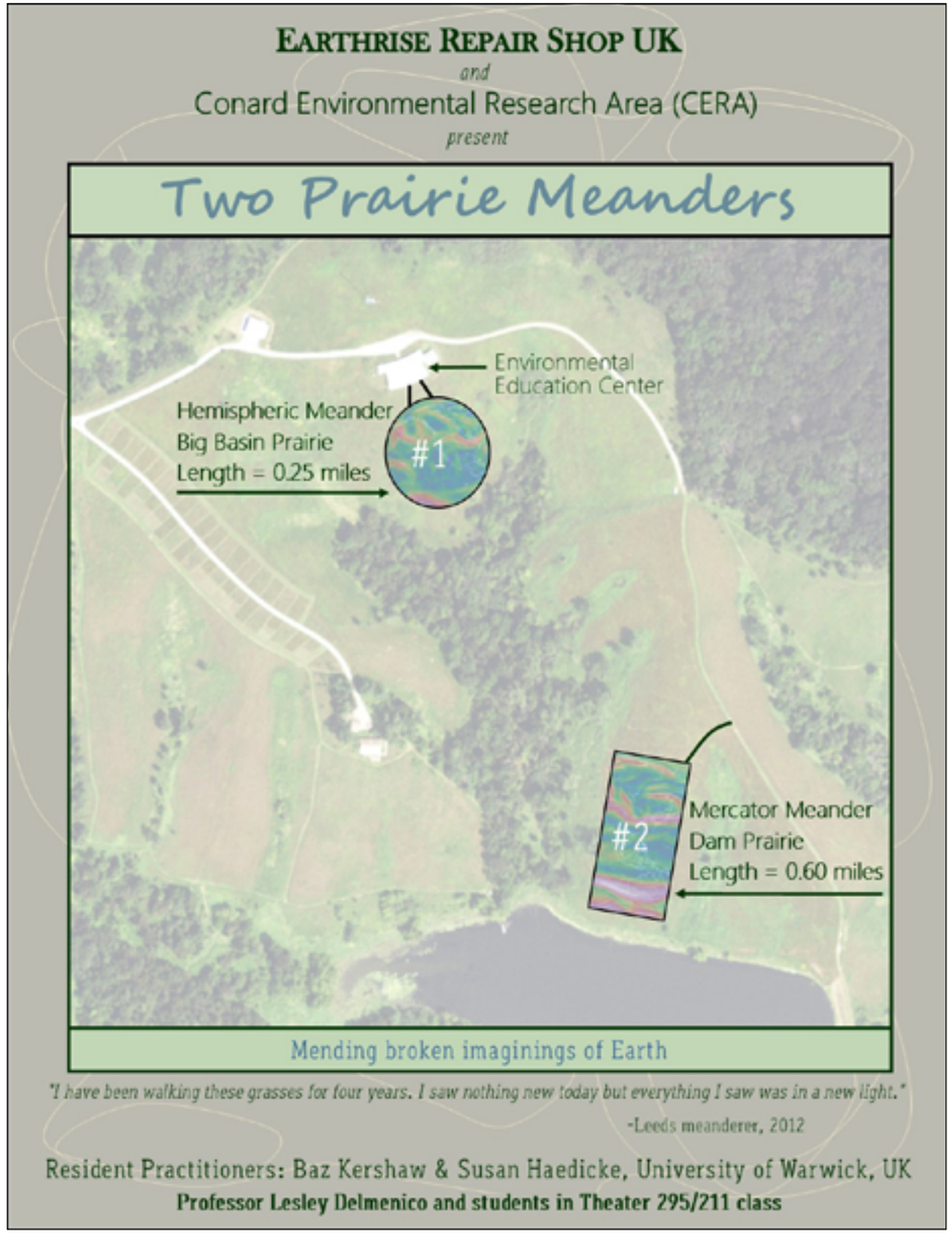
Visitors were encouraged to leave comments on their experience, and a selection of these appears with the photographs.

"We were migrating, and could identify with creatures who somehow know they are supposed to go a certain way for arduous long distance..."

"So interesting that we were never invited to think specifically about the prairie ecosystem, but instead embedded in the prairie landscape..."

"What a stunning experience—immersed in the beauty of the prairie and yet called to read the world more cautiously. Loved the combination of data and art pieces. Thanks so much for this memorable experience."

"I enjoyed the different awareness of wind. I heard a rustle in one particular tree nearby and heard the wind more than in the other (where I heard insects). I liked this sensation paired with the installations of birds. I felt uneasy from the places of blocked paths. Like migration?."



"I loved the immersion in the ocean current meanders—feeling the plants and insects all around, the physical encounter of it the height of the plants and lack of visibility felt so appropriate and inviting—and that wonder created this cognitive dissonance, their counterpoint to the depressing facts and displays. The combination of the two makes this a rich and bittersweet experience."

"This meandering is a wonderful idea. Our footprint on this planet has been very harmful in so many ways that affect all other life."

"Prairie as ocean—beautiful image makes us think of the immensity of the world while poking along at ground level concentrating on tiny details..."

Photos courtesy of Baz Kershaw

Photos courtesy of Susan Haedicke

Lesley Delmenico's *(https://www.grinnell.edu/users/delmenic) teaching, directing, and research focus on theatre's political roles in contemporary society, particularly performance's intersections with urban spaces, the natural environment, immigration, gender, and culture. Her book,* Mobile Publics, *co-edited with Mary Elizabeth Anderson, addresses new ways audiences engage with performance spaces.* Delmenico's *working with three London immigrant women's non-governmental organizations (NGOs), staging issues of sexuality, law, and changing metropolitan identities. She staged* Pursuing Justice, *her adaptation of a rape trial transcript in London in 2015, and she's devising a performance about the effects of female genital mutilation with the NGO FORWARD. She's created community-based performances in Mumbai and Grinnell, studied community and intercultural theatre in East Timor and Australia, and has published in theatre and sociology journals and presented thirty-seven times at international theatre conferences. She has taught at Grinnell College since 2000.*

Baz Kershaw *(https://www2.warwick.ac.uk/fac/arts/theatre_s/staff/baz_kershaw) was a Professor in Theatre and Performance Studies at The University of Warwick in the U.K, and formerly served as Chair of Drama at the University of Bristol, and as Director of the five-year research project PARIP (Practice as Research in Performance). He worked as a design engineer before reading English and Philosophy at Manchester University, and he holds higher degrees from the Universities of Hawaii and Exeter. His work in experimental, radical and community-based theatre has included productions at the legendary Drury Lane Arts Lab in London, as well as site-specific productions on the Bristol heritage ship, the SS Great Britain.*

Susan Haedicke *(https://www2.warwick.ac.uk/fac/arts/theatre_s/staff/susan_haedicke) is Associate Professor in the School of Theatre, Performance and Cultural Policy Studies at The University of Warwick and works as a professional freelance dramaturge in experimental and street theatres in France and the United States. Her area of research is European street theatre, on which she has published several articles and presented numerous conference papers. Her books include* Contemporary Street Arts in Europe: Aesthetics and Politics (Studies in International Performance (http://www.palgrave.com/us/book/9780230220263) *and* Performing Democracy: International Perspectives on Urban Community-based Performance *(https://muse.jhu.edu/article/37534)*

Photo courtesy of Ken Saunders II

Closeup: Ken Saunders II

Though Ken Saunders numbers hiking and nature study among his primary interests, nature photography is his passion. Photography, in his mind, dovetails with all his other interests.

Saunders got his first camera, a Kodak 104 Instamatic, when he was around seven years old. This camera used a 126 film cartridge and featured a connector for the new (at the time) flashcube. The 104 retailed for $15.95 when launched in 1963. Kodak sold 60 million of the various models of "Instamatic" cameras in the 1960's and 1970's. Back then, Saunders enjoyed taking snapshots of family, friends, and travel destinations during those early days.

Finally in 1985, he purchased his first (and only) 35mm film SLR (single lens reflex) camera—a Pentax Super Program, plus several Pentax lens. Saunders started focusing on nature (flora and fauna), scenery, and some macro photography consisting mostly of flora. He did majority of his photography during this time on trips to various national parks. Initially Saunders used print film, but transitioned later to slide film.

Saunders began his digital experience in 2003 with a Nikon Coolpix 5700, a high end digital camera that was not a SLR. The fixed lens in the body gave him the equivalent of a 35-280mm zoom. Saunders also purchased a Nikon adaptor, a Nikon 28mm wide angle converter, and a Nikon 1.5x telephoto converter. He continued to focus on nature photography, including macro photography. With the adapter and the 1.5x teleconverter installed, the equivalent focal length became 52.5-420mm. This improved his ability to capture wildlife and, as he puts it, he "quickly became addicted to the longer focal length!"

In 2006 Saunders purchased his first DSLR (digital single lens reflex)—a Nikon D200 and several Nikkor (Nikon) lens. He claims that the learning curve changed dramatically for him as he made use of his newest digital equipment technology, which had the added benefit of eliminating the purchase and loading of film. With this new suite of equipment, Saunders was willling to branch out, trying multipe settings and taking lots of shots. Since 2006, he has upgraded camera bodies several times, added a couple of lens, and obtained a set of teleconverters. As he puts it, "There is no going back!"

Saunders has spent considerable time over the years photographing nature in northwest Wyoming, the vast majority of his photography is captured in Iowa, and usually not too far from Grinnell. All the photos for this feature were captured within a 28-mile radius (42-miles maximum driving distance) of Grinnell.

Saunders hopes that his photography will further the cause of environmental education, perhaps stimulating those who are not familiar with the gifts of nature, or further stimulating those who already are. Saunders feel that if one becomes more intimate with nature, one is likely to realize these gifts, perhaps becoming passionate about them, and certainly becoming interested in not losing them. He feels his photography can bring attention to that in the natural world which is threatened, saying: "It would be difficult to feel loss if one is not aware of what they are losing."

This great blue heron was captured April 18, 2015, at Otter Creek Marsh Wildlife Management Area, in Tama County, Iowa

Great Blue Heron

(Ardea herodius)

Although this majestic gray wading bird—the largest of the North American herons—is four feet tall, the fact that it has hollow bones (like all birds) means that it weighs only five or six pounds. It has long legs, a sinuous neck, and a thick dagger-like bill. Standing, it holds its neck erect or rests it on its shoulders. In flight, its neck is tucked in an "S" shape, its long legs trailing out behind and its wingbeats deep and slow. Its voice is a deep, harsh croak. Breeding adults gather in colonies or "heronries," which can feature 500 or more stick nests in trees high off the ground. Hunting, great blue herons stand motionless, scanning for prey, or wade belly deep with long, deliberate strides. They eat nearly anything within striking distance including fish, amphibians, reptiles, small mammals, insects, and other birds, and also forage in grasslands and agricultural fields.

This white-tailed deer fawn was captured June 10, 2007, at Sugar Creek Audubon Center in Jasper County, Iowa

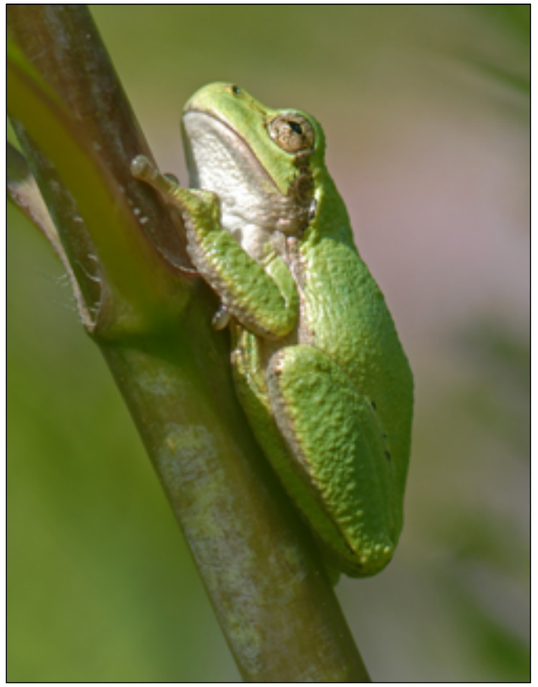
White-tailed Deer
(Odocoileus virginianus)

White-tails are the smallest North American deer species. Bucks have antlers which are shed in winter and regrown in spring. Fawns have a reddish-brown coat with white spots. Deer's diet includes green plants, fruit, alfalfa, lichens, and fungi in the summer. In fall and winter, they eat nuts, corn, and woody vegetation. Whitetails inhabit river valley bottomlands, farmlands, brushy areas, woodlands, savanna, prairie, sage communities, and foothill grasslands.

Eastern Red Bat
(Lasiurus borealis)

The red bat is a tree bat three-and-a-half to four-and-a-half inches long, with a 13-inch wingspan. It has small rounded ears and long, silky angora-like fur ranging from red to golden brown. The female red bat is the only bat with 4 teats. Most bats have only a single baby, but the red bat gives birth to two to four young in early summer. The newborn are born hairless, and will hang on to their mother with one foot while hanging onto a perch with the other foot.

This female eastern red bat with her young was captured June 27, 2003, in the back yard of our property in northwest Grinnell, Iowa



This gray tree frog was captured August 16, 2008, on private property in rural Jasper County, Iowa

Gray Tree Frog
(Hyla versicolor)

These are relatively small frogs—typically an inch-and-a-half to two inches—compared to other North American frog species, with females usually larger than males. Their skin has a lumpy texture, and they vary in color, owing to their ability to camouflage themselves from gray to green, depending on the substrate on which they are sitting. The degree of mottling varies. They can change from nearly black to nearly white. They change color at a slower rate than a chameleon. The frogs have bright yellow patches on their hind legs which are normally only visible when the frog is jumping. The gray tree frog is most common in forested areas as it is highly arboreal. These frogs rarely ever descend from high tree tops except for breeding. The gray tree frog ranges from southeastern Canada to the eastern United States as far west as central Texas and Oklahoma.

Clouded Sulfur
(Colias philodice)

The clouded sulfur is one of our most common butterflies. Their wingspans range from one and one-half to two and three-quarters inches, and they almost always perch with their wings closed. Clouded sulfurs have multiple (3 to 4) broods and fly from early spring to late fall. The clouded sulfur is one of the latest flying butterflies that does not hibernate overwinter as an adult. Their flight is slightly erratic and direct. Adults drink nectar from many different flowers and they obtain moisture from water, mud, and animal dung. Larval foodplants include black locust, white clover, alfalfa, and other legumes. Clouded sulfurs inhabit open areas especially hayfields, prairies, and lawns and along roadsides near these habitats.

This clouded sulfur butterfly was captured July 15, 2006, at Grinnell College's Conard Environmental Research Area (CERA) in Jasper County, Iowa

Ring-billed Gull

(Larus delawarensis)

This bird measures 19 inches from tip of bill to tail tip. Adults are clean gray above with a white head, body, and tail. Their black wingtips are spotted with white. They have yellow legs and a yellow bill with a black band around it that distinguishes adults from other species, and they are seen inland more commonly than most other gulls. In flight, they are quite acrobatic and move lightly on easy flaps of their slender wings as they circle and hover, looking for food. When migrating they apparently use a built-in compass to navigate, and rely on landmarks and high-altitude winds to provide directional cues. Their nesting colonies normally include a small percentage of two-female couples. Fertilized by an obliging male, each female spouse lays a clutch of eggs, leading to 5 to 7 egg "super clutches". Their diet consists mostly of fish, insects, earthworms, rodents, grain, and garbage, and have also been known to eat dates, cherries, blueberries, strawberries, French fries, and other discarded food. Ring-billed gulls. They inhabit reservoirs, lakes, ponds, streams, plowed fields, landfills, parking lots, and shopping malls, and in coastal areas inhabit estuaries, beaches, mudflats, coastal waters, bays, docks, wharves, and harbors. They range from Canada to the northern U. S., migrating through the nation's center, overwintering in the southern U. S., Mexico, and Cuba.

This ring-billed gull was captured November 15, 2010, on the Des Moines River below Red Rock Dam in Marion County, Iowa

Photo courtesy of Ken Saunders, taken January 19, 2015, above the Des Moines River, below Red Rock Dam in Marion County, Iowa

Birds of the Prairie: Bald Eagle

Haliaeetus leucocephalus

The bald eagle has been the national emblem of the United States since 1782 and a spiritual symbol for Native Americans far longer than that. A large, powerful bird of prey, it has a wingspan of seven to eight feet. Bald eagles spend their first four years exploring vast territories, and can fly hundreds of miles per day. They obtain their adult plumage at age five, which is also when they start breeding. They are long-lived, with a record of 38 years achieved in the wild. They build some of the largest bird nests—typically five to six feet across and two to three feet. tall. Nests can take up to three months to build, may be reused (and added to) year after year, and can weigh over a ton. Though often solitary, bald eagles congregate by scores or even hundreds at communal roosts and feeding sites, particularly in winter. Bald eagles' diet consists mainly of fish and carrion but they will also hunt birds, reptiles, amphibians, mammals, and invertebrates. They occasionally hunt cooperatively, with one individual flushing prey toward another. (Description adapted courtesy of Ken Saunders).

Song: For such a powerful bird, the Bald Eagle emits surprisingly weak-sounding calls—usually a series of high-pitched whistling or piping notes. [Description courtesy of the Cornell Lab of Ornithology. (http://www.birds.cornell.edu)].

Click the icon at right to hear an audio recording of the bald eagle's call, captured by Gerrit Vyn, courtesy of The Macaulay Library (http://macaulaylibrary.org) at the Cornell Lab of Ornithology.

Endnotes

"One Clover, and a Bee": Improving Biodiversity through Community Engagement

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