

# PRAIRIE RESTORATION GRANT PROPOSAL AND STRATEGY

by

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My research questions are: How does one prepare an effective proposal for restoring a natural ecosystem, and what are the benefits of the close proximity of natural habitats to students and other stakeholders? To answer these questions, I created a project a three part project including an example prairie restoration grant proposal (Word document), a powerpoint to accompany this example proposal, and a tip sheet for those trying to create a natural habitat restoration (Word document). My project is geared towards more traditional school yards, and is therefore intended for formal educators. However, anyone that is going to perform a habitat restoration grant proposal with the main audience being students can use my project to their benefit, from environmental educators to landowners.

Using information from my research paper, I created a prairie restoration grant proposal document to be used for presenting to an educational grant committee. I highlight the education, social, and emotional benefits of a prairie restoration to all stakeholders, from students, teachers, and surrounding community members, to the environmental benefits. I give a simple explanation to the process of creating a pocket prairie and discuss the rationale behind a project like this. I describe the environmental characteristics of the current schoolyard, and then show a map of what the proposed prairie will look like on campus. I highlight goals of the project, including learning objectives and sample activities. I give a list of the specific seeds that will be planted and where I can obtain them from. I include a series of questions that I will use as a pre and post restoration survey for students to take to judge the effectiveness of the project. Lastly, I end with a detailed budget, including the justification for why each part of this budget is necessary.

The PowerPoint is meant to accompany the grant proposal and be a visual representation of the proposal. It is simple and not cluttered as not to detract from the meaning of the proposal or

distract the audience during the presentation. The budget is transformed into a pie chart to clear up the larger table budget included in the proposal. The grant writing tip sheet includes 6 easy to follow suggestions to help those looking to create a habitat restoration grant proposal.

### Pocket Prairie Restoration Proposal Example

#### **Project Description:**

This project will result in a portion of our school yard being restored from grassy field to a prairie, similar to the kind that would have been in the area pre-european settlement. Due to its small size (a little bit less than 1.5 acres), it is called a “pocket prairie.” Much of the labor will take place over the course of a few months, but the prairie will take 2 to 3 years to be fully established. There will be a walking path around the prairie to separate the Bermuda grass soccer field from the restored prairie area (diagram to follow) and to allow gentle observation from the outer edge of the prairie. There will be metal signage placed along the path to highlight different flowers, grasses, insects, and other wildlife that may be encountered in the prairie, as well as describing the unseen benefits of a prairie, like better water retention (reduced runoff) due to deep rooted grasses and wildflowers, and soil quality improvement.

The grasses spend a lot of their energy in the first 2 or so years putting down their deep roots, and will be more visible above ground after this foundation is set. Once established, the prairie will not only be beautiful to look at, but it provides an outdoor learning environment for all students and teachers to use, but will provide the most direct lessons for science and environmental science lessons.

The funding for this project will come from the [District name] Education Foundation. The mission statement for the Education Foundation is: Advancing excellence in education through creative and innovative community funding. Each year the Education Foundation provides hundreds of thousands of dollars for teacher grant opportunities. I believe that this project fulfills that mission.

#### **Rationale:**

The Pocket Prairie Project will allow students to participate in a creative campus project that will increase collaboration among students of all ages (3-14 years old on our campus). Being an environmental science magnet, it is important that our students know as much about our environment as possible, and this includes learning about prairies. Prairies were the predominant ecosystem of our region in pre-industrial times, yet they are now one of the most rare biomes in

modern times due to agricultural practices. If our students are to become positive stewards of our ecosystem, then they must understand the history of the environment.

**Current Environmental Characteristics:**

Our campus is located in Central Texas and in hardiness zone 8b. We receive an average of 32 inches of rainfall annually, which is typical of other tallgrass prairie ecosystems. Our school yard is inhabited by Bermuda grass. Bermuda grass is a quickly spreading invasive species not found in a prairie habitat. The soil is of decent quality, well draining due to the rocky subsurface. It is quite sandy, and not as biologically active as it could be, due to the Bermuda grass roots not extending into the soil very far which causes the soil to get hard and compacted in the summer droughts. There are seasonal small wildflowers such as Tiny Bluet, Sneezeweed, Dandelion, and Carolina Bristle Mallow, but not the large variety of flowers that would be present in a typical tallgrass prairie ecosystem.

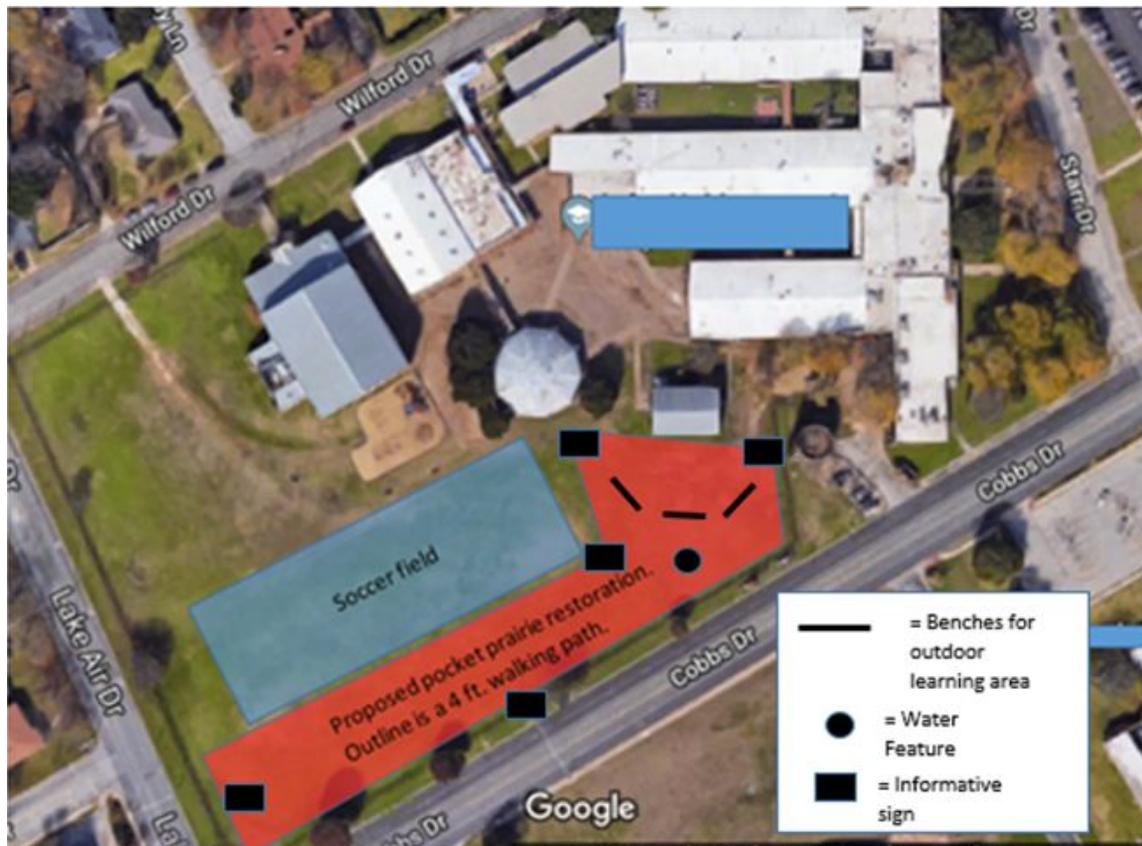


(School yard, including one of the goals for the soccer field. The prairie habitat will extend on the left side of this image.)



(Larger square portion of the schoolyard to be restored to prairie. See map below.)

**Map of Proposed Prairie Project:**



**Goals:**

A major goal of this project is to provide an outdoor education location where students will be eager to learn not just science, but all of the core subjects and even arts and music. Studies have shown improvements in grades and knowledge when class is simply held outdoors. With a prairie located in the school yard, we should see a tangible increase in testing scores on related Texas Essential Knowledge and Skills (TEKS).

As an example, these TEKS would be directly related to prairie study (the first number or letter corresponds to grade level):

**K10.D-** Observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit.

**3.9A-** Observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem.

**5.9A-** Observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements.

**5.9C-** Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways.

**7.10C-** The student is expected to observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.

**8.11B-** The student is expected to investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition.

Example activities include assisting students in the creation of plant and wildlife guides found in our prairie, role playing how living and nonliving factors interact to create an ecosystem, and creating a comparison wheel of how the prairie changes throughout the seasons.

One of our Campus Improvement Plan goals is to “continue to extend science instruction into all science labs and outdoor spaces.” Our pocket prairie would become a outdoor classroom in and of itself. Students would get to explore and engage with this habitat in all 4 seasons, seeing how the prairie changes over time.

Another goal of the pocket prairie project is to provide students with a sense of belonging in the ecosystem. The prairie will take a couple of years to fully mature and will require maintenance until then. This will help our students see that they can have a positive impact on the environment and give voice to the fact that our actions can shape the ecosystem.

### **Plan of Operation:**

Only a small portion of our back schoolyard will be restored to a prairie. The area will first need to be sprayed with a district approved herbicide to kill all of the current invasive Bermuda grass and weeds. This process will need to take a few weeks to ensure the grass and weeds do not come back. The land will then be disced (shallowly tilled) to prepare the ground for seed planting. A broadcast seed caster will evenly distribute native grass seeds (little bluestem, big bluestem, sideoats grama, etc.) and wildflowers (bluebonnets, mexican hats, brown eyed susans, etc.). The seeds will need to be watered over the next few weeks to ensure they take root. During this time it is important to rid the area of any invasive weeds or grasses. During the first 2 years of growth, the grasses will mostly be building their deep root systems, so it may not look like much is going on on the surface, but this term is vitally important to the health of the pocket prairie.

Metal signs will be installed informing students and visitors what the pocket prairie is and some of the organisms and plants that can be found there.

#### **Seed List:**

A seed mix perfect for our intended prairie area is available from a the largest native seed provider in Texas. It includes native seeds from around central Texas, which is important for the best survivability of the summer temperatures and lack of water. This mix includes the following grasses and wildflowers:

Grasses- Little Bluestem, Big Bluestem, Sideoats Grama, Switchgrass, Indiangrass, Buffalo Grass, Plains Bristlegrass

Wildflowers- American Basketflower, Annual Winecup, Mexican Hat, Black-eyed Susan, Butterflyweed, Common Milkweed, Lemon Mint, Pink Evening Primrose, Plains Coreopsis, Purple Prairie Clover, Prairie Verbena, Texas Yellowstar, Mealy Blue Sage

#### **Communication and Dissemination:**

The Education Foundation will be included in the project via opportunities to visit the pocket prairie. I envision a few different stories on the pocket prairie for the district television network. A before, during, and after restoration interview at the prairie to highlight the work being done on the campus. This will be a time to highlight how the prairie positively affects the environment and increases community involvement.

#### **Evaluation:**

A pre and post pocket prairie survey will be given to environmental science students at our school. This will measure the effectiveness of prairie conservation messaging to our students.

An example of the survey questions would be as follows:

1. What type of ecosystem was present in [City name] before our school was here?
2. Describe a prairie.
3. Have you ever spent time in a prairie?
4. Do you enjoy spending time in nature?

**Long Term Implications:**

Once the pocket prairie is established, it is largely self contained and will not need much work except to check that invasives are not moving in. Every 5 or so years, prairies typically have a fire that rids the ground of built up plant material, so this would be something to consider.

**Key Personnel:**

Byron Griffin- Environmental science teacher, will lead the project from start to finish.  
Volunteer county agricultural department officer to assist with planning and oversee the project.  
Central Texas Master Gardeners- These volunteers are very involved in our district and would assist with the project  
Parents of students and community members will assist with the project by volunteering their time. They will assist with creating the gravel pathway, the water feature, and installing the signs.

**Budget:**

<b>Item</b>	<b>Qty.</b>	<b>Cost</b>	<b>Justification</b>
Seeds	30	\$28.00 <b>\$840.00</b>	This gets 30 pounds of Blackland Prairie seed mix from Native American Seed. This is a very important purchase, as the seeds from this retailer are native to the area, and will thus do the best in our climate.
Metal Signs	5	\$116.99	5 metals signs will be placed along the walkway to explore and explain the pocket prairie.

		<b>\$584.94</b>	
Seeding machine rental, 1 week	1	<b>\$190.00</b>	SunBelt Rentals is a equipment rental facility near the school. Renting for a week will allow us adequate time to seed the 1.5 acre area.
Small Tractor and Disc attachment, 1 week	1	<b>\$200</b>	This important step will occur after the area has been safely sprayed with the herbicide and will even the soil for seed dispersal and kill any remaining weeds.
Roundup Herbicide, 1 gallon	3	\$94.97 <b>\$284.91</b>	1 gallon of herbicide covers 25,500 square feet, and we are looking at around 65,340 square feet for our restoration.
Crushed rock for walking path	1	<b>\$850.00</b>	This quote came from [Central Texas] Crushed Rock, and is important not only for students to be able to walk around the prairie without disturbing the plants, but also to keep the Bermuda grass of the soccer field out of the prairie.
Total		<b>\$2949.85</b>	

**PowerPoint presentation to accompany proposal:**

# [Campus Name] Pocket Prairie Project

The Benefits, the process, the costs

## Vision

A pocket prairie is a small slice of a larger prairie habitat.



Image by Google Maps



Fig. 1 - Tallgrass Prairie (Asher)

## Benefits to students

When students work in or around nature, there are many positive impacts:

- Reduce attention deficit disorder symptoms
- Improve mood of those with depression
- Reduce anxiety
- Enhance self-esteem
- Improve interpersonal skills
- Increase emotional regulation

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3

## Benefits to Teachers

Clear connection to classroom management benefits due to student benefits previously mentioned

- Increased opportunity for hands on activities in science/outdoor education
- Research has shown that simply conducting class outdoors increases academic performance in 4 core subjects.

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4

## Benefits to our community

- Opening the prairie restoration to the public (helping with physical restoration and visiting when complete) will increase community involvement.
- Community involvement leads to greater organization
- More organized communities have

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5

## The Restoration Process



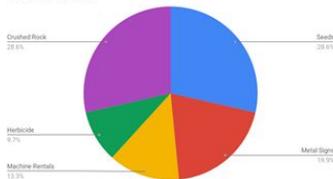
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6

## Costs

### Prairie Restoration



## Citations

- Asher, John H. "Pocket Prairie." Image. *Make a Pocket Prairie*. John H. Asher. ND. 4 April, 2016.

## Habitat Restoration Grant Writing Tips

- **The most important part of your grant is the project description.** Often the part that the grant readers will jump to, it is important that your project description be clear and informative. This isn't the time to overload your audience with scientific knowledge, but it is where you paint a clear picture of what the project goals and expectations are.
- **Follow guidelines set by grant giving organization.** This may seem like an given, but the ability or inability to follow expectations given by the organization will be an easy method of filtering by the granting committee.
- **Tailor your writing and or speaking to match your audience.** For example, if you're writing to administration without knowledge of the restoration process, don't overwhelm them with scientific terms that are unnecessary. On the other hand, if your grant is through a more scientific based organization, be sure to communicate that you understand the science behind the restoration to assure the organization that you are committed and knowledgeable.
  - In either circumstance, keep your message concise and refrain from giving unnecessary information.
- **Know your stakeholders.** Who will benefit from the project? It is likely that more than the students and teachers will benefit. Detailing who will be affected by your project will show that you have done your research and know what you are talking about.
- **Keep expectations of the restoration realistic.** The restoration, regardless of habitat type, will likely take years to become established, and the process will likely not be the most aesthetically pleasing one.
- **Give examples of success stories.** Let your audience know that you are using proven methods and that your goals are attainable and realistic. This also allows your audience to envision themselves as a part of that success.

Grant Opportunities: I have chosen these grant opportunities for their relevance to science/environmental science or for their reputation for being good stewards of the environment.

- Try your district's **Education Foundation** or similar first. There is a huge incentive for the district to fund outdoor education opportunities for its students.
- **Project Learning Tree- GreenWorks Grants-** Project Learning Tree offers GreenWorks! grants up to \$1,000 to schools and youth organizations for environmental service-learning projects that link classroom learning to the real world.

- **Alcoa Foundation Grants-** For education programs supporting STEM education and workforce training as well as environmental programs that drive measurable and systematic improvements in environmental sustainability
- **Clif Bar Family Foundation Small Grants-** for programs with measurable goals that strengthen food systems and communities, enhance public health, and safeguard the environment and natural resources
- Check <https://naaee.org/eeopro/opportunities> for grants all year long

Project Reference list:

Native American Seed. (ND). *Blackland Prairie Mix*. Retrieved from:  
[http://www.seedsource.com/catalog/detail.asp?product\\_id=2800](http://www.seedsource.com/catalog/detail.asp?product_id=2800)

Native Prairie Association of Texas. (ND). *Restoration Information*. Retrieved from:  
<http://texasprairie.org/index.php/manage/>