

Earthkeeper's Project Managers Reclamation Project

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Reclamation Project

Introduction

Over the past several months our Earthkeepers class has been busy researching and developing an understanding of how to bring the domesticated land around the new Eco Centre back to its native form. We have taken various trips out to Brightwater to visit the new Eco Centre to get visuals of the area, record data, take measurements and interact with the land on a first hand basis. This project has been a long process, with many steps required but the end is finally within reach and the exciting portion of project; planting is about to begin!

Our group, is the Project Managers. Our group is what holds this project together; we make sure that everyone is staying on track. We have prepared a written proposal for reclaiming this land around the Eco Center along with many other jobs like related case studies, an ESD assessment, a strategy, a projected timeline, jobs that need to be done, and a method for success.

Over the past several months our Earthkeepers class has been busy researching and developing an understanding of how to bring the domesticated land around the new Eco Centre back to its native form. We have taken various trips out to Brightwater to visit the new Eco Centre to get visuals of the area, record data, take measurements and interact with the land on a first hand basis. This project has been a long process, with many steps required but the end is finally within reach and the exciting portion of project; planting is about to begin!

So why Brightwater?

Located about fifteen kilometers south of city limits, set beside a beautiful creek, Brightwater is a place that offers opportunities to create a deeper understanding of nature.

Who is it for?

Open to everyone of the SPS community who wants to make a sustainable and meaningful connection with the land around them.

ESD Assessment

Through research we were able to create an understanding on what the Education for Sustainable Development out at Brightwater looks like. Brightwater is a place that gives students an opportunity to create a deeper understanding with nature. Its open for everyone in the SPS community who wants to make a sustainable and meaningful connection with the land around them.

As Teri Clark said - " Connecting students to the land in a meaningful way."

Here are some of the subjects that Brightwater touches on, that can relate back to ESD.

- Brightwater has programs aimed for Grade 6-12 students, it is set up on indigenous knowledge, along with western views. Using hands on learning where students are engaged, it tries to avoid the 'talking and listening' type learning situations.

Brightwater Educational Subjects

- Biodiversity
- Climate change
- Indigenous knowledge of nature
- Sustainable urbanization
- Ethno-botany
- Seasonal prairie ecology
- Visual arts to create a deeper understanding of prairie
- Sustainable Architecture
- Education for Sustainable Development
- First Nations ceremonies--Promotes critical thinking and teamwork.

Now with the new Eco Centre, it has the potential to offer some new things to the Brightwater community;

With Eco-Centre, Brightwater has tried to be as environmentally sustainable as possible. When you are teaching about sustainability, 'walking the talk' is important! The Eco Centre does a great job at demonstrating sustainability throughout the building.

- The Eco-Centre has the potential to bring in more students and classes, providing additional opportunities to study sustainable architecture and decision making.
- Provide students with a deeper understanding of the natural world around them

Some Signs of Sustainable Development in the Eco Center would be...

- Local resources
- Environmentally sound appliances and technology
- LED motion lights
- Natural air ventilation
- Sustainable fireplace, renewable resource
- Radiant in floor heating (conserves more energy)
- Tin roof to collect water runoff for toilet and bathroom
- High efficiency wood burning fireplace

With the Earthkeeper's efforts of creating a native plant garden around the Eco Centre, this is another way to showcase to students the importance of sustainability. A native prairie garden is beautiful, showing biodiversity and history of the land. Climate change can be taught, linking how genetically modifying plants is harmful to nature and our health. In native plant maintenance, there are no pesticides that are used, meaning cleaner air for you and me! With native prairie, there is opportunity for learning about indigenous uses of the plants, (Ethno-botany). Native plants give ample opportunities for education on sustainability, as they are vital for a healthy ecosystem.

Subjects taught in the ESD centre and why they teach them:

Biodiversity

The definition of biodiversity is the variety of life in the world or a particular habitat and ecosystem, that is seen in all forms of life. The effects of human activities have greatly reduced biodiversity, so places like Brightwater that teach younger generations about how to preserve and protect biodiversity are extraordinarily important.

Climate Change

Education on climate change is crucial for young people to understand the impact of global warming. Learning about this topic encourages changes in their attitudes and behaviours to help them adapt to climate change related trends. The more people learning

about global warming and climate change, the more likely people are to change their day to day habits to help better the environment.

Cultural Diversity

Brightwater expands student's horizons on culture and nurtures a variety of skills, human values, and worldviews while bringing together different groups of people. It also blends together indigenous views and western views on medicine and the environment.

Indigenous Knowledge

Local knowledge, languages and repositories of diversity play a key role in understanding the environment and using it for what it has to offer. This comes hand in hand with learning respect, and finding your identity.

Sustainable Lifestyles

Brightwater demonstrates a sustainable lifestyle by buying goods and services that do not harm the environment, society or economy. They use locally produced items and encourage others to do so as well, and encourage questions that would help knowledge, health and the environment to be at its best.

Sustainable Urbanization

Half of the world's population lives in urban areas and depend fully on cities for economic, social, cultural, and political progress. Brightwater educates young generations on how to be self-sustainable in urban areas.

Ethno-botany

Ethno-botany is the scientific study of the traditional knowledge and customs of people concerning plants and their medicinal and ceremonial uses. At Brightwater, the importance of what is around us is highlighted, and we are taught that we wouldn't have all the lavish things we have today, without the traditions of other cultures coming together and using their resources.

Sustainable Architecture

The Brightwater Eco Center is an example of sustainable architecture, because of the environmentally conscious design techniques and embraces a cultural feel by the circular shape of the building and the medicine wheel inside.

Aspects

It was important to look at the benefits of doing this from all perspectives...

Botanical Aspect:

Brightwater is a place for learning about nature and all it has to offer. From a botanical aspect, there are many benefits to restoring the land around the new Eco Center. Brightwater is a place where people can learn about the practical uses for plants. It can also be a place to discover new medicine and food from the indigenous species that need time to develop, as well as being a place to learn about the growing conditions of plants. Aside from knowledge about plants, Brightwater can be a place to connect yourself with nature. Brightwater can bring plants and people together, and teach people how to respect and understand nature through direct contact. By being in contact with nature, people can better understand how plants can have cultural and ceremonial purposes, while being important for medicine, shelter, tools, and food. Overall, Brightwater is a place to build, or build on the relationship you have with nature and allows for you to develop an understanding and respect for all it has to offer.

Environmental Aspect:

The environment is very important to life on this planet. We need to care for our environment to have health and balance. Brightwater understands and teaches about how important the environment really is and how to care for it. The environmental benefits of Brightwater are very significant. Brightwater strongly supports the belief of taking care of what you have, and leaving things better than the way you found them. The Eco Center is extremely efficient and environmentally friendly, it is built in a location that will allow for people to see all of the land and get a feel for the area. As you learn about nature at Brightwater, you will begin to feel for it, connect with it, and care for it in a way that is only possible through direct contact.

Cultural/Indigenous/Spiritual Aspect:

Brightwater is not only a place to observe nature, it is also a place to observe different cultures and how those cultures view nature. Sweats, smudging and other Aboriginal ceremonies often take place at Brightwater. These ceremonies let people experience other views on environment and its purpose. Building this Eco Centre has allowed for Western sciences and Aboriginal views to be combined. Brightwater is an important cultural outlet for First Nations people and their tribes. It's also a very unique learning opportunity that will give you the chance to respect the people that have lived here before you, their land, and it is one of the solutions for the lack of Aboriginal knowledge and education on sustainability that Saskatchewan has been experiencing.

Through nature and plants, Brightwater can keep our traditional heritage and gives ourselves the opportunity to be inspired.

Benefits

Economical

Although the economic benefits of The Eco Centre are not as lengthy as the benefits mentioned above, this does not mean they are any less meaningful. The site for reclamation will not require fertilization or mowing, and will not require water after the first year of the reclamation. It is also low in cost, which is very economical.

Aesthetic

Aesthetically pleasing all on its own, Brightwater is a beautiful place to witness the variety of wildlife, such as birds and insects which are always a pleasing aspect of the natural environment.

Educational

Brightwater is a part of the Saskatoon Public School Division, who are leaders of education in our city. When students and teachers visit Brightwater, they get to experience the history of the area, and view an important area to Saskatchewan that is inspiring and can naturally increase creativity within anyone who visits the site. It provides people with the chance for public interactions with nature, and an opportunity to learn about ecology, geography and social studies through a firsthand experience.

Related Cases

(Rural Saskatoon, 2005-2010)

Just outside Saskatoon on highway 219, about 20 kilometers of land was damaged due to construction. Prior to construction, this area was mostly brome grass and quack grass, but the Ministry of Highways and Infrastructure, Fisheries and Oceans Canada, Meewasin Valley Authority, CanNorth Environmental and the Native Plant Society of Saskatchewan made a goal to re-establish that area of land into native prairie. They used a mixture of 30% western wheatgrass, 30% northern wheatgrass, 10% slender wheatgrass, 25% June grass and 5% other. This mixture was seeded onto the very sandy soil to, in time, create a roadside native plant community.

Overall, the reclamation was successful, but with some problems along the way. Weeds were a big issue, to try and control the weeds road crews mowed the land but caused more harm than good when the native seedlings were smothered and the weed seeds spread. The unpredictable weather especially in the critical stages of seeding establishment caused problems like runoff and smothering. In the second year of reclamation, there was a willow leaf beetle infestation which threatened to destroy all the willows that were planted. On the brighter side of things, there was a good seeding establishment and all the area was covered as well as very little erosion. Wildlife continued to use the area after reclamation and new native species also came to the area!

(University of Saskatchewan, College of Education)

The College of Education has a garden outside its building on campus that contains a various amount of native prairie plants. This garden was started by Janet McVittie, she is a professor at the UofS, and it was her idea to have the garden for the acceptance of other cultures and a connection to Saskatchewan. The garden was created six years ago, and for those past years it was not self-sustainable, now it is almost at the point of being self-sustainable. They have a summer student that weeds and waters the garden for the summer months, with that it is on its way to self-sustainability.

What we have been doing for the past few months, is reclaiming land around Bridgewater's Eco Center, and replanting native prairie plants. We have to not only write a proposal to do this project, but we have done the prep to plant the plants and to maintain them afterwards. Our plans for maintenance are to have some Earthkeepers volunteers during the summer to come and water the plant, and take care of them.

Method for Success

To succeed with a large scale project such as reclaiming an area such as this and recreating the natural native habitat that once existed in this very spot, our goal is to stay organized and on top of what we're doing. We have a specific timeline that states when and what we need to do, in order for the plants to be self-sustainable in a few years' time.

Timeline

1. Ideas/ Individual group organization (Jan.20- Feb.7) - in this time we researched which plants to plant in the area, and other group initiatives.
2. Plants are decided- (Feb.6)
3. Feb.7th- First trip to the greenhouse (native plants are decided)
4. Finishing touches before presentation (Feb-March. 14)
5. March. 14- Presentation to Teri about reclamation
6. Preparing the site- Mid March
7. Thu, 21 March, harvest plants at greenhouse
8. Planting the seeds
9. Maintenance begins(about once a week for first month)
10. (Maintenance) Every two weeks for next month... and so on.
11. Brightwater students will water/ weed every week until late June.
12. Volunteer(s), from Earthkeepers will come to the site to check on plants.
(water/weed if necessary)
13. End of volunteer/ student help (Weather/ season dependent) (2019)

Jobs to be Completed

Job 1: Bring together a community

- Earthkeepers community

Job 2: Inventory the area

- Area around Brightwater Eco Center
- Calculate total area of land to be restored
- Take note of high and low spots, hills, wet and dry areas, sun exposure
- Find out history of site

Job 3: Map the area

- Brightwater website drawings/representations

Job 4: Identify end results

- Native prairie
- Find out what can be supported there naturally?

Job 5: Create a budget

- Find sponsors/donators
- Calculate costs of seeds, water, maintenance, tools

Job 6: Gather volunteers

- Contact local school
- Earthkeepers community

Job 7: Site preparation

- Preparation should be done at least a year in advance
- Remove any asphalt, grass
- Determine soil class (use guide book)
- Remove weeds manually (if any)

Job 8: Planting day!

- Organize date, volunteers, media
- Plant grasses and wildflowers
 - Approximately 40 seeds per every square foot
 - No area should be lacking seeds
 - Need to be pressed into the soil (stomping)
- Water area
 - Light mist for 15 minutes a day
 - NO RUNOFF! Seeds wash away with runoff

Job 9: Maintenance

- Ask for volunteers to maintain the area after restoration
- Weeding, watering (for the first few weeks)
 - Must be weeded regularly (once every other week)
- Prairie burning
 - 4-6 weeks after initial planting
 - Should be burned about every 3 years
 - Best time is mid-spring
 - Need a permit

Native plant gardens are still not self sustainable after six years, and maintenance is key for us to successfully reclaim this land. It would be a miracle if it would be self sustained in a shorter amount of time than that but if not, all the plants will die off and all of our work goes to waste. The college of education native plant garden is still not self sustainable after six years of taking care of these plants by volunteers, and staff of the building. Every other week we would need to water and weed this area for it to be cared for and for their growth to be successful.

List of Native Species to Plant

To create a native prairie full of diversity, the following plants were agreed upon after careful consideration. The plants are:

<ul style="list-style-type: none">○ gaillardia○ prairie sage○ skeleton weed○ yarrow○ fleabane ○ narrow leaved meadow sweet ○ northern wheatgrass○ dotted blazing star○ gumweed○ hairy golden aster○ june grass○ prairie cinquefoil○ blue gramma grass	<ul style="list-style-type: none">● needle and thread● tufted fleabane● little bluestem● wild onion● silvery groundsel● alum root● cusick's bluegrass● slender blue beardtongue● western porcupine grass● owned wheatgrass● yellow evening primrose● purple milkvetch● white prairie clover
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Brightwater Reclamation Proposal

Brightwater is an area owned by the Saskatoon Public Schools Division located about fifteen kilometers west outside of Saskatoon. Recently, a new Eco Centre was built inside the Brightwater area for any members of the SPSD that want to experience nature firsthand, and experience various segments of a natural ecosystem functioning in harmony. When the Eco Centre was built, a portion of land measured to be 37ft x35.7ft in front of the building containing various species of native plants to Saskatchewan was destroyed, as only a small percentage of the plants that used to inhabit the area could be salvaged. Our Earthkeepers class has taken on the project of restoring the damaged section of land into a garden full of plants that are native to Saskatchewan's prairies.

Our class has spent numerous hours researching for this project, and talking to many experts about the area we want to reclaim with indigenous species, and what choices we can make to ensure that this 37ft x 35.7 ft of land can be restored to its fullest potential. We have talked to Janet Mcvittie about what it takes for an area to become self-sustainable, Sandra Walker for a cultural look on the ecosystem around the reclamation area, and the ethno-botany of plant species nearby. Our class has also spoken to Liz Bekolay and Jordan Schultz about traits for the plants that we have decided to put in this area.

After careful consideration, and lots of planning, we have decided upon which native species would be best to plant, and why. Most of the plants that we have chosen do well in dry or semi-dry environments because of their nature, and we have plotted out where each of the plants should be planted accordingly. Just a couple of the plants that we have chosen include Blue Gramma Grass, Dotted Blazingstar, and Prairie Sage, all of which grow well in Saskatchewan's seasons. We have included many other plants such as helianthus, hairy golden aster, and stiff goldenrod. All of these plants though, like any new ecosystem, won't be self sustainable for a couple years at least, which is why they are going to need multiple people to look after them for multiple years.

We have talked to Teri Clark, and figured out a solution to this. Classes can follow the philosophy of giving back to the land, and leaving an area in better shape than what you found it. During the school year, every week a school group will visit the Eco Centre, and maintain the plants that are there. They will look for invasive species such as the brome grasses that were brought over to Brightwater by early settlers because they were supposedly more "productive", when in fact; the native plants did an incredibly better job at producing for the settlers than any of the European species could. During the summer months, the native plant garden will be looked after by members of Earthkeepers, who will water these plants using a tap located on the outside of the Eco Centre.

The benefits of restoring this land are very prominent, and compliment the building of this Eco Centre. The garden focuses on how important our natural heritage is, and how proud we should be to have these plants growing on our prairies, even though it is disappointing that we only have 15% of the original prairie left (20% if you include the indigenous plants located in our ditches), which still isn't even unscathed from human contact. Brightwater also contains lots of opportunity for education through the surrounding environment. Through the Eco Centre, students, and other participators, witness the significance, and purpose of nature in itself. The beauty, aesthetically pleasing view will allow for observers to connect with nature, and care for it in a way that isn't possible without direct contact. People cannot care for what they don't know, which is why the Eco Centre, and the restored land around it will complete that important connection from plants to humans.

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