

CLL Sample Management Plan

I. Mission, Goals and Objectives

a. Mission

The Company's environmental philosophy is stated in the Wildlife Management Plan. Every choice we make regarding the earth, air, and water around us is made with the objective of preserving it for all generations to come. That is how our stewardship will be judged, and that is our commitment. The purpose of the CLL program at Company, Site follows The Company's environmental philosophy. The purpose of the CLL program is to create partnerships with schools and organizations in the local community that will promote awareness and education of the environment relative to the operations at the Site. More simply stated, the Mission Statement is:

Build a Conservation Education program for students from local schools and scouting groups that will emphasize on-site habitats and management efforts, as well as increase and maintain habitat efforts through student hands-on participation.

b. Goals and Objectives

Outlined below are the goals and objectives we will follow in order to achieve our mission:

Table 1 (Goals and Objectives)

| | GOAL | OBJECTIVE |
|----|--|---|
| #1 | To illustrate forest management and promotion of sustainable development to students and build forest habitats | Students will compare traditional methods of logging to current alternative methods by studying clear cut areas |
| | | Students will assist in reforestation efforts: plantings will be led by site staff two times a year. |
| | | Students will take part in Project Learning Tree activities on site, led by John S. and Ann R. at least twice a year. |
| #2 | Allow students to explore how river management can affect wildlife habitat and populations and develop riparian areas on site. | Students will compare river control practices using dams and dikes along with dike management. |
| | | Students will study dike areas and assist in planting appropriate vegetation for wildlife food and cover. |
| #3 | Investigate adjacent areas of differing wildlife habitat and how they impact each other | Students will compare forest habitat, logged habitat, upland habitat, and wetlands habitat for species, cover, and food sources. |
| | | Students will design and construct an Interpretive Trail, label vegetative species, and prepare signage on interrelated aspects. |
| | | Allow adult members of Deer County Bird Society (DCBS) to use western trail as semi- open land opportunity and conduct species surveys. |

| | | |
|----|--|---|
| #4 | Discover how to reclaim a gravel pit for sustainable wildlife habitat | Students will research literature for methods of establishment and vegetation varieties for the target wildlife and plan overall project. |
| | | Students will perform soil sampling and analysis to determine best-suited vegetation and any needed soil amendments as well as order and plant vegetation. |
| | | Scouts will monitor (observe and record data at least once/season) to determine effectiveness and success (effectiveness will be measured by plant growth and erosion measurement). |
| #5 | Educate about the importance of pollinators and build a garden to provide 4 habitat parts. | Using pollinator curriculum, educate students (in cooperation with teachers) using pre-, during- and post- lesson methods. |
| | | Have students research proper plantings and have them install, label and maintain a garden. |

II. Managing the CLL Program to correlate with the Wildlife at Work Program

a. How the Wildlife at Work habitat is used for education and outreach

The CLL team reviewed the Opportunities Report provided by WHC and then discussed educational opportunities that best fit the existing wildlife habitat enhancement programs at the site. The team decided that a project-based program which focuses on the habitat enhancement efforts will be most mutually beneficial to the site and the learners. The following three (PLEASE, list ALL projects you are involved in! We have illustrated only 3 possibilities here) projects have been identified:

Project: Pollinator Gardens

Meets Site Goal # 5 in Table 1

How Project is used for Education: Head Start Program & Elementary Kindergarten classes were involved in pollinator habitat enhancement through planting of pollinator gardens and learning about local pollinators in our meadow.

Project: Forest Management

Meets Site Goal # 1 in Table 1

How Project is used for Education: Elementary 4th & 5th Grades contributed to implementation of Forest Management Plan by planting trees and completing lessons and observations in our west forest area.

Project: Riparian Repair

Meets Site Goal # 2 in Table 1

How Project is used for Education: Girl Scouts assisted in Creek riparian repairs by planting shrubs along bank of Little Bend Creek.

b. How the site is managed to enable CLL programs

A CLL Team Charter was finalized March 8, 2008. The desired outcome (mission) of the program at the Site is to “Build a Conservation Education program for students... that will emphasize on-site habitats... and... maintain habitat efforts through student... participation”. The CLL team set boundaries that consist of:

- Use breaks, lunch, and off-time for meetings
- Annual budget of \$2,000 for expenses
- Weekly meetings lasting no more than one hour (management will allow one meeting per month).
- Use Commitment to Excellence Process Improvement Methods – a company-wide management tool.

i. Infrastructure

The site’s infrastructure includes a dock overlooking Little Bend Creek, a small, shallow riparian habitat that includes a wide empty bank area with room to investigate stream findings. Trails also allow for exploration. These occur on the west forested area and cover approximately 5 miles of pathway in the woods as well as along prairie and creek edge. Signs placed approximately every ¼ mile indicate local floral and faunal species of interest. There are no indoor classroom areas, however there is a small bathroom and drinking fountain building at the entrance of our facility. Busses or chaperone cars stop in this area to offload students.

ii. Site Education Advisory Committee

In addition to the internal CLL team consisting of employees at the Site, the team has also developed an Educational Advisory Committee that brings in community partners to help guide the CLL program. This committee currently consists of teachers from both local elementary schools, the wildlife refuge manager, the Girl Scout council leader, a representative from the local college and teachers from St. Mary Elementary and St. George Elementary. The advisory committee will meet every other month during the school year to help the CLL team develop the program and ensure that it meets the needs of the local curriculum. The advisory committee will also help the team explore additional avenues for engaging more students such as those in middle school and how to incorporate disciplines such as social studies, language and art into the program. As the CLL team expands the program, they will invite others representing new academic disciplines or grade levels to join the advisory committee. The advisory committee will assist the CLL team in further developing each of the areas outlined in the subsequent sections.

III. Plan for management and upkeep in the next 3 years

a. New Infrastructure

Future infrastructure plans include obtaining permitting (by winter 2009) and materials (by spring 2010) for building a covered pavilion on site. Site employees and community volunteers will be obtained to build by summer 2010 for use in fall 2010.

b. Schedule for New Activities

Timeline 1 (evaluation and infrastructure)

| Date/Time Frame: | Evaluation: | Infrastructure, etc. |
|-----------------------------|---|--|
| Fall and Winter 2009 | Develop questionnaire for use by students and teachers (Mr. Phillips to help develop) | Convene a second educational advisory committee meeting |
| | Bob and Linda finalize by Nov | Finalize CLL management plan (include curriculum from all partners) |
| Winter 2009 and Spring 2010 | Distribute questionnaire to pilot teachers (Ms. Kelly agreed to pilot) before & after on-site visits. | Develop schedule for the upcoming school year |
| | Assess responses and modify CLL survey as necessary (determine whether correct questions are being asked) | Host one visit for each group |
| Spring 2010 | | Convene educational advisory committee meeting |
| | | Hold planning session for Year 2 |
| Summer 2010 | Publish results of first year evaluation of the program to partners | Begin planning and revision of management plan to expand curriculum to additional grades |
| | | Hold quarterly educational advisory committee meetings |
| Fall 2010 | | Continue hosting at least 2 on site visits for each class |
| Fall/Winter 2010 | Conduct evaluation of second year of the program | Begin expanded curriculum (birds, with help of partner, DCBS) |
| Winter 2010/Spring 2011 | Conduct evaluation of third year of the program | Hold quarterly educational advisory committee meetings |
| | | Continue hosting at least 2 visits for each class |

c. Plan for monitoring, reviewing, evaluating your program

i. Methods

Methods used to monitor our program included feedback forms and questionnaires from our teachers and our participants (see attached). We also include in our assessment the less formal thank you notes, emails and comments we receive.

ii. Data needed

We sought the answers to the following questions from our participants:

- a) What did the participant know about the conservation topic before the visit?

- b) What did the participant know about the conservation topic after the visit?
- c) Was there a marked difference?
- d) Did students absorb the take home message? Please see attached examples to read individual questions and answers.

iii. Results

Results that we collected indicate that during our pilot stage an average of 58% of students knew correct answers to the questions we asked on our pre test. An average of 81% of students knew the correct answers in the post test. We concluded that this was a marked improvement, but could be improved. We changed our program slightly, with the help of our teacher partners, and in the new post test determined that approximately 94% of students knew the correct answers to our content related questions. When asked, post lesson, teachers also noted an increased awareness of local ecosystems and management practices in their students of approximately 50%.

iv. Changes

Changes in our program included more time spent with students involved in individual study in the habitat (increased opportunity to discover things on their own- we increased the amount of time from 10 minutes to 20 minutes of independent time). A second change was a round of discussion and reflection time where students were able to discuss their findings and actions, and note findings in journals.

d. Employee Involvement

(If it would be helpful, you may use Excel Sheet Template for Employee Involvement.) There are 483 employees on site, 32 are involved in some manner with the EAC and Wildlife Team. There is a core of 10 people who attend all meetings and most events. All events and most meetings are held off the clock; however the company allows one monthly hour long meeting on company time. Please see attached excel sheet for individual involvement.

IV. Curriculum

a. Groups we work with:

- Community Head Start: The Head Start Program is a state-run program for children and teens who have had trouble at school; students who are often termed “at risk”. Studies have shown that getting these students out of traditional classroom settings and into situations that challenge them socially, creatively, and personally, self-confidence and social skills improve, which is then reflected at school.
- Kindergarten: Class from Big Bend Elementary School. Mrs. Shilling is the teacher and there are 22 kids in the class. This school caters to a large Hispanic population from the south part of town.
- 4th and 5th grades: Classes from St. Mary’s Elementary. Mr. Phillips and Ms. Kelly are the teachers, approximately 50 children are involved and the school is a charter school very near Big Bend.
- Girl Scouts: A diverse group of girls. Primarily the site works with Brownie Troop #407 to fulfill badge requirements. Mrs. Callahan is the troop leader.

b. Education Activities:

Head Start Program

i. Goals

EAC Goal: Goal # 5 in Table 1. As stated: “Educate about the importance of pollinators and build a garden to provide 4 habitat parts.”

Partner Goal: Involving the Head Start students in the CLL program at this site allows them to:

- 1) be challenged academically by researching the plants that are appropriate for a butterfly garden, taking into account the location of the garden, soil, water, and sunlight, and creating diagrams of designs for the garden
- 2) be challenged socially by working as a group to achieve a common goal (planning the butterfly garden) and by serving as a role model to the Kindergarten class from the school
- 3) be challenged personally by being exposed to new settings (outdoors) and activities (planting butterfly garden)

ii. Goal Achievement

These activities also helped the Head Start students achieve their State Learning Standards for Grades six, seven and eight:

A.1.d.—Locate information in reference books, back issues of newspapers, magazines, CDs, internet and digital databases.

C.1.e.—Explain how different models can be used to represent the same thing. What kind of a model to use and how complex it should be depend on its purpose. Choosing a useful model is one of the instances in which intuition and creativity come into play in science, mathematics, and engineering.

D.1.c.—Realize that design usually requires taking constraints into account. (Some constraints, such as gravity or the properties of the materials to be used, are unavoidable. Other constraints, including economic, political, social, ethical, and aesthetic ones also limit choices.)

F. 5. e. Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.

Kindergarten class

i. Goals

EAC Goal: As stated: “Educate about the importance of pollinators and build a garden to provide 4 habitat parts.” (Goal # 5 in Table 1)

Partner Goal: To meet state learning standards for Kindergarten. Listed below.

This correlates with the State Learning Standards:

A.1.b.—Seek information through reading, observation, exploration, and investigations.

A.1.c.—use tools such as thermometers, magnifiers, rulers, or balances to extend their senses and gather data.

C.1.c.—Draw pictures that correctly portray at least some features of the thing being described and sequence events (seasons, seed growth).

C.1.e.—Recognize that everybody can do science and invent things and ideas.

ii. Goal Achievement

The Kindergarten class from the nearby school has visited the site to assist in the planting of the butterfly garden and to see the garden since planting it.

4th & 5th Grades

i. Goals

EAC Goal: As stated: “To illustrate forest management and promotion of sustainable development to students and build forest habitats” (Goal # 1 in Table 1)

Partner Goal: To meet state learning standards for 4th and 5th grade. Listed below.

A.1.a.—Support investigative findings with data found in books, articles, and databases, and identify the sources used and expect others to do the same.

C.1.e.—Recognize that doing science involves many different kinds of work and engages men and women of all ages and backgrounds.

D.3.b. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept: Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

ii. Goal Achievement

The tree planting in which the 5th and 6th graders took part was also partially planned by the students themselves. They researched the importance of our forests, the native trees that grow in this area, and what species of trees are appropriate to plant on the site.

Girl Scouts

i. Goals

EAC Goal: Goal # 2 and #3 in Table 1. As stated: “Allow students to explore how river management can affect wildlife habitat and populations and develop riparian areas on site” and “Investigate adjacent areas of differing wildlife habitat impact each other”.

Partner Goal:

To achieve badges outline below.

The Girl Scouts were invited to come onto the site to make observations and study attributes of the wetland area in order to meet the requirements for the following:

ii. Goal Achievement

EPA Water Drop Badge

- Identify as many species of plants and animals in the wetland as possible
- Determine where the water in the creek comes from, try to draw a watershed for the creek on a map
- Identify characteristics of wetlands that make them different from other areas in nature

Earth Connections Badge

- Mark off a 20x20 pace square to identify plant and animal life within the area, take temperature measurements, and study the soil
- Predict and draw what the wetland might look like in the future

As a part of these projects, the Girl Scouts also helped plant shrubs along the bank of the creek as service projects in order to work towards the Silver and Gold Awards.

c. Open Access/ On Site events:

Open Trails:

i. Goals

EAC Goal: Goal #3 in Table 1. As stated: “Investigate adjacent areas of differing wildlife habitat and how they impact each other”

Partner Goal: Investigate local biodiversity and study birds on restored habitat.

ii. Goal Achievement

We allow documented members of the DCBS to have time on the trail. This is open time to use the western trails for hiking and bird watching. This does not correlate to specific standards, as learners are adults involved only for personal fulfillment. There is no correlation to teacher in-service or like programs. Habitat areas made available are the western trails. They overlook the Little Bend Creek and a meadow, but are primarily through forested areas. Please see attached site map for locations and visuals.

V. Partner Plan

a. Current Partners

St. Mary’s School: See description above.

i: Future Plans

We are working with teachers to repeat all activities outlined above. Please see timeline below for specific dates. Because we are working with multiple teachers (and we have contact with the school principal) we see no danger of losing the school’s interest. We also have an agreement to begin developing a monitoring plan with Mr. Phillips (please see above).

St Phillip’s Elementary School: See description above.

i: Future Plans

We are working with teachers to repeat all activities outlined above. Please see timeline below for specific dates. We will be trying to expand our presence in this school over the next year because currently we work with only one teacher. Our sustainability there is consequently not as positive as we would like. We are going to set up a meeting with Ms. Kelly (who has also agreed to let us pilot our evaluation and monitoring program with her), and some other teachers at her school regarding what the CLL program there can do for students.

Girl Scout Brownie Troop # 407: See description above.

i. Future Plans

The Girl Scout planting events and badge work on site has been successful in the past, and we plan to continue the program as it stands. Currently our site believes we are at capacity regarding the troop, as it is quite large, and we do have other programs being implemented at the same time. However, our timeline for future work is included in Timeline 2, below. We work very closely with the troop leader and the assistant leaders, as well as being very close to two parents of girls in the troop. We feel that should troop leadership change in the next two to three years, we will not lose our connection to this group. This partner adds value to our program because they allow us more time to continue our plantings; there is significant volunteer work and effort on the part of the girls.

Deer County Bird Society: The Society is committed to the conservation of wildlife (especially birds) and restoration of natural resources through education and study.

i. Future Plans

In the future, work with the DCBS will include using the members as teachers during programming, including during proposed increased lesson plans for 4th and 5th graders at St. Mary's and St. Phillips. In order to keep their valuable partnership and increase our working relationship with DCBS, our site will continue to host semi-open (meaning, scheduled days, but open to whomever, whenever) trail walks for members of the DCBS and will begin presenting twice a year at the DCBS lodge. This partner adds value to our program by constantly updating our wildlife species list, assisting us in employee volunteer education and providing volunteers for events. Our timeline for continuing work with DCBS is below, in Timeline 2.

b. Future Partners:

Buck City Community College, whose mission is to ensure quality of education and betterment of the community.

i. Future Plans

Our Site works with the Biology Department Head and students from the wildlife management classes. Students are doing independent research regarding the effectiveness of gravel pit reclamation projects by studying biodiversity. They will be using our site to learn how to build a comprehensive species inventory, and once research is finished, will share their findings with our site staff. This will add value to our habitat applications, as we will have a thorough, science and inquiry based set of data to refer to regarding our habitat. We will help this group to be involved with our habitat by ensuring a set schedule for visitation (correlating shift changes so our employees can be present, and working with the class schedule of our partner professor, Dr. Wilcox) Our timeline for continuing work with the college is below, in Timeline 3.

Timeline 2 (existing partners)

| Date/ Season | DCBS | Girl Scouts | St. Mary's School | St. Phillips School |
|-----------------|-----------------------|---|---|--|
| Jan '09 | Trail Day for members | | | |
| Feb '09 | | | Begin research of forests in our region | Begin research of forests in our region |
| March '09 | | | Decide which trees would be best to plant | |
| Apr '09 | | | | Design and build trail markers for forest |
| May '09 | Trail Day for members | Continued wetland plantings with Girls. | Do tree planting and forest lessons | Install trail markers and do forest and meadow lessons |

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|----------|---|---|--|---|
| July '09 | Lecture by plant workers for Society members | Girls and leaders will use the site (up to 3 times) to work on Earth Connections badge. | | |
| Aug '09 | Trail Day for members | | | Planning/ initial meeting with new teachers to introduce to site staff |
| Sept '09 | | Girls and leaders will use the site (up to 3 times) to work on EPA Water Drop badge. | | Staff tour day to see site and expose staff to possibilities. (correlate with Scouts) |
| Nov '09 | Work with member volunteers and teachers to develop pilot lesson plan for bird centered lessons (4 th grade) | | | |
| | Trail Day for members | | | |
| Dec '09 | Lecture by plant workers for Society members | | | |
| Feb '10 | Trail Day for members | | | |
| | Introduce Bird Lesson plan to students | | | |
| May '10 | Trail Day for members | | | |

Timeline 3 (Future partners)

| | |
|---------------------|---|
| Date/ Season | Buck City College |
| Jan '09 | Introduction of Students to Habitat |
| Jan 15 to Apr10 '09 | Research days in habitat by appointment |
| May '09 | Research findings due to professor |
| June '09 | Research findings shared with site |
| Jan '10 | Introduction of Students to Habitat |
| May '10 | Research findings due to professor |