Conservation
LEARNING CENTRE

2004 Project Summary

Big news at the Conservation Learning Centre!! The CLC has purchased the land and buildings it has been operating since 1993 from the landowners, Orest and Sylvia Kinash. This is as an opportunity to take a step toward program stability and to have the capability to become involved in more long-term projects. It is very exciting for the board and staff and we sincerely thank Orest and Sylvia for all their help throughout the last eleven years.

School Program: In 2004, **1,414** students (including those from 17 new schools) participated in the CLC's school program for an eleven-year total of **14,284** students.

The Outdoor School (Grade 11 students) camped at the farm for three days in October. Specialists led interactive demonstrations on topics such as: soils, riparian health, ecology, construction of shelterbelts, crop and weed identification, and herbicides.

Curricula for all grade levels have been overhauled to bring them up-to-date and provide a fresh perspective. The CLC curricula have also been translated into French. The school program was further enhanced this year by the donation of microscopes courtesy of the Birch Hills Crop Club.

Strides have been taken to expand the scope of the CLC education program into other non-science curriculum areas such as social studies, accounting, business and career awareness. For example, a model based on the use of fertilizers is being developed for teachers to address the concept of risks and limits. The goal is for students to develop a thought process and become proficient in using a decision-making model. We hope this will greatly expand our capacity to reach more teachers and students.

Adding diversity to our program, tours were arranged for specialty groups including some newly arrived immigrants to Prince Albert and a Girl Guides troupe. A xeriscape project as well as a composting project with red wriggler worms was established. Promotional material was displayed at the Saskatoon Science Fair in April 2004 to raise awareness of the CLC's programs.

Financial Support: Ducks Unlimited Canada, PromoScience (Natural Sciences and Engineering Research Council), CARDS (Agriculture and Agri-Food Canada), Saskatchewan Canola Development Commission, EcoACTION (Environment Canada), SaskEnergy. Materials: Birch Hills Crop Club, Saskatchewan Agriculture, Food and Rural Revitalization, Monsanto, Staples Business Centre, Canadian Wheat Board, Canadian Grain Commission, Home Building Centre, Saskatchewan Flax Development Commission, Farm Credit Canada, Bunge Canada, Agricore United, Weyerhaueser, Native Plant Society of Saskatchewan, Robin Hood Multifoods, Agriculture and Agri-Food Canada, Saskatchewan Watershed Authority, Mondrian Canada, CPAWS, John's Garden Centre.

Residual effects of nitrogen spill: In June 1998, 700 gallons (2500 pounds) of nitrogen fertilizer (28-0-0) was accidentally spilled behind the CLC sheds. The fertilizer accumulated in the low area to the west of the spill. Six yeas later (May 2004), a soil test was conducted to evaluate the actual amounts of available nitrogen currently present in the soil. Soil samples were also taken from a site in the yard with approximately the same elevation. To assess the movement of the fertilizer, samples were taken at 0–6, 6–12, 12–24 and 36–42 inch depths. The results were as follows:

Available Nitrate (ug/cc)

	Available Nitrate	
Depth (inches)	Yard	Spill
0 – 6	25.0	21.4
6 – 12	27.4	122.0
12 – 24	15.2	228.0
24 – 36	8.4	226.0
36 – 42	5.6	28.4
TOTAL	**81.6**	**625.8**

Growing Season Precipitation

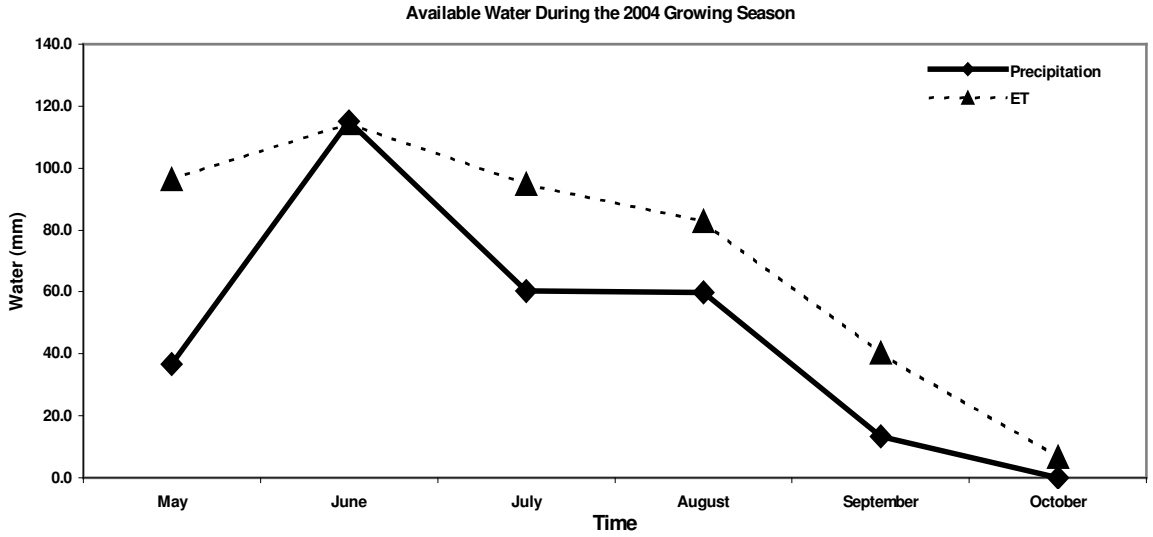
	Precipitation	
Year	mm	Inches
1999	431.9	17.0
2000	403.3	15.9
2001	150.3	5.9
2002	289.6	11.4
2003	148.8	5.9
TOTAL	**1,423.9**	**56.1**

Over the past two years, nitrogen levels have declined enough in the top six inches to allow plant life.

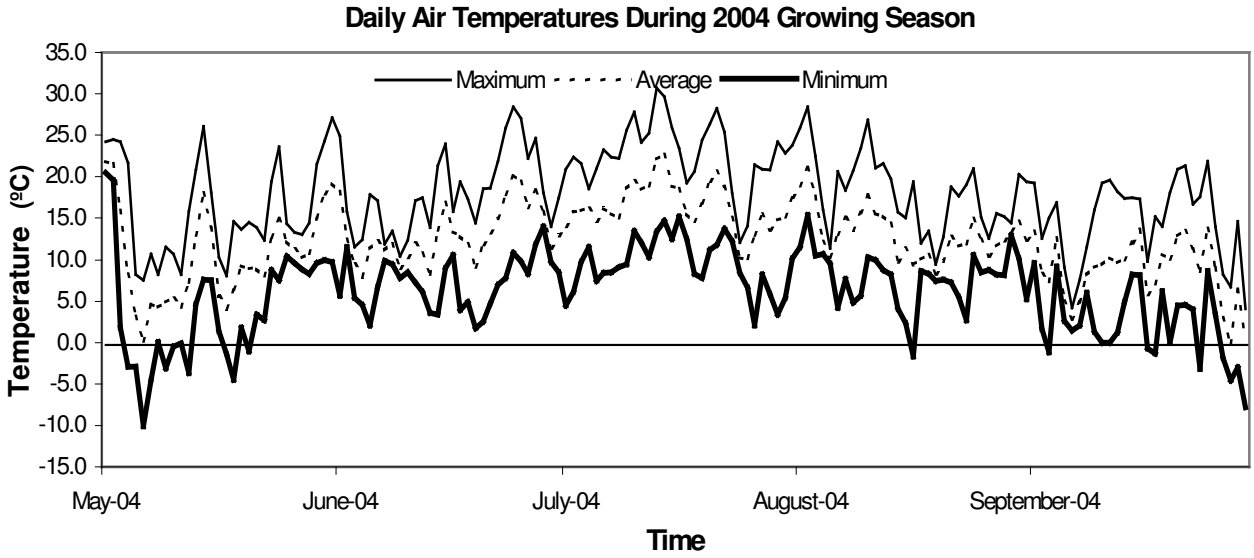
Meteorological data on air temperature, relative humidity, solar radiation, brightness, leaf wetness, wind speed, precipitation and soil temperature was collected. For purposes of comparison, precipitation data was collected using both a post-mounted rain gauge (situated in the yard; within 15m of trees and buildings) and the weather station (in the field; no trees within 100m). As seen in the table below, there is a significant difference in the amounts recorded. The graph shows, once again, despite increased rainfall in 2004, an overall loss of moisture – as expected in Saskatchewan.

Growing Season Precipitation (May to October 2004)

	Precipitation				Evapotranspiration	
	Rain gauge		Weather station		Weather station	
Month	mm	inches	mm	inches	mm	inches
May	25.4	1.0	36.8	1.4	96.4	3.8
June	111.8	4.4	115.0	4.5	114.4	4.5
July	87.9	3.5	60.4	2.4	94.8	3.7
August	81.5	3.2	59.8	2.4	82.9	3.3
September	75.0	3.0	13.4	0.5	40.3	1.6
October	13.5	0.5	0.0	0.0	6.6	0.2
TOTAL	**395.0**	**15.6**	**285.4**	**11.2**	**435.4**	**17.1**



It is no surprise that daily temperatures tell the story this year. There was only one day this summer over 30 C while temperatures dipped below freezing seven times in May and, of course, everyone is familiar with the infamous August 20 frost.



Monitoring water quality: A long-term on-farm program evaluating the impact of riparian barriers on the levels of nutrients and pesticides in small wetlands (started in 2003) continued. Various levels of riparian protection exist: surrounded by dense nesting cover (not abutting cultivated land); within a cultivated area and surrounded by an established riparian area; within a cultivated area and surrounded by a developing riparian barrier; in fields where cultivation nears the water's edge. Water samples (9) for 2003 were analyzed.

Water was sampled in May (before seeding and spraying) and in July (after seeding and spraying). Samples were analyzed and evaluated based on the Canadian Water Quality Guidelines. Phosphorous (P) concentration was high initially, but decreased in all cases except wetlands with established riparian buffers. Interestingly, in the wetlands with established riparian buffers, more P was in the dissolved form than the other wetlands. Dissolved P results in eutrophication. Nitrate concentration was below detection limits in the first sampling, but was very high at the second sampling. The exception was one wetland with an established riparian buffer. Ammonia concentration was generally low, but still beyond limits for protection of aquatic life.

Herbicides were detected in some wetlands in the first sampling and, where detected, exceeded Guidelines. Herbicides were not present in all wetlands but the herbicides found include: 2,4-D, triallates, trifluralin, MCPA, dicamba, and lindane. In the second sampling, MCPA was present in all wetlands at levels well above the Guidelines for protection of aquatic life. It was also beyond acceptable limits for livestock watering in most wetlands.

It is likely that low water levels resulted in increased herbicide and nutrient concentrations. For this reason, the results probably reflect a worse case scenario. Again in 2004, only 9 of a possible 24 samples were collected and results are pending. Continued testing in subsequent years will improve the reliability of the data. *Cooperator: CARDS (Agriculture and Agri-Food Canada), National Hydrology Research Institute*

Impact of tillage systems and stubble type on available phosphate: Phosphorous is an important macronutrient to crops. Because it is an immobile nutrient, it is speculated that, under low disturbance tillage systems, the phosphorous accumulates in the top soil layers and is more susceptible to runoff. Under higher disturbance tillage systems, the phosphorous may be incorporated deeper into the soil, making it less susceptible to runoff. To evaluate the effect of slope on runoff and accumulation of phosphorous, samples were taken from upper and lower slopes on a neighbour's high disturbance field and four low disturbance fields at the CLC.

- High disturbance: Disked in fall; tilled in spring; seeded with press drill; straw removed from field or burned (last burned in 2001); consistently fertilized phosphate at least 10 lb/ac above recommendation
- Low disturbance: Direct-seeded using minimum tillage equipment; straw and chaff not removed from fields; phosphate fertilized to recommendation

Available Phosphate (ug/cc)

	Lower Slope			Upper Slope		
	Soil Depth (Inches)					
	0 - 2	2 - 6	6 - 12	0 - 2	2 - 6	6 - 12
Tillage System and Stubble	*Available Phosphate (ug/cc)*					
High disturbance - Wheat	32	34	51	19	14	10
Low disturbance - Wheat	38	6	32	22	5	3
Low disturbance - Barley	44	23	26	21	5	3
Low disturbance - Canola	32	16	31	16	4	2
Low disturbance - Flax	33	25	40	20	5	2

There were many variables and differences between the high and low disturbance sites that made valid comparisons difficult but there are some generalities:

- Nutrient loading increased phosphate levels at deeper soil depths – phosphate was not completely utilized and moved down in the soil. The lack of precipitation (and therefore lack of biomass production) over the past three years contributed to reduced utilization.
- Burning straw and chaff increases soil phosphate levels for one year (it reduced nitrogen levels). However, it normally takes 29 years for straw to be completed broken down into the nutrient components. Therefore, by burning the residue, there is an accumulation of 29 years of phosphorus in one year, leaving 28 years without the incremental amounts. Thus, the history of burning on the high disturbance field has skewed the data.
- As expected, phosphate levels in the lower slopes in both tillage systems are higher than the upper slopes.

Field scale demonstrations of direct seeding / zero till management systems. Fields were direct-seeded using minimum till equipment. Flax and canola were partially damaged by cold temperatures in June and all crops were severely damaged by the frost on August 20. At this time, accurate yields and dockage are not available. As most of the crops were frozen, yield maps are not being analyzed.

- **Snowbird hard white spring wheat** treated with Charter was seeded May 16-18 at 120#/ac with 80# N 28# P. Achieve Liquid and Prestige were sprayed in-crop June 19, 35 acres each of Stratego, Headline and Tilt July 16 and preharvest Roundup Weather Max September 25. Grade Feed; 58.6# weight; 13.5% protein; yield ~43 bpa. *Supported by: Silhouette Seeds, Quality Assured Seeds, BASF, Syngenta, Dow AgroSciences, Bayer CropScience, Monsanto, Farm World*
- **CDC Bethune flax** was seeded at 42#/ac on May 23 and June 10 with 20# N 25# P. There were heavy weed pressures, predominantly narrow-leaf hawskbeard. Based on the staging of the flax and the height of the weeds, Roundup Transorb was applied June 24 using a weed wick. FlaxMax was applied in-crop (very good control of foxtail barley) and Roundup WeatherMax preharvest. The flax has not been harvested except a sample piece to assess production: grade #3; yield ~5 bpa; dockage 32%. The field will be combined in the spring. *Supported by: SeCan, BASF, Syngenta, Monsanto, Farm World, Gordon McLeod.*
- **MilleniUM-03 HEAR CANOLA** treated with Helix XTRa was seeded at 5.5#/ac on May 20 -21 with 75# N 28# P 13# S. Post-seed application of Factor May 25; in-crop Muster TNG + Poast Ultra June 29 and Lance July 17. Grade #3; green 6%; damaged 9.8%; dockage 10.3%, yield ~15 bpa. *Supported by: Bunge Canada, DuPont, BASF, Farm World*
- **5601HR hard red spring wheat** was seeded May 19 at 105#/ac with 85# N 38# P. Pre-emergent application of Prepass; in-crop Horizon + Refine Extra June 25 and preharvest Roundup WeatherMax. Temperatures were close to freezing the night of June 24 and the field was sprayed early morning June 25. Chemical separation due to the cold temperature and cold water resulted in significant damage to the crop and poor weed control. As well, AgSurf was mistakenly used as the surfactant. *Supported by: Agricore United, Dow AgroSciences, Syngenta, DuPont, Farm World*
- **CDC Imagine hard red spring wheat** was treated with Charter and seeded at 105#/ac May 19 with 85# N 38# P. Pre-emergent Prepass was applied; in-crop Adrenaline June 22 and Tilt July 16. Weed control was good. *Supported by: BASF, Dow Agro Sciences, Syngenta, Farm World*
- **5020 Invigor canola** treated with Prosper was seeded at 4#/ac May 20 with 60# N 28# P 13# S. Pre-emergent Factor was applied May 25; in-crop Liberty and Select June 30; Ronilan July 17; post-harvest Roundup WeatherMax. Grade 1; yield ~20 bpa. *Supported by: Bayer CropScience, Agricore United, BASF, Monsanto, Farm World*

Precision agriculture in CDC Copeland malt barley: This is a continuation of the CLC's long-term precision farming project – prescription-applied variable rate versus conventional blanket application of nitrogen for wet and dry season production. This year, a prescription was also used for the application of herbicides: Achieve Liquid was spot-sprayed based on field scouting and Trophy was applied uniformly to the whole field.

Zone	Application	Nitrogen (lb/ac)	Phosphorus (lb/ac)	Season	Slope
1	Conventional (blanket)	35	40	Wet	All
2	Variable	65	40	Wet	Lower
3	Variable	0	40	Wet	Upper
4	Conventional (blanket)	15	20	Dry	All
5	Variable	25	20	Dry	Upper
6	Variable	40	20	Dry	Lower

Our combine could not thrash the wet, frozen crop and therefore only part of the field was harvested using yield-mapping equipment. The rest was combined by a neighbour whose equipment did not have the chopping and spreading capabilities of the CLC's equipment. As a result, the straw was baled and removed. The partial yield map that was generated does not have sufficient data to be analyzed. *Supported by: EcoACTION (Environment Canada), Cargill, SeCan, Gustafson, Syngenta, NuFarm, Moker & Thompson, Farm World*

Herbs and spices suitable for production in the Parkland region: Italian parsley, basil, lovage, yarrow, sage, stinging nettle, mugwort, Turkish rhubarb, Echinacea angustifolia, lavender, comfrey, marshmallow, St. John's wort, spearmint, sheep sorrel, seneca, peppermint. *Cooperator: Prince Albert District 32 ADD Board*

Weed populations: In 2004, the CLC conducted weed counts at three locations per field during crop scouting (nine in the precision farming field). Areas of 0.25 m^2 were selected at random and weeds counted. The results are limiting because so few replications were done. In some instances, no actual numbers of plants were listed, only generalities of densities. In the future, actual numbers will be recorded.

In the table below, weeds are ranked according to their density over the whole farm before in-crop spraying. Wild buckwheat and hemp nettle are problems throughout the CLC. Some weeds such as sow thistle, green foxtail, wild oat and wormwood are abundant but were not evident at the time of this survey.

Weed density

Rank	Species	Plants per 0.25 m^2
1	Wild buckwheat	8.0
2	Hemp nettle	7.1
3	Narrow-leafed hawk's-beard	1.9
4	Dandelion	1.5
5	Flixweed	0.8
6	Canada thistle	0.9
7	Flax	0.8
8	Stinkweed	0.6
9	Lamb's-quarters	0.3
10	Pigweed	0.2
11	Rough cinquefoil	0.1
12	Caraway	0.1

In 2005, the guidelines established by Agriculture Canada in their weed surveys will be followed. This will ensure 20 sampling locations per field and eliminate sampler bias by using a prescribed zigzag method with pre-determined distance between samples. This will be completed at least three times during the growing season, first to assess weeds for spraying, second to assess spray efficacy and third to determine which weeds will be problems in the following year.

HybriForce 400 (hybrid alfalfa): Preseed burnoff with 0.5 L/ac Touchdown iQ June 26. Seeded at 7-8#/ac July 5, then sprayed with 0.45 L/ac Koril and 0.3 L/ac MCPA amine with 15 gallons water July 13. First year growth was excellent. Establishment will be assessed in the spring of 2005. *Supported by: Brett-Young Seeds*

Forage demonstrations: The plot area was chem-fallowed for two years prior to seeding as well as a preseed application of 2,4-D amine. Plots were seeded June 4. A pre-emergent application of glyphosate was not possible due to rain. Weed seeds remained dormant because of the low rainfall of 2002 and 2003, but with the increased amount of rainfall in 2004, seeds germinated, resulting in heavy weed competition. Plots were sprayed with 0.45 L/ac Koril or 0.3 L/ac MCPA amine (with 15 gallons water) July 13 and swathed in September. The forage mixes and forages demonstrated are: Haymax II; Protein Plus; Poundmaker; Lowlander; Chief intermediate wheatgrass; Maximize tall fescue; Paddock meadow bromegrass; AC Success hybrid bromegrass; Magna smooth bromegrass; Peak smooth bromegrass; AC Parkland crested wheatgrass; CD II hybrid crested wheatgrass; Arthur Dahurian wild ryegrass; Joliette timothy; Ducks Unlimited native grass blend; Laurel creeping red fescue (turf); Dormie Kentucky blue grass (turf); Oxley II cicer milk vetch; AC Longview alfalfa; Hornet alfalfa; Approved alfalfa; Nova sainfoin; Frida alsike clover; Golden german millet and SW Bortus annual ryegrass. *Supported by: Newfield Seeds, Ducks Unlimited Canada*

Strawberry crowns were planted May 27 into loamy fertilized soil. Plants were watered 1" per week and weeded every 15-20 days. There were some problems with deer eating the plants and runners (this will be rectified in 2005). In September, 162 plants remained and 63 daughters were rooted. However, the majority were not sufficiently rooted to be harvested. The plants and daughters were covered with straw for the winter.

The use of field covers was examined to observe the effect on daughter crown yield during the first season of growth. The advantages of field covers are increased temperature and humidity which enhances runnering, daughter crown production and self-rooting of daughter crowns. Field covers were put in place June 1 and removed August 11. Weeds flourished under the covers. Under one blanket, there were many ants and larvae and the plants did not produce as well. Generally, there was no difference between covered plants and non-covered plants. *Cooperator: University of Saskatchewan*

Riparian Health Assessments of A Dense Nesting Cover Wetland (2003, 2004): Riparian areas and wetlands are a critical part of the landscape. High quality riparian areas and wetlands provide flood abatement, trap sediments and chemicals, provide shade that cools the water, increase water infiltration into the ground, and are an essential part of wildlife and fish habitat. Many threatened and endangered plant and animal species are found in riparian areas and wetlands. Although riparian zones often represent only a small percentage of the land in a watershed, they are vitally important because of the diversity of plants and animals they support. Riparian areas are considered among the most productive ecosystems in the world.

Riparian health assessments were carried out with high school students visiting the Conservation Learning Centre (CLC) in the fall of 2003 and 2004. By identifying and comparing the variety of plant life in two dramatically different wetlands on and near the CLC, students learn first-hand the value of riparian areas and maintaining them in a healthy condition.

The dense nesting cover project (DNC) on the CLC site contains several wetlands. In 1994, several forage species were seeded around the wetlands and have been "managed" twice since then -- grazed in 1998 and swathed and baled in 2002. The only animal life that uses the DNC for food, shelter, nesting, etc. are indigenous to the area. The largest wetland in the DNC is used to educate the public and students about the various vegetative zones that have developed. In this case, there are four distinctive zones: upland, wet meadow, shallow marsh and deep marsh.

Predominant vegetation in each zone is:

- Upland – wheatgrass species, alfalfa, sow thistle and hair grass
- Wet meadow (usually flooded for only days or a few weeks in the spring) - sow thistle, Baltic rush, Canada thistle, and reed canary grass
- Shallow marsh (may be flooded for 6-8 weeks in the spring) - sedge, reed canary grass, slough grass
- Deep marsh (should contain water year round) - cattails, softstem bulrush, and water milfoil.

Due to three dry growing seasons prior to 2004, the deep marsh zone has receded. An area between the shallow and deep marsh zones became dry. Cattails that grew in previous years are dead but still rooted. In 2004, increased precipitation resulted in higher water levels in the deep marsh zone but the water has not yet returned to pre-drought levels. New cattail growth was observed in the area where the water level now sits. There was more lush vegetative growth throughout the deep marsh zone than last year.

Riparian health assessments performed on the wetland involved establishing a polygon and carefully covering the entire area within the polygon, identifying vegetation and determining whether the plants observed are favourable or undesirable. The vegetation is very dense throughout the polygon; most consists of desirable plant species -- sedges, cattails, reed canary grass, Baltic rush, willows, curled dock and slough grass. However, while there has been no overt disturbance (livestock, alterations of banks, drawdown of water) of the area during recent years, invasive species (Canada thistle) and disturbance species (pussytoes, plantain) were present between the shallow marsh and wet meadow zones. As staff and students walk through this riparian area year after year, following generally the same path, this could account for the presence of these undesirable plant species.

It was noted in September that the temperature at soil level was noticeably cooler than the air. Thick vegetative cover reduced evaporation from the soil and thus lowers the temperature. There was considerable new growth on the willows around the perimeter of the riparian area, likely due to the higher soil moisture levels this season. Browsing by wildlife is minimal.

The riparian area in the Conservation Learning Centre dense nesting cover project continues to be rated healthy with respect to vegetation and soil/hydrology categories, the overall rating being in the 80-100% range (proper function condition). Staff will continue to assess area and build a long-term record of observations.

Riparian forage barriers around wetlands: The area was seeded on November 6, 2003 to a mixture of intermediate wheatgrass, smooth bromegrass and alfalfa. Initial establishment is good in some areas and very poor in others but will be evaluated further next spring. Roundup WeatherMax was applied using a weed wick to control weeds (especially narrow-leafed hawksbeard) and growth was mowed mid-June and mid-July. *Cooperator: CARDS (Agriculture and Agri-Food Canada)*

Wildlife and botanical surveys

- Continued development of a herbaceous cuttings collection
- Provincial **Bertha Army Worm** survey

Riparian management in a cultivated landscape: The objective of this four-year project is to promote and demonstrate the environmental impacts of beneficial management practices (BMPs) associated with riparian areas to grain, oilseed and pulse producers. Environmental benefits will be demonstrated and economic opportunities through adoption of BMPs or diversification into new perennial crops (without diversifying into livestock) investigated. The target area is farmland adjacent to watercourses in the Carrot River basin. Three sites will be established showcasing some BMPs such as the establishment of buffer strips, inter-pothole seeding, grassing runways, stockpiling forages, and annual crop selection for fields adjacent to riparian areas to provide sufficient standing stubble and crop residue. The sites will serve as focal points for extension activities and allow producers to see differences in management under similar climatic, environmental and soil type conditions.

The Conservation Learning Centre is conducting the riparian project in partnership with Saskatchewan Watershed Authority, Saskatchewan Soil Conservation Association, Saskatchewan Agriculture, Food and Rural Revitalization, Saskatchewan Conservation and Development Association and Ducks Unlimited Canada. *Cooperator: Greencover Canada Technical Assistance Program (Agriculture and Agri-Food Canada and Saskatchewan Agriculture, Food and Rural Revitalization)*

Technical Training and Capacity Building for Professional and Extension Staff: This four-year project will provide technical training to extension and professional staff in the areas of assessment of range health, riparian health, tame forages health, forest health and extension techniques and will provide exposure to implemented BMPs. The Prairie Conservation Action Plan (PCAP) and the CLC will jointly coordinate this project in partnership with Saskatchewan Watershed Authority, Ducks Unlimited Canada, Saskatchewan Agriculture, Food and Rural Revitalization, Agriculture and Agri-Food Canada, the University of Saskatchewan, Saskatchewan Environment, and Saskatchewan Research Council. *Cooperator: Greencover Canada Technical Assistance Program (Agriculture and Agri-Food Canada and Saskatchewan Agriculture, Food and Rural Revitalization)*

Extension: Through these activities, the CLC continues to develop and strengthen the network between producers, industry and researchers:

- Field days: Chinese Ministry of Agriculture (WTO Negotiating Team), Water Quality Field Day and CLC General Annual Tour
- Trade shows, conferences, meetings: Crop Production Show, Crop Talk, SSCA Annual Conference, Dean's Tour (College of Agriculture), Agri-Trends Workshop, Prince Albert Farm Fair, Chamber of Commerce luncheons, Saskatchewan Advisory Council on Forage Crops, Saskatchewan Forestry Centre Annual Meeting, Rangeland Health Training and Methodology workshops, "Grazing on the Border" workshop, Agri-ARM Update
- Numerous printed articles and radio interviews
- Involvement with Saskatchewan Soil Conservation Association, Agri-ARM, Agriculture in the Classroom, Saskatchewan Institute of Agrologists, Saskatchewan Association of Agricultural Societies and Exhibitions.
- New website: **www.conservationlearningcentre.com**

Cooperator: CARDS (Agriculture and Agri-Food Canada), EcoACTION (Environment Canada)

Training facility: Soil Science 332 (Soil Genesis and Classification) students from the College of Agriculture made a stop at the CLC on their annual field trip to examine the landscape form and soils at the CLC.

Ongoing projects:

- **Dense nesting cover**
- Long-term evaluation of **potential varieties** for use as dense nesting cover
- **Native plant diversity**
- **Shelterbelts** / **woodlots**
- Maintenance of **wildlife corridor**
- **Fruit bearing shrubs** for wildlife

Other projects may have been cancelled, postponed, negatively affected by unforeseen conditions or for demonstration purposes only and have no results:

- Xeriscape project: Landscaping to conserve water
- Winter wheat plots (Saskatchewan Soil Conservation Association)
- Canola variety demonstrations: Dekalb: 3585, 3395, 3455, 3235; Brett-Young: LBD422, LBD588; BASF: 289
- *Conservation and Kids* (PromoScience Program, Natural Sciences and Engineering Research Council) – Educating youth about conservation, the environment and primary food production.
- Greenhouse Gas Mitigation Project for Canadian Agriculture
    - Nutrient management techniques (Saskatchewan Soil Conservation Association)

- Demonstration of benefits of swine manure injection in flax (Prairie Agricultural Machinery Institute and Saskatchewan Pork Council)
- Siberian larch line test (PFRA)
- Tree establishment and vegetation control (PFRA)
- Maize maze (Monsanto)
- White spruce field shelterbelt
- Green ash field shelterbelt
- Native plant diversity study (Ducks Unlimited)
- Environmental containment pit for liquid fertilizers and fuels
- Saskatchewan Forage Variety Trial test plots
- Establishment of direct-seeded forages
  - Swine manure applications (Prairie Agricultural Machinery Institute)
- Pocket gopher control
- Website: www.conservationlearningcentre.com
- Continued involvement with the Agri-ARM network

Saskatchewan Conservation Learning Centre Inc. is a registered charity and non-profit corporation located 18 km south of Prince Albert on Highway 2. Contact information: 800 Central Avenue, PO Box 3003, PRINCE ALBERT SK S6V 6G1. Phone: 306-953-2796 Fax: 306-956-3727 E-mail: sask.soil.conservation.assoc@sasktel.net Website: www.conservationlearningcentre.com

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Gordon McLeod
CPAWS
Perri Ruszkowski
Home Building Centre
Mondrian Canada
Canadian Wheat Board
Native Plant Society of Saskatchewan
Weyerhaueser
Robin Hood Multifoods

PROJECT FUNDING

Greencover Canada Technical Assistance Program
(Agriculture and Agri-Food Canada and Saskatchewan Agriculture, Food and Rural Revitalization)
EcoACTION Community Funding Program *(Environment Canada)*
Canadian Adaptation and Rural Development Saskatchewan *(Agriculture and Agri-Food Canada)*
Saskatchewan Agriculture, Food and Rural Revitalization
Saskatchewan Watershed Authority
PromoScience *(Natural Sciences and Engineering Research Council)*
Greenhouse Gas Mitigation Project for Canadian Agriculture
(Saskatchewan Soil Conservation Association, Prairie Agricultural Machinery Institute, Canadian Pork Council)
Centennial Student Employment Program *(Saskatchewan Culture, Youth and Recreation)*
Government of Canada's Youth Employment Strategy

Special thanks to neighbours of the CLC

A partner in innovation in the Saskatchewan Agri-ARM network