

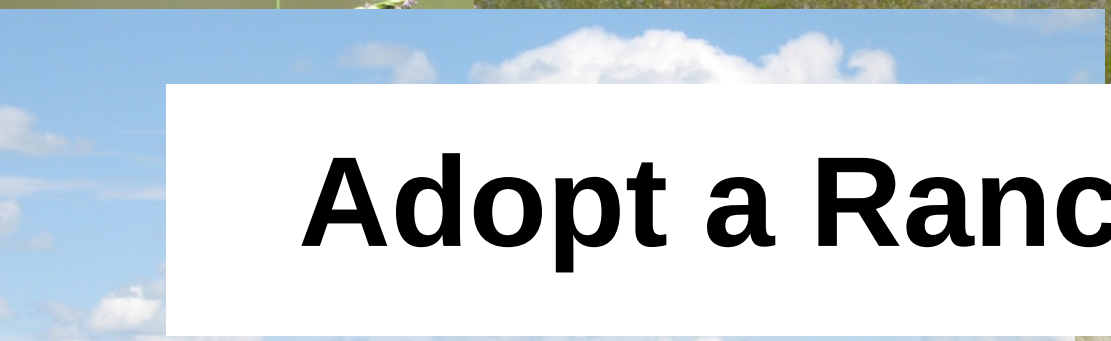


Adopt a Rancher

Teacher's Guide






Saskatchewan
Prairie Conservation
Action Plan

Thank you to Heidi Juul of HJ Bioservices Inc for developing this program. The project was undertaken with the financial support of the Government of Canada through the federal Department of the Environment. Ce projet a été réalisé avec l'appui financier du gouvernement du Canada agissant par l'entremise du ministère fédéral de l'Environnement.
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Updated March 2015 courtesy of Barry Putz (PCAP Contract Staff)

Reprinting courtesy of:
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Saskatchewan
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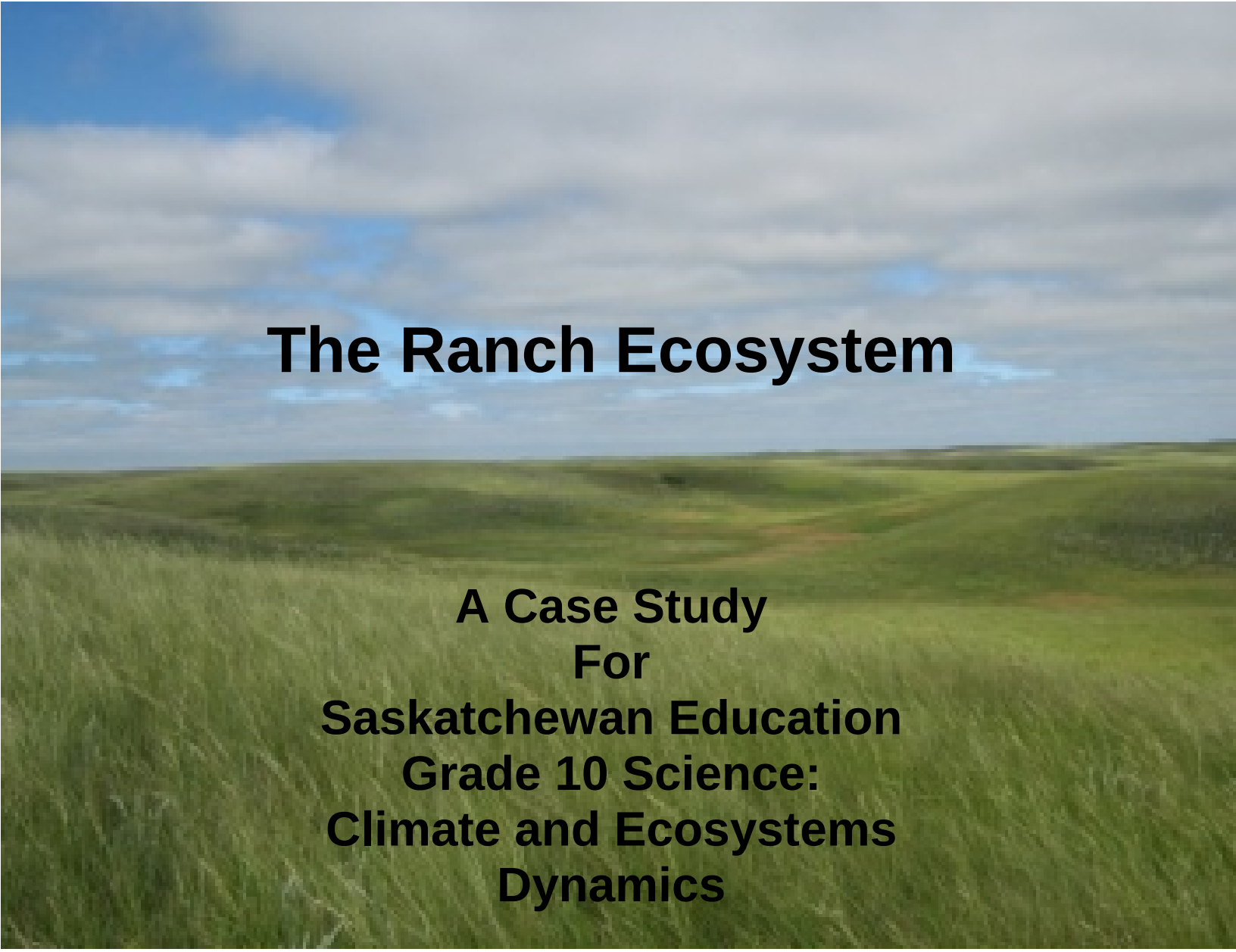


The Ranch Ecosystem

A Case Study
For
Saskatchewan Education
Grade 10 Science:
Climate and Ecosystems Dynamics

The **Saskatchewan Prairie Conservation Action Plan (SK PCAP)** Partnership brings together 31 agencies and organizations representing producers, industry, provincial & federal governments, environmental non-government organizations, research and educational institutions working towards a common vision of prairie and species at risk conservation in Saskatchewan.

Saskatchewan
Prairie Conservation
Action Plan

Welcome to the Adopt a Rancher Program!

The native grassland ecosystems of Saskatchewan are threatened. The great herds of bison that thundered across the prairie are gone. Bison evolved with the grasses, forming a close relationship in which their health depended on each other.

Today ranchers manage native grasslands to keep them healthy. Making the right management choices ensures that native grasslands can be a sustainable resource for Saskatchewan in which the biodiversity of native species is conserved. Grasslands have other values and functions that are important for society such as regulating water flow and maintaining soil stability.

Students in the Adopt a Rancher program analyze a ranch ecosystem in a case study that they develop themselves. By using a student guide and online resources and communicating with the adopted rancher, students will answer this question:

> **How can ranching protect Saskatchewan's native grasslands while providing economic benefits for Saskatchewan people?**

The Adopt a Rancher Program Structure

Part 1: The Adopt a Rancher program coordinator meets with the rancher prior to your involvement in the program. The tentative areas for activities are selected for the May or June Field Day. Safety issues or other concerns are discussed. The rancher and the coordinator take pictures for the Rancher's Portfolio which students will use to study the ranch ecosystem and to become familiar with the ranch. The rancher fills out the Ranch Profile to provide information about the land and its management.

Part 2: The second part takes place when you teach the Climate and Ecosystem Dynamics unit—the timing is up to you. Components of the Adopt a Rancher program support learning objectives in the Climate and Ecosystens unit so you know that your students are covering the needed material as they develop their case studies.

Part 3: A date for Field Day will be set. Groups of students collect data for projects they have designed as they tour the ranch. A picnic lunch and group games round out the day.

Part 4: After Field Day, students complete their case studies and participate in a class discussion examining the sustainability of the ranch ecosystem.

Contents of the Program Kit

- Teacher's Guide
- Student's Guide (one for each student)
- Ranch Profile
- Rancher's Portfolio (flash drive)
- Program Evaluation Form
- Ecoregions and Ecosites (5 copies)
- Range Health Assessment Field Workbook (5 copies)

Program Support

If you have questions, the Adopt a Rancher program coordinator will help you. If the coordinator is unavailable, please contact the PCAP office at (306) 352-0472 or pcap@sasktel.net.

Program Coordinator _____

Telephone _____ Email _____

Your class may be using letters, emails, texts, Skype or phones to communicate with the rancher. It will depend on the rancher chosen for your class.

Rancher _____

Contact Information _____

_____

_____

Curriculum Support for Foundational and Learning Objectives

The following information has been reproduced from Science 10 Curriculum Guide, Saskatchewan Learning 2005, updated 2014

SCI10-CD1: Assess the consequences of human actions on the local, regional, and global climate and sustainability of ecosystems.

a. Pose questions or problems relating to the effects of human actions on global climate change and the sustainability of ecosystems that arise from personal research.
b. Reflect upon your personal view of humanity's relationship with the environment.
d. Evaluate changes in the scientific world view (paradigm shift) of sustainability and human's responsibility to protect ecosystems, considering key milestones and publications such as *Our Common Future, Rio Declaration of Environment and Development, Agenda 21, Convention of Biological Diversity, and the Boon Declaration.*
f. Select, integrate, and analyze the validity of information from various human, print, and electronics sources (e.g., government publications, community resources, sustainable development, and education for sustainable development.
g. Provide examples of human actions that have contributed to the anthropogenic greenhouse effect.
i. Reflect upon individual and societal behavioural and lifestyle choices that can help to minimize anthropogenic sources of global climate change.
j. Develop, present, and defence a position or course of action based on personal research related to mitigating the effects of global or local climate change or to enhancing the sustainability of an ecosystem, taking into account human and environmental needs.

SCI10-CD2: Investigate the mechanisms that influence Earth's climate system including the role of the natural greenhouse effect.

a. Compare weather and climate, and the impacts of each on daily life. (K, STSE)
b. Understand that Earth's climate system results from the exchange of thermal energy and moisture between the sun, ice sheets, oceans, solid earth, and the biosphere over a range of timescales. (K)
c. Investigate how Earth's tilt, rotation, and revolution around the sun cause
f. Explain the role of natural sources (e.g., volcanoes, fire, evaporation, and living organisms) of the primary greenhouse gases in Earth's atmosphere and how they contribute to the natural greenhouse effect. (K)
j. Analyze weather and atmospheric data to identify patterns in temperature and atmospheric pressure, and changes in those patterns locally, regionally, and globally.

SCI10-CD3: Examine biodiversity through the analysis of interactions among populations within communities.

a. Discuss the importance of biodiversity and maintaining biodiversity within ecosystems, biomes, and the entire planet.
b. Understand that scientists describe biomes as resulting from the interaction of biotic and abiotic factors such as isolation, precipitation, latitude, altitude, and geography.
d. Estimate the abundance of organisms in a local ecosystems using random (e.g., quadrat), systematic, (e.g., line transect and belt transect) and/or stratified sampling techniques.
e. Analyze primary or secondary population data to determine the population density, percentage frequency, and/or percentage cover of one or more organisms in an ecosystem.

h. Investigate various ways in which natural populations attempt to maintain equilibrium, and relate this equilibrium to the resource limits of an ecosystem with reference to concepts such as carrying capacity, natality, mortality, immigration, and emigration.

i. Examine the relationship between the biodiversity of an ecosystem, its primary productivity, and ecological resilience.

j. Examine how factors such as invasive species, habitat loss, and climate change affect biodiversity within an ecosystem, and can result in species becoming at-risk (i.e., vulnerable, threatened, and extirpated).

SCI10-CD4: Investigate the role of feedback mechanisms in biogeochemical cycles and in maintaining stability in ecosystems.

b. Create a representation of a feedback mechanism involved in a specific biogeochemical (e.g., carbon, nitrogen, phosphorus, and water) cycle.

d. Describe how human actions can affect the flow of energy and the cycling of carbon throughout the environment.

e. Explain the role of photosynthesis, respiration, and sinks in the cycling of carbon through the environment.

h. Research the short-term and long-term effects of small-scale and large-scale agricultural practices on the cycling of phosphorus, nitrogen, and other nutrients in an ecosystem.

Adopt a Rancher Program Outline

Teacher's Guide Page	Student's Guide Page	Title	Description
7	2	How to Develop Your Case Study	Instructions and the outline to use for the case study
7	3	A Short History of Native Prairie	Create a mind map based on a short text.
7	4	Find the Ranch	Use legal land descriptions to locate the ranch on Google Earth.
7	6	Describe the Ranch Ecosystem	Collect data to create a unique description for the ranch ecosystem. Add elements to the mind map.
	6	1.	Use satellite imagery to describe the ranch ecosystem.
	6	2.	Use online resources to describe the ranch's ecoregion.
	7	2a.	Identify species at risk in the ranch's ecoregion.
	7	2b.	Identify invasive alien plants in the ranch's ecoregion.
	8	3.	Use the Ranch Profile to describe the ranch ecosystem.
	8	4.	Use the Rancher's Portfolio to describe the ranch ecosystem.
7	9	Sustainable Grazing Management	Show relationships between soil, water, grasses and cattle in a flow chart. Add information to the case study.
9		Say Hello to the Rancher	Create a scrapbook or large card to introduce the class to the rancher.
9	13	Ecological Goods and Services	Add information to the case study. Add elements to the mind map. Create a public service advertisement for an ecological good or service.
9	14	Measure Range Health	Design projects for Field Day to examine indicators of range health. Student groups communicate with the rancher.
11		**FIELD DAY**	Preparation for Field Day. Collect data for range health projects. Tour the ranch. Play "Oh Steer!"
13	16	The Human Factor	Examine the emerging ecological worldview. Examine aspects and trends in climate change. Look at a human response to the result of a climate fluctuation. Add information to the case study. Add elements to the mind map.
13		Case Study Analysis	Conduct a sustainability analysis of the ranch ecosystem
14		Say Goodbye to the Rancher	Create a thank you card for the rancher.
Evaluation Form		Evaluation	Evaluate the program.

Teaching Notes

The program activities answer key questions:

- How does the ranch ecosystem function?
- How much biodiversity exists on the ranch?
- How important is the ranch as habitat for prairie plants and animals?
- Would species at risk find suitable habitat on the ranch?
- How has productivity changed or been maintained?
- What are limiting factors for grazing cattle on the range?
- What types of invasive alien plant species are present?
- How does range management protect native grasslands?
- What benefits does society receive from healthy native prairie?
- How do the choices we make affect the sustainability of ecosystems?

The Adopt a Rancher program is student-centered. Background information and instructions are given in the Student's Guide.

Links to Saskatchewan non-governmental and governmental online resources about native prairie are provided so students can access a wealth of information for their case studies.

Two publications, *Ecoregions and Ecosites* and *Range Health Assessment Field Workbook*, are included in the program kit as reference material. They are also available online.

Check your library resources. There may be books about native prairie or field guides to bring on Field Day.

Each student develops a case study, although students could work in groups. For Field Day, small groups (you determine the size) plan a range health project and collect data for their case studies.

Encourage students to write down questions that they may have about the ranch. There will be an opportunity to ask the rancher questions on Field Day. As well, when students are planning their projects, they may need to check some details with the rancher.

Student's Guide: How to Develop Your Case Study

The case study document should be well organized, with clearly marked sections. Point form is a concise format for some data. Encourage students to use photos, maps, data tables, art and other visual aids.

Student's Guide: A Short History of Native Prairie

The **mind map** functions somewhat like a journal. Students begin to create a mind map that will be completed by the end of the program.

It can be electronic or paper, but it should be adaptable so information can be added. For example, additional paper can be attached to expand a section. If the mind map is electronic, then earlier versions can be saved and compared to later versions. Encourage the use of colour, art and imagery.

The mind map could also be a class project that is displayed on a wall.

Student's Guide: Find Your Ranch

Provide the students with the legal land descriptions from the Ranch Profile. (Don't give the students the rest of the information yet.)

Student's Guide: Describe the Ranch Ecosystem

Students should follow the steps sequentially so that they can build on what they learn. Save the Ranch Profile and Rancher's Portfolio until students have acquired information about grassland ecosystems from online or print sources.

Student's Guide: Sustainable Grazing Management

Students create a **systems flowchart** involving soil, water, grass and cattle after reading about grassland ecology and sustainable range management.

There are many ways to create this diagram as not all students will select the same information for their chart. Discuss the similarities and differences among the flowcharts.

Say Hello to the Rancher

The students have studied the Ranch Profile and Rancher's Portfolio, as well as seen the ranch on Google Earth. They have placed the ranch in the larger context of its ecoregion, learned about ecological processes and functions in grasslands, and range management practices. They have learned a lot about the ranch!

BUT what about the rancher? What does this person know about your Grade 10 class?

Have some fun!

As a class, create a **scrapbook or large card** for the rancher (digital or paper, depending on communication methods used with the rancher).

Use photos taken by students and from the Rancher's Portfolio or use clipart photos (ensure copyright law is followed). Include photos of students or class activities but doing so must be in accordance with school guidelines.

Some possible categories could include:

- What sustainability means to us
- What we value about nature
- Ranch ecosystem products we use
- The most interesting things we learned about your ranch
- Cultural expressions of who we are
- Student or class profiles
- Messages from students

Student's Guide: Ecological Goods and Services

Ecological goods and services are the benefits that society receives from ecosystems. Students research the ecological goods and services provided by the ranch for their case studies and mind maps.

Students then promote a good or service by creating a public service **advertisement**. Lead a discussion:

What are characteristics of a good advertisement?
Do public service advertisements work? Why are they important?
What public service advertisements have students seen?
What made them effective or not?

Students can use letter or poster-sized advertisements, videos of students acting or reciting, live presentations or any other form of communication.

Student's Guide: Measure Range Health

Just like education, sustainable grazing management uses indicators for assessing status. The objective of maintaining a healthy native prairie ecosystem can be assessed by examining specific indicators of range health.

Some range health indicators have been used for decades but others have been added more recently to provide a more holistic view of an ecosystem:

- Plant species composition
- Community plant structure
- Invasive species
- Site stability
- Hydrologic function and soil protection

Small groups of students design projects that are centered on one or two indicators of range health. These are not research projects as there is not enough time to do any rigorous testing. The data collection should take no more than one hour on Field Day.

The Range Health Assessment Field Workbook (in this kit) provides quick methods of assessing range health indicators. Students will probably only use the grassland section of the workbook.

The Range Health Assessment Field Workbook is intended as a source of ideas for projects. Students do not necessarily need to assess an indicator; instead they could design a project that documents an aspect of it. Suggestions for projects are provided in the Student's Guide but students can develop their own versions if they wish.

The Rancher's Profile has information about the types of areas that will be visited on Field Day. For example, native grasslands, riparian areas or roadside ditches may be described so these areas would be available for projects.

The main objective of the project is to provide students with skills that will allow them to look at native prairie and form an opinion about its health.

Students create group names that are thematically connected to their project and use this name when they write letters about their projects to the rancher. Have some fun with this. The letter provides an opportunity to ask questions that have arisen while planning the projects.

Discuss the ethics of collecting plant specimens (rarity, collecting with or without roots) and disturbing the soil (invasive species could colonize). How can they avoid damaging the ecosystem? How can damage be minimized?

You may want to check with the program coordinator about the type of projects that can be conducted. For example, it may be permissible to dig a small hole or use a soil auger (if available) if the hole is filled and the litter returned.

Students design tables for data that will be collected on Field Day. Afterwards, groups write up their results and conclusions. Group members add the report to their own case studies.

Field Day

Field Day Agenda

- Meet the rancher.
- Go on a ranch tour while participating in a photo scavenger hunt and collecting data for projects
- Eat lunch and play “Oh Steer!”

Check List for Field Day

- Encourage students to wear appropriate clothes for the weather: shoes for running and hats. There will be very little shade.
- Encourage students to bring a litterless lunch—it’s a choice that contributes to sustainability.
- Students should bring drinking water, sunscreen and insect repellent (only used if needed).
- Students can bring binoculars or field guides from home.
- Pack a first aid kit, extra water, hand sanitizer, insect repellent and sunscreen.
- Create name tags for students.
- Bring cameras and take lots of pictures for the case studies and for fun.
- Gather project equipment so it’s ready to go.
- Bring the photos for the Photo Scavenger Hunt.
- Remind students to bring their questions for the rancher.

Meet the Rancher

Students introduce themselves to the rancher and ask a question about the ranch or the rancher. Some questions can be saved for the tour if the class is large.

Photo Scavenger Hunt

The Adopt a Rancher program coordinator has labeled some photos from the Rancher’s Portfolio as PSH. They will be used in the Photo Scavenger Hunt as students tour the ranch. Students will identify the actual sites where the photos were taken. **Student groups should be provided with a set of these photos or some students could load them on their phones**.

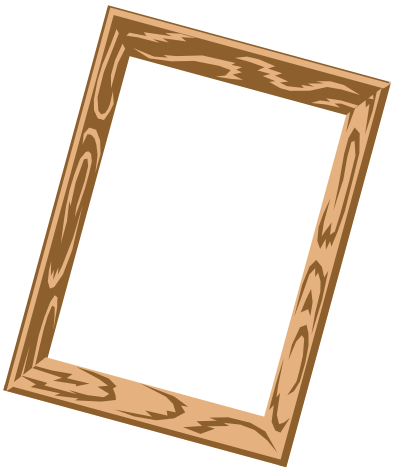
Collect Data for Projects

Depending on the projects, data collection may take place in one or a few locations.

Oh Steer!

Familiarize your class with the game “Oh Steer!” See the following page for the instructions. The Adopt a Rancher program coordinator will bring the equipment needed for the game.

Oh Steer!



This outdoor game is adapted from “Oh Deer!” Project Wild 1994 p207

Group size of 15 or more is recommended

Equipment

4 markers to identify the start lines
Large paper to draw a graph
Marker pen

Needing little more than grass and water, cattle can look after themselves on the native prairie. The problem is that grasslands need to rest after grazing so they can be rejuvenated. Without rest from grazing, the grass and water resources are at risk of being depleted, thereby decreasing the carrying capacity of the range. Lack of time for rejuvenation is an indirect limiting factor.

1. Mark two parallel start lines at each end of an 18 metre long playing field.

2. Tell the students that they will be participating in a game that emphasizes three factors that are critical to sustaining native prairie and using it as a resource while protecting biodiversity.

“Oh Steer!” examines the affect of two essential habitat components (**grass** and **water**) and one range management process (**range rest**) on the carrying capacity for cattle in the ranch ecosystem.

Students will decide which of these factors they will portray at the beginning of each round.

Demonstrate the following signs that all students will use to indicate the factors:

Grass – hands on stomach
Water – hands on mouth
Range Rest –hands clasped behind head

3. Divide the class into two groups: **one quarter** of the students, the steers, go to one start line; **three quarters** of the students go to the other start line which is the native prairie.

4. Each group lines up behind the start lines, with their backs turned to the students on the other line. Each student picks a factor and displays the sign.

5. On a signal, all students turn around, continuing to hold their signs and the steers look to see who in the native prairie is displaying the same sign as themselves.

(Once students have picked a factor, they cannot change it to one that they see is available on the other side when they turn around. Watch for this!)

The steers run to the factors they need on the prairie while continuing to display their signs. The first one to reach a needed factor takes that student, who now becomes a steer, back to the steer start line.

If a steer cannot tag the right factor, it will be sent off to market as the carrying capacity has decreased! However it comes back right away as a factor in the native prairie in the next round.

6. Plan on about 15 rounds and keep the pace moving. At the end of each round, count the number of steers. Plot the number on a graph where X= number of rounds and Y = number of steers. Connect the numbers.

7. During the wrap up, show students how the population of cattle fluctuated depending on which factors were limiting. For example, drought could cause a water shortage or decrease the forage yields. Not allowing range rest could lead to overgrazing.

Student Guide: The Human Factor

Students have been learning about two principles of sustainability: employing ecological frameworks in management and attaching economic values to ecosystems. The third principal involves taking responsibility for the wellbeing of future generations.

Scientists accept that human activities will likely result in dramatic changes to our climate. We are experiencing some of these changes today. Students will look at the human factor as they complete three climate change-related activities and include the results in their case studies.

Ranchers who choose to use sustainable grazing management are stewards, keeping native prairie healthy which benefits future generations. Choosing actions or behaviours can be very powerful. When enough people choose similar actions or behaviours, the world viewpoint changes. Anyone can choose to use beneficial practices to support environmental health at home, school or work.

What beneficial practices do students currently use? What practices could they adopt? What would Saskatchewan be like if ecological principles guided all our decision-making? What would happen to the economy and our social systems?

Analyze the Ranch Ecosystem Case Study

Students have completed their case studies, gaining much knowledge and many skills. Now is time for the class to use all that they have learned about ranch ecosystems to analyze the use of sustainable grazing management as one solution to protecting prairie ecosystems.

How can ranching protect Saskatchewan's native grasslands while providing economic benefits for Saskatchewan people?

Use the following questions to generate a discussion. You may have other questions.

- What ecological processes are used in developing sustainable grazing methodology?
- What data collected on Field Day is helping you assess the sustainability of the ranch ecosystem?
- Does sustainable grazing management make economic sense?
- What challenges are involved in achieving a sustainable grazing system?
- How do species at risk benefit from the beneficial management techniques used on the ranch?
- Are there other beneficial management practices that could be used on the ranch to improve ecosystem health?
- Because managing for sustainability does not provide yearly cash flow, some ranchers feel it makes more economic sense to break native prairie and then plant and manage tame forages and/or annual crops. Is this good resource diversification for the short or long term?
- Many people have never heard of ecological goods and services (and may not care). How could you change people's viewpoint so that they would begin to value these goods and services?

- Can we apply what has been learned about sustainable ranch ecosystems to other environmental problems worldwide?
- Have you changed a personal viewpoint since studying the ranch ecosystem?

Say Goodbye to the Rancher

Create a thank you card for the rancher. Use photos taken on Field Day to illustrate the card. Each student could contribute a short paragraph about some aspect of the field trip such as an interesting thing seen or learned, a funny thing that happened or something really enjoyable.

You may want to enlist the students' help when you complete parts of the program evaluation. Their input will provide important feedback.

Thank you for participating in the Adopt a Rancher program!

Saskatchewan Prairie Conservation Action Plan

Notes

Adopt a Rancher – Pre and Post Test

Select the correct response or responses for each statement or question. Some will have more than one correct response.

1) Which of the following is/are an environmental consequence that roads have an the ecosystem:
   a) Invasive alien plant species can become established.
   b) Waterfowl can fail to identify available wetland territories.
   c) Some wildlife can become trapped in too small habitats that cannot support them.
   d) Rangeland can become overgrazed.

2) Possible outcomes of a lack of biodiversity include:
   a) Increased pest problems.
   b) Decreased pollination.
   c) Degraded habitat.
   d) Inverted temperature trends.

3) Plant litter
   a) Keeps the soil temperature cool
   b) Increases soil temperature
   c) Destroys organic soil matter supply.
   d) Removes habitat for decomposers.

4) Rangeland functions include
   a) Capture and slow release of water, preparation of livestock for markets, and nutrient cycling.
   b) Nutrient cycling, plant species diversity, economic diversification.
   c) Preparation of livestock for markets, economic diversification, and site stability.
   d) Site stability, capture and slow release of water, and plant species diversity.

5) The science of ecology has developed methods for
   a) Managing grazing practices
   b) Creating mind maps
   c) Reducing the impact of invasive species
   d) Protecting species at risk.

6) Climate change could lead to
   a) more water shortages
   b) extreme weather conditions
   c) increased soil erosion and more insect infestations
   d) a longer growing season

	Strongly Agree	Agree	Neutral	Disagree	Stongly Disagree
Ranches are important habitats for prairie plants and animals.					
Range management methods protect native grasslands.					
Society benefits from healthy native prairie.					
I can positively effect native prairie ecosystems					

7. What ecological processes are used in developing sustainable grazing methods?

8. How do species at risk profit from beneficial management techniques?

	Never	Rarely	Sometimes	Usually
I consider my personal waste production				
I switch off electronic devices that are not in use				
I walk or cycle instead of driving or getting ride				
I consider the impact my habits have on the environment				

Adopt a Rancher Assessment/Evaluation Rubric

Use this rubric to assist you in assessing student learning/achievement in completing the Adopt a Rancher case study unit. Student scores that result from the use of the rubric would produce a number out of 44, which can be easily converted to a percentage if you wish.

Content

	Level 4	Level 3	Level 2	Level 1
Mind Map	Includes all the main elements – ecosystem characteristics, components and processes; positive or negative human actions that affect the ecosystem; elements of ecological goods and services; new information or processes discovered in the description of the ranch ecosystem; environmental consequences and social benefits of roads	Includes most of the elements	Includes some of the elements	Includes few of the elements
The Ranch Profile	Contains information about the ranch history, management practices, habitat, wildlife, plants	Contains most of the required information	Contains some of the required information	Contains little of the required information
Ranch Ecosystem Description	Includes all the required elements – annual precipitation, annual mean temperatures, climate type, typical plant and animal species, landforms, soil description, land use, concerns	Includes most of the elements	Includes some of the elements	Includes few of the elements
Species at Risk	Discusses 1 plant and 1 animal species. Includes information about distribution, habitat needs, special adaptations to their environment, why they are at risk, beneficial management practices	Includes most of the required information	Includes some of the required information	Includes little required information
Invasive Alien Plants	Discusses 2 invasive alien plants. Includes information about the plant, habitat needs, characteristics that make the invasive species a threat, beneficial management practices that are used for its control	Includes most of the required information	Included some of the required information	Includes little required information
System Flowchart	Makes use of words and arrows, includes information about the relationship between the grassland ecosystem and range management; uses components such as litter, water, cattle, communities, biodiversity; includes processes such as photosynthesis, decomposition, grazing, overgrazing; presents time as factor	Uses words and arrows, includes most of the required information	Uses words and arrows, includes some of the required information	Uses words and arrows, includes little required information
Sustainable Management Practices	Combines what was learned about sustainable grazing management and the management information from the Ranch Profile	Presents information learned about sustainable grazing management	Refers solely to management information from the Ranch Profile	Presents little to no information about sustainable grazing practices or management information
Ecological Good and Services	Documents the ecological goods and services that are provided by the ranch; includes descriptions of the goods and services, their environmental and economic values and consequences for their loss	Documents the ecological goods and services that are provided by the ranch; includes most of the required information	Documents ecological goods and services provided by the ranch, includes some of required information	Documents ecological goods and services, includes little required information

Public Service Announcement to Sell a good or service	Very clear and concise flow of ideas, visuals assist comprehension of the issues in unique ways	Clear flow of ideas, use of visuals related to the material	Most ideas flow, but focus is lost at times, limited use of visuals loosely related to the material	Hard to follow the flow of ideas, no use of visuals
Measuring Range Health	The project was well conceived and conducted, data gathered was clearly presented, analysis and conclusions flowed from the data	The project addressed the topic, data was gathered and presented, analysis and conclusions were related to the data	The project was somewhat related to the topic, data was presented , analysis and conclusions offered referred to the data	The project was poorly developed, data and analysis were presented without clear connection or purpose
The Human Factor – Climate Change	Students completed all three climate change activities with accurate and complete information and included all three in their case study	Students completed all three climate change activities with some accuracy and success and included all three in their case study	Students completed two of the climate change activities with some accuracy and success and included them in their case study	Students completed one of the climate change activities and included it in their case study
The Human Factor – society and worldviews	Introduction to the case study includes information about society and worldviews, mind map includes three beneficial practices the students can adopt	Introduction includes some information about society and worldviews, mind map two beneficial practices	Introduction includes little information about society and worldviews, mind map includes one or two beneficial practice	Introduction fails to include information about society and worldviews, mind map includes one beneficial practice

Saskatchewan Prairie Conservation Action Plan

Teacher's Evaluation

Thank you for participating in the Adopt-a Rancher program. Our goal is to provide an educational program that is fun and promotes sustainable grazing management. To help us achieve our goal, please complete this program evaluation.

School _____ **Date** _____

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The Teacher's Guide contains the information needed to teach the program.					
The program supports curriculum objectives.					
The program is age-appropriate.					
Students had enough resources to create their case studies.					
The time required for the program fit my teaching schedule.					
Students enjoyed learning about a ranch ecosystem.					
Students learned about stewardship.					
The Field Day was an educational field trip.					
The communication methods used with the rancher worked well					
The PCAP program coordinator provided the support I needed.					
I would participate in this program again.					

1. How have students benefited by participating in the Adopt a Rancher program?

2. What did you like **the most** about the Adopt a Rancher program?

3. What did you like **the least** about the Adopt a Rancher program?

4. What changes would you make to the program?

4. Other comments:

Thank you for filling out this evaluation!

Saskatchewan
Prairie Conservation
Action Plan