

## PRAIRIE CONSERVATION FORUM

# The Prairie Conservation Forum Newsletter

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Katheryn Taylor

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*Attend the Prairie Conservation Forum Annual General Meeting on Thursday, January 21, 2010 in Okotoks, Alberta. RSVP to [sasha@albertapcf.org](mailto:sasha@albertapcf.org)*

## A Look Back at 2009

We started the year off in Okotoks with the AGM, a well attended meeting with great presentations on hot topics including the Land-use Framework led by Ian Dyson, Dug Major and Brian Laing and Denise Calderwood presented her beautifully crafted and informative DVD on Water Quality in the Eastern Slopes. A new committee, the Prairie Conservation Action Plan/ Land-use framework committee (PCAP/LUF Committee) was formed during the discussions at the meeting, with a goal of influencing the planning and deliverables of the Alberta Government's Land-use Framework policy and to start work on the 2011 - 2016 PCAP.

A successful partnership between MultiSAR and PCF was formed in the Spring of 2009. The PCF is committed to overseeing the administration of the MultiSAR program ensuring that this valuable and highly successful program continues into the future.

The PCF spring/summer meeting was held at the Cassils Hall, a beautiful place set on the prairie west of Brooks. We were given informative presentations on the Antelope Creek Ranch and area by John Dormaar, Morgan Stromsmoe and Neal Wilson and we received a great presentation on the Alberta Wilderness Association from Christyann Olson. The evening ended with a great barbecue that was forced to wrap up early due to very persistent and bothersome wind. The next day we were led on a tour of the Antelope Creek Ranch by Neal Wilson, participated in range health discussions with Jennifer Richman, learned about well site development and reclamation from Tammy MacMillan and Susan Patey-LeDrew and visited the Ducks Unlimited Canada Kitsim project.

The PCF coordinators hooked up with their Saskatchewan counterparts and participated in the 2009 Native Prairie Appreciation Week. This was a 2 day adventure of the Missouri Couteau around Moose Jaw, partaking in discussions about invasive weeds, touring the prairie on greyhound buses, making stops to have a plant identification competition, bbq steak dinner, participating in roping calf dummies, milking balloons and a tour to the Claybank National Historic Site; making for one fantastic trip.

The Prairie Conservation Forum celebrated it's 20th anniversary in Hanna, with an evening filled with great food, beverages and cowboy poetry. Miles Scott-Brown, one of the original members of the PCF, was brought in for the keynote address and Ian Dyson took us back through the last 20 years with an entertaining presentation. The following day we loaded into 15 passenger vans and headed out to Clayton Curry's for a tour of his land and beautifully renovated historic homestead. We were treated to a fantastic bbq lunch and were entertained by Clayton's stories and moved by his enthusiasm.

2009 was a great year, happy new to all of you and cheers to a healthy and successful 2010!

# Restoring Rough Fescue in Central Alberta

Peggy Desserud, PhD Candidate, Dr. M. Anne Naeth, Professor. Department of Renewable Resources University of Alberta

The Rumsey Natural Area, approximately 200 km<sup>2</sup>, is one of the largest remaining tracts of plains rough fescue (*Festuca hallii*) grassland in Canada. Although protected from cultivation and residential development, continual grazing and over 200 natural gas wells and pipelines have resulted in increased invasive species like Kentucky bluegrass and smooth brome and reductions of rough fescue and other native grasses.

Vegetation assessments in Rumsey and other rough fescue grasslands have shown that once disturbed, rough fescue does not easily recover. The main objective of my PhD research program is how to restore native rough fescue grassland following oil and gas disturbance. We established several experiments to study rough fescue ecology and its recovery potential.

In 2007, we set up experiments on two natural gas well sites, outside the Rumsey area but in similar grassland. We treated the sites with two levels of straw amendment rototilled into the soil. Straw adds carbon to soil, which causes bacteria and fungi to tie up nitrogen during decomposition, making it unavailable for plants. The sites were seeded with rough fescue, native grasses and non-native Kentucky bluegrass and smooth brome. Agronomic species like Kentucky bluegrass and smooth brome require high concentrations of nitrogen, while native prairie grasses require less. The good news is that rough fescue and most native grasses responded well to straw as a soil amendment and that smooth brome responded poorly. Less promising is that Kentucky bluegrass has had an indeterminate response. Weeds, which appeared in 2008, have mostly disappeared in 2009.

We are monitoring three minimum disturbance pipelines constructed in 2007 and 2008 in or close to the Rumsey Natural Area. Two were ploughed-in and the third one had topsoil stripped along the ditch width, and then was lightly seeded with agronomic species and native cultivars. After two years, native grasses, including rough fescue, were growing on the ploughed-in pipelines. Recovery is best on south slopes and bottom land. On the driest crest areas we found a considerable amount of bare ground. The pipeline that had been stripped and seeded showed the least amount of native species.

Arbuscular mycorrhizal fungi (AMF) infect plant roots and form symbiotic associations with plants. AMF helps the plant absorb potassium, nitrogen, trace minerals and other nutrients, while the plant supplies AMF with carbon for energy. Most prairie grasses, including rough fescue, have AMF associations. Topsoil removal and storage, such as during oil or gas well site construction, deplete AMF activity and could affect the recovery potential of rough fescue, if it is found to have a dependence on the fungus. We established greenhouse experiments, using fungicide to kill AMF, to assess the reliance of rough fescue on AMF. Our initial results surprised us because rough fescue did better with less AMF! A possible explanation is that the carbon drain by the AMF on young rough fescue seedlings is greater than the benefits received from the nutrient uptake. We repeated this experiment in the greenhouse and in the field to see if the effect is fungicide or AMF. Those results are not finalized.

Rough fescue, a long lived bunch grass, produces seed only every five to seven years or longer. In 2006, rough fescue flowered and produced seed in Central Alberta. In July 2006, during the seed shattering stage of rough fescue, we cut hay from rough fescue grassland, adjacent to a 15 m wide stripped pipeline right of way (ROW). Hay was harvested with a modified combine, chopped and sprayed onto the ROW. Three years later, native grasses, such as western porcupine grass, native bluegrasses and wheat grasses are abundant. Rough fescue is present; however, it is slow-growing and not as abundant as the other grasses. Weeds, such as flixweed, which appeared in 2007, are not present in 2009. After three years, the vegetation is starting to resemble native grassland, although all species present in the adjacent grassland are not found on the ROW. Native hay could be a valuable source for reclaiming native grassland. It is inexpensive, provides species that are not available commercially or are expensive, such as rough fescue or western porcupine grass, and results in diversity similar to native grassland.

The last project in my PhD is a cumulative effects assessment of oil and gas disturbance in the Rumsey Natural Area. I plan to build a state and transition model, showing the recovery status of rough fescue grassland, over time and through various reclamation techniques.

Francis Gardner, Sentinel Ranch, Alberta, was right when he termed rough fescue “the queen of grasses”!



Fescue seeds Drumheller – Plains rough fescue flowers in 2006 by Peggy Desserud



Native Hay Harvester - Modified combine harvesting native hay in rough fescue grassland by Peggy Desserud

# Beneficial Management Practices for Reclamation and Restoration in Silver Sagebrush Communities

A Master's Degree Project – Laura Hickman, Faculty of Environmental Design, University of Calgary

Habitat fragmentation effects are a critical concern in remaining North American prairie grassland habitats, with transportation networks and oil and gas exploration and development identified as major agents of fragmentation (Alberta Environmental Protection, 1997). Concern over the integrity of silver sagebrush ecosystems within the prairie landscape of southeastern Alberta is due in part to the large number of declining or endangered wildlife species that rely on these communities for important dietary and structural habitat components (e.g. pronghorn (*Antilocapra americana*), sage grouse (*Centrocercus urophasianus*), sage thrasher (*Oreoscoptes montanus*) and sage sparrow (*Amphispiza belli*)).

My Master's Degree Project uses the case study of energy developments within previously mapped silver sagebrush communities (Jones et al., 2005) in southeastern Alberta to address the following research questions:

- a) How do silver sagebrush communities respond under a variety of reclamation treatments and site conditions?
- b) What management practices best achieve efficient and effective reclamation and restoration of silver sagebrush communities?

Between May and August 2008, a total of 38 pipeline and well sites were visited within blowout and overflow communities in the 49 township area outlined by Jones et al. (2005). These disturbed sites ranged between eight and 47 years of age, with a variety of construction and reclamation treatments having been applied. Analysis underway will identify vegetation community types that are common among and between disturbed (pipeline or wellsite) and adjacent undisturbed (control) plots, helping to correlate of vegetation cover outcomes with known management practices and indicate whether areas of a given range health condition or ecological range type experience variable reclamation success outcomes. For this study, reclamation success is defined as the successional trajectory of a reclaimed disturbed site moving towards the seral community found in an adjacent, undisturbed site.

The results of the summer 2008 field work, combined with interviews with land managers and reclamation practitioners, a review of best practices in neighboring jurisdictions and a preliminary cumulative effects map in a geographic information system will be combined into a beneficial management practices document. This, along with project data, will be made available to Alberta Sustainable Resource Development (ASRD) for use and publication. It is anticipated that results will support land use planning, and facilitate integration of energy sector practices with range health and biodiversity principles.

This project has been funded by ASRD, the Alberta Conservation Association, the Energy Resources Conservation Board, and Petro Canada (now Suncor). Numerous PCF members have provided in kind support in the areas of field training, equipment and records retrieval.

Look in future issues of the PCF Newsletter for the results of Laura Hickman's research project.



Laura Hickman



Marilyn Neville and rough fescue at Clayton Curry's

## Upcoming Events and Activities:

- Feb. 5, 4 – 9 pm Living in the Natural Environment presented by the M.D. of Bighorn is at the Cochrane Rancho House. Speakers: Dr. Dave Sauchyn - Climate Change and the Implications for Southern Alberta and Gord Stenhouse - Counting Grizzly Bears in Alberta-Too Many or Not For more information, contact Emily Smith or phone (403) 233-7678 or 673-3611
- **February 22 - 24 Alberta Irrigation Projects Association 2010 Conference** "Alberta's Water Balancing Act" Radisson Hotel, Calgary. Contact Ron or Vicky at 403-328-3063 for more information.
- **9th Prairie Conservation and Endangered Species Conference**, Winnipeg, MB. February 25-27, 2010. Register online at [www.pcesc.ca](http://www.pcesc.ca)
- **March 2, Fort Macleod OWC Holding the Reins Workshop**. Online registration will be available soon.
- **March 4 SouthGrow N Sustainability Conference** "Creating Opportunities . . . Viable, Responsible, Quality Today for a Prosperous Tomorrow" Lethbridge Lodge Hotel & Conference Centre  
Visit: [www.southgrow.com](http://www.southgrow.com) for more info.
- **PITCH-IN WEEK 2010!** April 19 - 25 **REGISTRATION OPENS:** January 18, 2010; **REGISTRATION CLOSES:** March 15, 2010 Register or Update your PITCH-IN Week Registration Record before March 15! [www.pitch-in.ca](http://www.pitch-in.ca)

**"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has."  
- Margaret Mead**

### Our Vision:

To conserve the biological diversity of Alberta's native prairie ecosystems for the benefit of current and future generations.

### Our Goals:

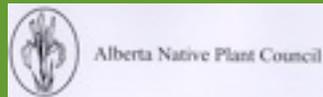
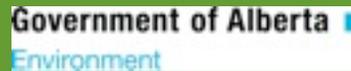
**Research:** Enhance the information base for Alberta's native prairie and parkland landscapes.

**Stewardship:** Conserve Alberta's native prairie and parkland landscapes.

**Education:** Increase awareness and importance of Alberta's native prairie and parkland ecosystems.

Thank-you to our contributing partners:

Alberta Sustainable Resource Development



Government of Alberta



If you have any comments, questions or ideas, please contact the PCF Coordinator at:

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