

**FY01-XXXVII-102  
RECLAIMED GRASSLAND MANAGEMENT  
FOR INCREASED PLANT DIVERSITY**

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**PARTICIPANTS**

<u>Sponsor</u>	<u>Cost Share</u>
Knife River Corporation	\$4,500
BNI Coal, Ltd.	\$4,500
The Falkirk Mining Company	\$11,625
The Coteau Properties Company	\$11,625
NDSU	\$15,740
ND Industrial Commission	<u>\$32,250</u>
<b>Total</b>	<b>\$111,720</b>

**Project Schedule - 36 Months**  
Contract Date - 10/17/2000  
Start Date - 10/17/2000  
Completion Date - 5/1/2003

**Project Deliverables**  
Contract Execution - 10/17/2001 ✓  
Status Report 1 - 5/1/2001 ✓  
Status Report 2 - 5/1/02 ✓  
Final Report - 5/1/2003 ✓

**OBJECTIVE / STATEMENT OF WORK**

The objective of this project is to evaluate and prescribe livestock grazing and haying strategies to improve plant species diversity and seasonal balance of reclaimed native grasslands. The North Dakota Administrative Code (NDAC 69-05.2-22-07(4)(a)) states that success of revegetation of native grassland and tame pastureland will be determined based on productivity, ground cover, diversity, seasonality and permanence. Re-establishment of diverse and seasonally balanced native grasslands is difficult to achieve. Prior reports have noted the need for aggressive post-establishment practices to maintain or improve diversity and seasonality. This study is a continuation of the 3-year project FY97-XXVII-74 initiated in 1997. Project FY01-XXXVII-102 will provide an additional 3 years of data on the effect of grazing and haying on reclamation of native grasslands.

## STATUS

This project is Phase II of a six-year study evaluating the effects of cattle grazing on reclaimed grasslands. It involves the prescribed grazing of newly established grasslands on the Falkirk, Freedom, and Glenharold coalmines. Initial results indicate the grazed grasslands had diverse and seasonally balanced plant species compositions with herbaceous yields exceeding reference area “standards”. Despite the short interval of grazing in Phase II, plant species trends appear promising on reclaimed grasslands grazed in the early summer.

The second year of this three-year Phase II study has been completed. Grazing was implemented two to five years after re-establishment of grasslands on the mines with these grasslands receiving aggressive weed and hay treatments in the years prior to grazing. The grazed grasslands had diverse and seasonally balanced plant species compositions with herbaceous yields exceeding reference area “standards”. Despite the short interval of grazing, plant species trends appear promising on reclaimed grasslands grazed in early summer.

The third year of this three-year study has been completed and results incorporated into a final report. Summary conclusions include: 1) Initial seeding following surface mine regrading and resurfacing, a seed mixture of 3 to 1 warm- versus cool-season species appear to provide a competitive edge; 2) Warm-season species are given a competitive edge if seeding is delayed to late June or early July; 3) Management of reclaimed rangelands in the form of moderate to heavy early-season grazing or haying will stress the more aggressive developing cool-season species and result in the desired seasonal balance in nominally five years; Following the establishment of the desired season grassland balance, two possible management options would be to defer grazing until late in the growing season or haying the grasslands around the first week of July. The haying tool would be best utilized on reclaimed range sites that have limited access to water, are too small to be grazed, or have a relatively flat topography free of large rocks.