

2.5 Grazing and Other Agricultural Uses

2.5.1 Study Area

The cumulative effects study area for grazing and other agricultural uses includes the following subwatersheds in portions of Sheridan, Johnson, Campbell, and Converse counties: Upper Powder River, Little Powder River, Upper Belle Fourche River, Upper Cheyenne River, Antelope Creek, and Dry Fork Cheyenne River (**Figure 1-1**). It includes portions of the area administered by the BLM Buffalo and Casper field offices, and a portion of the TBNG, which is administered by the FS (**Figure 1-2**). Private lands comprise most of the surface ownership in the study area (**Figure 1-3**).

2.5.2 Cumulative Impacts

As described in the Task 2 Report for the PRB Coal Review, Past and Present and Reasonably Foreseeable Development Activities (ENSR 2005c), a total of approximately 220,688 acres of vegetation has been disturbed by development activities in the six subwatersheds in the cumulative effects study area (as of 2003). Of the 220,688 acres of total disturbance, approximately 68,794 acres (31 percent) were associated with coal mine development.

Of the 220,688 acres of total cumulative disturbance, approximately 111,786 acres (51 percent) have been reclaimed. The remaining 108,901 acres of disturbance would be reclaimed incrementally or following a project's completion, depending on the type of development activity and permit requirements. Of the 68,794 total cumulative acres of vegetation disturbance associated with coal mine development, approximately 21,238 acres (31 percent) have been reclaimed (as of 2003). Of the remaining 47,556 acres of disturbance, approximately 24,097 acres currently are not available for reclamation, as they are occupied by long-term facilities which are needed to conduct mining operations. These areas would be reclaimed near the end of the mine life. Reclamation of the remaining 23,459 acres, which represent areas of active mining and areas where coal has been recovered but reclamation has not been completed, would proceed concurrently with coal mining. (Note: minor discrepancies in acreages are the result of rounding.)

In general, potential impacts to grazing and other agricultural uses in the cumulative effects study area as a result of RFD activities can be classified as short-term and long-term. Potential short-term impacts arise from the temporary loss of forage as a result of vegetation removal/disturbance, temporary loss of animal unit months (AUMs), temporary loss of water-related range improvements (e.g., improved springs, water pipelines, stock ponds) and other range improvements (e.g., fences, cattle guards, etc.), and restricted movement of livestock within an allotment due to a project's development and operation (e.g., coal mines, etc.), which would cease after successful reclamation had been achieved and replacement of water-related and other range improvements had been completed. The discharge of produced water could increase the availability of water to livestock, which may offset the temporary loss of water-related range improvements. Potential long-term impacts consist of permanent loss of forage and forage/cropland productivity in areas that would not be reclaimed in the near term (e.g., power plant sites, etc.). Indirect impacts may include dispersal of noxious and invasive weed species within and beyond the surface disturbance boundaries, which decreases the amount of desirable forage available for livestock grazing in the long term.

2.0 Predicted Future Cumulative Impacts

Based on existing information, discrete locations for future well sites and actual disturbance footprints associated with mining of future coal reserves currently are unknown. As a result, the location of these future disturbance areas in relation to BLM- and FS-administered rangeland cannot be determined. However, in an effort to quantify potential impacts to grazing as a result of RFD activities, the total number of AUMs (regardless of land ownership) has been determined for each scenario and time period in this study.

Based on an average stocking rate of 6 acres per AUM, approximately 36,781 AUMs temporarily have been lost as a result of the 220,688 acres of total cumulative disturbance on BLM- and FS-administered, state, and private lands in the six subwatershed study area as of the end of 2003. Of the 36,781 AUMs, approximately 11,466 AUMs (31 percent) have been associated with coal mining activities. As of the end of 2003, approximately 18,631 AUMs had been regained as a result of reclamation. The majority of the remaining 18,150 AUMs would be regained following successful reclamation.

The effects to grazing and other agricultural uses from RFD activities in the study area under two production scenarios (lower and upper production scenarios) for the years 2010, 2015, and 2020 are discussed below.

2.5.2.1 Year 2010 – Lower Production Scenario

Grazing

General impacts to grazing would be the same as described in Section 2.5.2. Under this scenario, past and projected activities in the study area would result in approximately 339,912 acres of total cumulative disturbance on BLM- and FS-administered, state, and private lands by 2010. Based on an average stocking rate of 6 acres per AUM, this disturbance would result in the temporary loss of approximately 56,652 AUMs. Of the 56,652 AUMs temporary lost by 2010, approximately 34,185 AUMs would have been regained as a result of successful reclamation. The majority of the remaining 22,467 AUMs (40 percent of which would be related to coal mining activities) would be regained following successful reclamation, excluding permanent facilities such as power plants and railroads. Reclamation would occur concurrent with, or following the completion of, operations, depending on the type of project. Impacts to range improvements could occur, depending on their location in relation to the RFD activities.

Other Agricultural Uses

It is projected that approximately 98,662 acres of disturbance would occur in association with coal mining activities, of which approximately 59 acres (less than 1 percent) would affect agricultural land. Other RFD activities could result in short- and long-term impacts to agricultural land, depending on their spatial relationship. Short-term impacts would include the loss of crop production during development and operational phases of the projects. Long-term impacts would result from the permanent loss of agricultural land due the development of permanent facilities such as power plants and railroads.

2.5.2.2 Year 2010 – Upper Production Scenario

Grazing

Potential impacts to livestock grazing as a result of RFD activities would be similar to those described under the 2010 – Lower Production Scenario, except an additional 631 AUMs temporarily would be lost as a result of 3,786 acres of additional surface disturbance. Of the approximately 57,283 total AUMs lost as a result of past and projected development-related disturbance, approximately 34,491 AUMs would have been regained as a result of successful reclamation. The majority of the remaining 22,792 AUMs (41 percent of which would be related to coal mining activities) would be regained following successful reclamation. Additional impacts to range improvements and water-related range improvements could occur as a result of the increased level of surface disturbance.

Other Agricultural Uses

Impacts to agricultural lands would be similar to those described under the 2010 – Lower Production Scenario, with the following exception. It is projected that under this scenario 102,448 acres of disturbance would be associated with coal mine development, of which approximately 60 acres (less than 1 percent) would affect agricultural land.

2.5.2.3 Year 2015 – Lower Production Scenario

Grazing

Potential impacts to livestock grazing as a result of RFD activities would be similar to those described under the 2010 – Lower Production Scenario, except an additional 14,362 AUMs temporarily would be lost as a result of 86,172 acres of additional surface disturbance. Of the approximately 71,014 total AUMs lost as a result of past and projected development-related disturbance, approximately 47,769 AUMs would have been regained as a result of successful reclamation. The majority of the remaining 23,245 AUMs (40 percent of which would be related to coal mining activities) would be regained following successful reclamation. Additional impacts to range improvements and water-related range improvements could occur as a result of the increased level of surface disturbance.

Other Agricultural Uses

Impacts to agricultural lands would be similar to those described under the 2010 – Lower Production Scenario, with the following exception. It is projected that under this scenario 117,236 acres of disturbance would be attributed to coal mine development, of which approximately 134 acres (less than 1 percent) would affect agricultural land.

2.0 Predicted Future Cumulative Impacts

2.5.2.4 Year 2015 – Upper Production Scenario

Grazing

Potential impacts to livestock grazing as a result of RFD activities would be similar to those described under the 2010 – Lower Production Scenario, except an additional 15,580 AUMs temporarily would be lost as a result of 93,480 acres of additional surface disturbance. Of the approximately 72,232 total AUMs lost as a result of past and projected development-related disturbance, approximately 48,470 AUMs would have been regained as a result of successful reclamation. The majority of the remaining 23,761 AUMs (41 percent of which would be related to coal mining activities) would be regained following successful reclamation. Additional impacts to range improvements and water-related range improvements could occur as a result of the increased level of surface disturbance.

Other Agricultural Uses

Impacts to agricultural lands would be similar to those described under the 2010 – Lower Production Scenario, with the following exception. It is projected that 124,545 acres of disturbance would be associated with coal mine development, of which approximately 139 acres (less than 1 percent) would affect agricultural land.

2.5.2.5 Year 2020 – Lower Production Scenario

Grazing

Potential impacts to livestock grazing as a result of RFD activities would be similar to those described under the 2010 – Lower Production Scenario, except an additional 27,195 AUMs temporarily would be lost as a result of 163,173 acres of additional surface disturbance. Of the approximately 83,847 total AUMs lost as a result of past and projected development-related disturbance, approximately 61,333 AUMs would have been regained as a result of successful reclamation. The majority of the remaining 22,514 AUMs (43 percent of which would be related to coal mining activities) would be regained following successful reclamation. Additional impacts to range improvements and water-related range improvements could occur as a result of the increased level of surface disturbance.

Other Agricultural Uses

Impacts to agricultural lands would be similar to those described under the 2010 – Lower Production Scenario, with the following exception. It is projected that 137,443 acres of disturbance would be associated with coal mine development, of which approximately 206 acres (less than 1 percent) would affect agricultural land.

2.5.2.6 Year 2020 – Upper Production Scenario

Grazing

Potential impacts to livestock grazing as a result of RFD activities would be similar to those described under the 2010 – Lower Production Scenario, except an additional 29,137 AUMs temporarily would be lost as a result of 174,820 acres of additional surface disturbance. Of the approximately 85,788 total AUMs lost as a result of past and projected development-related disturbance, approximately 62,455 AUMs would have been regained as a result of successful reclamation. The majority of the remaining 23,333 AUMs (45 percent of which would be related to coal mining activities) would be regained following successful reclamation. Additional impacts to range improvements and water-related range improvements could occur as a result of the increased level of surface disturbance.

Other Agricultural Uses

Impacts to agricultural lands would be similar to those described under the 2010 – Lower Production Scenario, with the following exception. It is projected that 149,089 acres of disturbance would be associated with coal development, of which approximately 289 acres (less than 1 percent) would affect agricultural land.