

Trip report Rainwater Basin Nebraska

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Rainwater Basin Wetland Management District

In attendance:

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Overview:

This unique area of Nebraska has an annual rainfall of about 25 inches but evaporation/transpiration is about 50 inches. There are two distinct sections in the Rainwater Basin, the east and the west basins. The eastern most basin has more wetlands with somewhat more water and therefore more bird use. More avian mortality also occurs in the east.

Originally, there were over 4,000 wetland basins covering 100,000 acres. Today only 400 basins remain and these are mostly the larger more difficult to drain basins that encompass about 10,000 acres.

Bird use is primarily from sandhill cranes, white geese, white-fronted geese, some Canada geese, and ducks (primarily mallards and pintails). Although this is a breeding area, the area is of great importance during migration. Intensive management opportunities are limited or difficult because of logistics, and habitat are so highly disrupted (i.e., there are many widely scattered small remnants). For example, distances between parcels are so great that as much or more time can be spent in travel each day as is spent inspecting and or conducting management activities on a site. This time involved in travel is a particularly acute problem in moist-soil management because success requires careful monitoring of units.

Soils are heavy and rich in this region. With irrigation, corn production easily exceeds 150 bushels/acre. High production from native vegetation should be possible with good water control.

Funk Lake Site:

Funk Lake is a more permanent water basin in which about 600 acres of moist-soil type habitats are being developed with a completion goal of 1992. There is an excellent diversity of moist-soil plants in the area including some of the more desired species such as millets, smartweeds, pigweed, and chufa. The deeper wetland sites are typical of a Steward and Kantrud Type 4 semipermanent wetland with robust emergents (i.e., cattail).

The second site we inspected had been mowed to control cattail. There was an excellent stand of millet and chufa was abundant beneath the canopy. There also is a good indication that smartweeds might have an excellent response on this site. Estimated seed production based on the diversity and robust growth should be in the range of 1500 lbs/acre. This part of the refuge has a very high water table as is evidenced by the vegetation. Consistent production of high quality moist-soil vegetation should be possible but there will be a constant management challenge to control the perennial vegetation normally associated with semipermanent marshes.

Prairie Dog, the site south of Highway 34 is very different from the area around Funk Lake. The predominant vegetation is nearly a monoculture of reed canary grass. The water table is lower here and there are scattered indications of moist-soil vegetation but the distribution is limited.

General Assessment:

The Funk Lake area has very high potential to produce excellent moist-soil vegetation. In order to assure a higher rate of success, the project to levee the area must be completed. The rich soils and high water table should result in high annual food yields but there will be a continuing challenge to control cattail or other robust emergents such as river bulrush, etc. in the lower sites or during years with higher precipitation. Willow might possibly be a problem under certain conditions as well. In the higher zones more distant from the wetland basin, there will be challenges to control more xeric vegetation. Foremost among these will be cocklebur. Perennials such as goldenrod and aster likely will be part of the developing plant community. Of the two sites I visited, undoubtedly Funk Lake has the best potential because less development will be required (as compared to Prairie Dog) and fewer operational costs for the potential benefits. I would anticipate a diverse seedbank at the Funk Lake site which would support a good response regardless of the water year (wet or dry) or date of drawdown. Furthermore, there is a good mix of species that will produce a diversity of food types including tubers (chufa), seeds (smartweed and millet) and browse (spikerush).

Vegetation that responds to wetter soil conditions will most likely require more frequent control (2-3 years) that will increase operational costs/acre. Mechanical treatments will be the most expensive, thus they should be timed to promote maximum food production while controlling problem vegetation. Effective water level control will be central to the production of foods and the potential to make the foods available in a timely manner. Most likely a combination of approaches may prove to be the most effective for control (i.e., burning and mowing, burning and disking, etc.)

Prairie Dog likely would be a more costly development and appears to be an area with less potential for consistent moist-soil response even if a reliable source of water is available. A good water supply and very effective control of water is necessary to make the hydrology

more dynamic. Reed canary grass is very aggressive and is indicative of a stable hydrology (i.e., wet for a part of the season but then dries). There is evidence that moist-soil vegetation might be particularly productive during some growing seasons but the mass of reed canary grass would have to be disrupted during a season with the best growing conditions to get this response.

Finally I would emphasize the importance of developing independent water control for each unit developed and to concentrate any development within a localized area. The independent control will provide the potential to reduce the costs of rehabilitation and increase the potential for producing and providing foods for a diversity of wildlife. Concentrating developments at one or two locations would reduce travel time investments and would enhance the opportunity to monitor the units to achieve maximum benefits.