

BUTTE VALLEY WILDLIFE AREA

MANAGEMENT PLAN ADDENDUM

I. EXECUTIVE SUMMARY

The Butte Valley Wildlife Area (BVWA) provides important wetland habitat for resident and migratory waterfowl and other wetland-associated birds. This Addendum updates the comprehensive 1996 Management Plan. Wetland developments were completed and their management has greatly improved. Wetlands are being intensively-managed to provide suitable food, cover and open water for wildlife. Use by resident and migratory waterfowl has increased since 1996. Farming of cereal grain crops has become more efficient with the use of center pivot irrigation systems. Public use, especially waterfowl hunting, continues to increase. Problems such as noxious weeds and avian disease have been addressed as they occurred. The introduction of wild pheasants to establish a population has not been successful. There have been no significant adverse environmental impacts with the operations, maintenance and development of BVWA.

II. INTRODUCTION

The 13,200-acre Butte Valley Wildlife Area, Siskiyou County, was acquired by the California Department of Fish and Game in 1981. This area was acquired to provide habitat for migratory and resident waterfowl and other wetland-associated birds, habitat for threatened or endangered species, maintenance and restoration of wetlands, and to provide compatible, wildlife-oriented recreational opportunities. An initial management plan was completed (1983), followed by a more comprehensive plan in 1996 (PLAN) to guide the operation, development and maintenance of BVWA. The purpose of this Addendum is to update the 1996 PLAN and describe any adaptive management strategies that have occurred.

III. AREA AND SPECIES DESCRIPTION

Area Description

Throughout this Addendum, reference will be made to the PLAN for a more detailed discussion of selected topics. For information on the setting, topography, geology, soils, climate, hydrologic features, cultural resources, historic uses and existing facilities refer to the PLAN. No substantial changes have occurred to these topics since the PLAN was written in 1996.

Since 1996, precipitation patterns have fluctuated greatly. Consequently, the Lake level and the amount of wetlands present were directly affected. A wet cycle occurred from

1993 to 1999 followed by a prolonged dry cycle from 2000 to 2008 but interspersed with a very wet year (2006). Since 1996, Meiss Lake went dry in 2000, 2001, 2002, 2003, 2004, 2005, 2007 and 2008.

Two important activities described in the PLAN will be updated and discussed in further detail because of their public interest: Sam's Neck pumping to the Klamath River and BVWA's groundwater use.

1. Sam's Neck Pumping. Siskiyou County Public Works Department provides flood protection for residents of the County. In Butte Valley, Meiss Lake is in a naturally-closed basin and would periodically inundate adjacent landowners in wet years and during flooding events. In 1964, a significant flooding event occurred and the Lake flooded much of the valley. Consequently the Corps of Engineers constructed a flood control channel and pumping station to remove excess Meiss Lake water from the valley. The Lake water was pumped to the Klamath River via the Sam's Neck pumps. The pumps have been operated as needed since 1968. The cost of operating these pumps was paid by various parties initially (County, Meiss Ranch and Department of Fish and Game). Ultimately it was determined the cost of flood protection was the responsibility of the County which has continued to pay these operating costs since the mid 1980's. The cost to operate these pumps has been significant and has been a burden to the County's budget. Due to the presence of BVWA locally, the Department has agreed to assist the County by providing personnel to operate the pumps on their behalf.

In a Memorandum of Understanding between the County and the Department, the Department has agreed to provide as much storage of water as possible in various wetland developments and in Meiss Lake on BVWA. Approximately 4,400 acres of managed wetlands have been restored on BVWA and an additional 1,400 acres on the adjacent Butte Valley National Grassland since the mid 1980's. In addition due to the reconstruction of the levee along Meiss Lake in 1987, its surface capacity has increased from 3,500 to 4,000 acres. These wetland developments have greatly increased the flood control capacity and protection for Butte Valley residents.

From 1968 to 1986, floodwater was pumped from Meiss Lake via the Sam's Neck pump and canal system to the Klamath River. Meiss Lake was maintained at a level to provide floodwater storage capacity but was routinely exceeded which necessitated the Sam's Neck pumping. Extensive wetland developments were done on BVWA from the mid 1980's until the early 2000's as described in the PLAN. Excess floodwater was pumped into these wetland developments instead of to the Klamath River. This pumping was much cheaper than using the Sam's Neck pumps. Still in very wet years or in back-to-back wet years, some water was pumped to the Klamath River as well. The volume of water pumped from Meiss Lake to the Klamath River from 1968 to 2008 is listed in TABLE 1. The wetland units into which Lake pumping occurs are Units 7A and 7C on BVWA and the Macdoel Ditch wetland and the extension of Unit 7C both of which are on the BV National Grassland.

In comparing pumping volumes and costs prior to wetland development (1977 to 1986) and after (1993 to 2002), Butte Valley residents, Siskiyou County, BV National Grassland and the Butte Valley Wildlife Area have received substantial benefits. The wetland developments have provided additional wetlands and wildlife habitat, increased flood storage capacity, increased groundwater recharge for agricultural wells, improved forage for livestock on the National Grassland and greatly reduced pumping costs for Siskiyou County for flood protection. Also, prior to the wetland developments, Siskiyou County residents paid the entire pumping costs for flood protection. Now, these pumping costs are greatly reduced and when pumping into the wetland units are paid for by the Department (DFG budget – hunting and fishing funds; State Proposition 99 funds and Federal Pittman-Robertson funds – tax on hunting equipment) as well as from Siskiyou County Public Works Department. This joint venture between the US Forest Service, Siskiyou County and the Department of Fish and Game has been a great success.

2. Groundwater Use. The PLAN discusses in detail the hydrology of Butte Valley, the aquifers present as well as the amount of groundwater available for use as determined by the Department of Water Resources (DWR). The PLAN states an average of 2,969 acre-feet of groundwater will be used annually by BVWA. However, the actual long-term average use (1987 – 2008) of groundwater has been less than described in the PLAN. The average use is 2,746 acre-feet of groundwater (TABLE 2).

All irrigation wells have the potential to affect the level of groundwater in neighboring wells. The degree of well interference varies with the distance between wells, soil profile and any faults which may interrupt subsurface flow. Due to public concern about the possible affects of well interference with the operation of well 7A and neighboring wells, DWR completed a Well Interference Investigation (1998). DWR found that well 7A did affect some adjacent wells and springs but that the affect was small and varied with the distance from well 7A. Also other private irrigation wells mutually interfered with each other to some extent. A north-south trending fault disrupts the groundwater flow east of well 7A. Consequently, well 7A affects wells and springs to the west more but again the affects were small. To the east of well 7A, there was no affect on wells beyond 1.33 miles from it. The amount of groundwater level decline in the closest irrigation well to the east was 4 feet. To the west of well 7A, there was no affect on wells beyond 2.0 miles from it. The amount of groundwater level decline in the closest irrigation well to the west was 8 feet. It should also be noted that the operation of private wells mutually affect each other as well as BVWA's well 7A. The depth of wells in this area varies from 200 to 600 feet deep and consequently the amount of groundwater decline from mutual well interference is relatively small.

It is the Department's desire to be a good neighbor and to minimize conflicts. The PLAN provided mitigation measures for well 7A to alleviate localized well interference problems. These measures are to flood only 300 to 350 acres of wetlands in Unit 7A. No groundwater from well 7A will be used to flood Meiss Lake. In addition to these measures, the volume pumped from well 7A has been reduced from 2,800 gpm to 1,500 gpm as suggested in the DWR 1998 report. To the extent possible, the operation of well

7A has been coordinated with the adjacent private landowners to further minimize conflicts with their irrigation wells.

Species Description

The PLAN provided a detailed discussion of the vegetation and habitats present, as well as the species of birds, mammals, reptiles, amphibians and fish present. While there have been some additions to the species lists, no significant changes have occurred. No additional fish or amphibian species have been found. For a complete listing of the species present, refer to the PLAN. Additions to the species lists include the following:

Plants

Northern arrowhead
Perennial pepperweed
Hoary cress
Saltbush
Willow smartweed
Alkali marsh ragwort
Water speedwell

Sagittaria cuneata
Lepidium latifolium
Cardaria draba
Atriplex heterosperma
Polygonum lapathifolium
Senecio hydrophilus
Veronica anagallis-aquatica

Birds

Horned grebe
Clark's grebe
Greater scaup
Barrow's goldeneye
Blue grouse
Turkey
Wandering tattler
Franklin's gull
Common grackle
Northern spotted owl
Pileated woodpecker
Eastern kingbird

Podiceps auritus
Aechmophorus clarkii
Aythya marila
Bucephala islandica
Dendragapus obscurus
Meleagris gallopavo
Heteroscelus incanum
Larus pipixcan
quisculus quiscula
Strix occidentalis
Dryocopus pileatus
Tyrannus tyrannus

Mammals

River otter

Lontra canadensis

The PLAN listed four state or federal-listed species present. Since 1996, two federal-listed species, bald eagle and American peregrine falcon, have been delisted and are no longer threatened or endangered. The bald eagle is still considered a state-listed endangered species in addition to the state-listed threatened greater sandhill cranes and Swainson's hawk, all of which occur at BVWA. The federal-listed threatened northern

spotted owl is present and forages intermittently on the western side of BVWA. The spotted owl nests on adjacent US Forest Service lands and has successfully nested there since 2004.

In addition to the wintering population of bald eagles which forage on migrating waterfowl. Three active bald eagle nests have been initiated along Meiss Lake Road on BVWA or immediately adjacent on US Forest Service lands. These eagles have successfully nested there since 2003.

The Department of Fish and Game has compiled lists of plant and animal species of special concern. These lists have been revised periodically when more information about these species are available. The PLAN listed 12 species of concern at BVWA. This list has been revised and the current species of concern (14) are Columbia yellowcress, western pond turtle, white pelican, black tern, yellow warbler, burrowing owl, Vaux's swift, loggerhead shrike, tule white-fronted goose, redhead duck, yellow-headed blackbird, northern harrier, short-eared owl and long-eared owl. Several other species which were formerly of concern but now are only on a watch list: golden eagle, California gull, black-capped chickadee, double-crested cormorant, osprey, white-faced ibis, prairie falcon, sharp-shinned hawk and Cooper's hawk.

Colonial-nesting waterbirds continue to nest on the natural islands in Meiss Lake. The PLAN indicated that ring-billed gulls, California gulls and Forster's terns nested on these islands. Since 1996, additional species have nested on these islands including double-crested cormorants, Caspian terns and white pelicans. The colony of white pelicans nesting is significant since there are only 3 or 4 other colonies nesting in the state.

When precipitation is above normal and the Lake is full, nesting activity by these waterbirds is high. In drought years when the Lake is low or dry, no nesting occurs. In wet cycles, almost 6,000 gull nests have been counted but none during drought years. Since 1996, a high of 124 double-crested cormorant nests, 27 Caspian tern nests, 133 Forster's tern nests and 73 white pelican nests have been counted.

Use by migratory waterfowl, especially in the early spring, continues to be of major importance. The PLAN indicated peak spring population of ducks was 164,500. Pintails were most numerous with a peak population of 103,000 birds. Since 1996, peak duck (157,000 birds) and pintail (129,000 birds) populations were similar. BVWA continues to be a major staging area for pintails on their northward spring migration and is of international significance. The PLAN indicated peak goose populations were 28,120 with snow geese being the most abundant (28,000 birds). Since 1996, peak goose populations were substantially higher (53,530 birds) with snow geese being the most abundant (48,000 birds). Due to a higher Lake level and the abundance of wetlands, spring bird populations are always higher than fall populations. The PLAN indicated peak fall duck and goose populations of 72,600 and 7,250, respectively. Since 1996, peak fall duck and goose populations were substantially higher 125,460 and 19,900, respectively. These fall populations were higher in wet cycles than dry ones.

Waterfowl production is also important here. Canada geese and several species of ducks routinely nest here especially mallards, gadwall and cinnamon teal. Canada goose nests, the number of goslings and ducklings and their broods have been surveyed for 20 years. These surveys represent the relative number of ducklings and goslings present. These survey numbers are conservative due to the difficulty in observing all birds on such a large area. Since 1996, waterfowl production has improved slightly. The survey results are as follows (20 year average in parentheses): 95 Canada goose nests (90 nests); 165 Canada goose goslings (156 goslings); 623 ducklings (547 ducklings) and 94 duck broods (84 duck broods).

The establishment of a viable, self-sustaining ring-necked pheasant population was a goal stated in the PLAN. The introduction of wild birds captured from other locations was done from 1983 to 2000. Twelve introductions totaling 482 birds were released. These birds came from a variety of locations including Gray Lodge Wildlife Area, Grizzly Island WA, Upper Butte Sink WA, Shasta Valley WA, Delevan National Wildlife Refuge and Lower Klamath National Wildlife Refuge. Prior to the severe winter of 1992-93, the pheasant population was small and self-sustaining but the population perished during that winter. Since the winter of 1992-93, six introductions totaling 201 birds were released. Surveys indicated the population was small but surviving until 2005 when it declined. Since 2006, virtually no pheasants have been observed and the population is not considered to be viable. The reasons why a pheasant population can not be established here is not clear. Habitat conditions appear suitable to support a small population. Food (cereal grains), nesting cover and escape cover appear to be adequate. Winter cover has always been a challenge but has improved substantially with dense stands of tules available and corridors of willows linking food and cover. Deep snow, covering food and thermal cover, and severe temperatures in January seem to limit the ability of pheasants to survive here. However, a larger self-sustaining population could survive the high winter mortality. Presently, there are no plans to continue introductions of wild pheasants. This goal will need to be re-evaluated at a later date.

IV. ADAPTIVE MANAGEMENT STRATEGIES

The management of land whether for commercial or agricultural purposes or for fish and wildlife habitat may change as a problem occurs. The ability to adapt management strategies is essential in order to continue to accomplish the stated goals. Since the 1996 PLAN, several management strategies were adapted and refined.

Farming, Haying and Grazing Program

Cereal grain crops such as winter wheat, spring barley and oats are planted to provide food for resident and migratory waterfowl and sandhill cranes. The PLAN describes various techniques used to farm cereal grain crops at BVWA. Sharecrop farming was used most often to provide grain for wildlife. Units 11B, 11C and 11D were seasonal

wetlands, flooded in late fall and winter, and then were drained early in the spring and farmed to cereal grain crops. These three Units were sharecrop farmed and subsidized with a U.S. Department of Agriculture farm subsidy. This subsidy was essential to attract farmers for this lease and make it profitable to farm here. Even with this subsidy, it was often difficult to attract farmers here. It appeared the 1996 Farm Bill was going to eliminate this subsidy. Consequently, in order to continue to have grain for wildlife, the Department had to do more of its own farming. To improve the efficiency of crop irrigation and obtain better and more reliable crop yields, two center-pivot irrigation systems were installed in Units 5A and 6C. Grain crop yields were often poor in Units 11B, 11C and 11D with often only 0.5 tons per acre produced due to frost conditions, poorer soils and no irrigation. Shifting the farming program to the upland areas of Units 4B, 5A and 6C with irrigation greatly increased crop yields and provided ample food for migrating birds. Crop yields now are consistently 1 to 2 tons per acre and more. In addition to improved crop yields, the Department saves about \$4,000 annually in reduced low-lift pumping costs for evacuating the water in Units 11B, 11C and 11D for sharecrop farming. These Units were wetlands which were drained for farming but now are managed with seasonal or semi-permanent water regimes. Also the center pivot irrigation system uses less water than the previous sprinkler wheel lines and therefore saves additional money. Presently, sharecrop farming continues only in Unit 11C-3. Sprinkler wheel lines were installed to irrigate this Unit to improve crop yields.

Resident and migratory geese forage on shortgrass pasture because it is nutritious and high in protein. At least 600 acres of shortgrass pasture are provided for these birds. Shortgrass pasture can be obtained with various management techniques as described in the PLAN including burning, livestock grazing, haying, mowing and fall planting winter wheat. All of these techniques are used at BVWA. Haying is done on about 300 acres (Units 2, 9A, 10 and 11) of meadow hay. The hay fields are advertised for sale annually. Livestock grazing is done on about 300 acres (Units 4B/5C) under a Challenge Cost Share Agreement with the U.S. Forest Service. The U.S. Forest Service manages the grazing on BVWA and on the adjacent Butte Valley National Grassland.

Wetland Management

Wetland development and management proceeded as described in the PLAN. Units 6A, 6B, 6D, 7C, 9A and 11A were restored to wetlands as described. As previously described, due to the shift in farming from Units 11B, 11C and 11D without irrigation to those with center pivot irrigation (Units 5A and 6C), it allowed for more intensive wetland management in Units 11B/11C/11D. Units 11B/11C/11D were formerly managed with winter flooding and a drawdown of water in March. These seasonal wetland Units are now managed for moist-soil plants such as swamp timothy and red goosefoot. The drawdown of water from these Units now occurs from late May to early July. When flooded, the seeds from moist-soil plants provide an abundant food source for ducks and shorebirds.

Since the 1996 PLAN, wetland management continues to concentrate on growing moist-soil plants and controlling the amount of cattail, tule and Juncus growth which reduces the amount of open water. This vegetation control has been done mostly by disking and the application of approved herbicides. Wetlands have been enhanced with the creation of meandering channels to improve water circulation and the construction of islands for waterfowl nesting. Wetland infrastructure such as levees, islands and water control structures have been repaired as needed.

The management of intensively-managed wetlands continues to be refined. In 1994, the Department's Wildlife Area Habitat Committee prepared statewide guidelines for the amounts and distribution of certain types of wetlands such as permanent, semi-permanent and seasonal wetlands. Seasonal wetlands are the most productive and would be mostly managed for. However, minimum standards for the maintenance of permanent and semi-permanent wetlands were also established. Knowledge about the timing of drawdown for water in seasonal wetlands to produce certain types of moist-soil food plants has increased. Most of the intensively-managed wetlands at BVWA are managed as seasonal wetlands as stated in the PLAN. There are about 4,400 acres of managed wetlands and typically 66% are managed as seasonal wetlands; 25% as semi-permanent and 9% as permanent wetlands. In drought years due to the limited amount of water, the amount of seasonal wetlands increased from 80 to 85%.

The wetland goal identified in the 1996 PLAN has been completed and no new wetland developments are planned. Intensive management and enhancement of existing wetlands will continue to be the emphasis.

Public Use Program

The amount of public use such as birdwatching and nature study has not changed since the 1996 PLAN. Public use remains relatively low with only 1,000 to 2,000 visitors per year.

Waterfowl hunting continues to improve since the 1996 PLAN. Intensive wetland management, growth of moist-soil food plants and cereal grain farming has contributed to this success. The average annual number of hunters using the area was 784 (compared to 422 in the PLAN). These hunters harvested an average of 261 geese and 1,194 ducks annually (compared with 212 geese and 330 ducks in the PLAN). The 25-year (1982-2007) long-term averages are 601 hunters harvested 242 geese and 753 ducks. Duck harvests are higher during wet cycles when there are a large amount of wetlands available, as expected. Interestingly, goose harvests were generally higher during drought cycles.

The distribution of the harvest of Canada geese has been changing. During the 1980's and most of the 1990's, about a third of the harvest occurred in October and November. During the 2000's, the October and November harvest dropped to 6%. Similarly, the goose harvest in December and January during the 1980's and 1990's was about 65% of the total harvest. Now during the 2000's, the Canada goose harvest is about 95% of the

total during December and January. The only apparent change is shifting the sharecrop grain farming from the wetland Units 11B/11C/11D to the upland Units 4B/5A/6C. The tonnage of grain available for food for the geese has been similar if not more since the 1996 Plan. While the distribution of the harvest has changed, the number of geese harvested is more now than during the 1996 PLAN.

Noxious Weed Management

Noxious weeds can seriously degrade wildlife habitat. These weeds could also affect the ability to have haying, sharecrop farming and livestock grazing programs on BVWA. The 1996 PLAN listed several noxious weeds, of which, Canada thistle was the most serious problem. Since the PLAN, several new noxious weeds have become a problem including perennial pepperweed, hoary cress, alkali marsh ragwort and the aquatic coontail. Of these, perennial pepperweed is the worst. Perennial pepperweed is abundant and widespread throughout the Klamath Basin. It was first discovered on BVWA in 2002 and active control efforts were initiated immediately. Perennial pepperweed produces an abundance of viable seeds and also spreads by rhizomes. Consequently the only effective control method is the use of approved herbicides. Despite a regular and intensive effort to control perennial pepperweed, it continues to gradually spread at BVWA. BVWA is probably re-infected continually with new seed from the Klamath Basin brought in by migratory birds. Control efforts will be ongoing in order to manage this noxious weed as well as for Canada thistle.

Disease Management

In California, waterfowl commonly die from avian cholera (winter) and botulism (summer). The numbers of waterfowl dying at BVWA from these diseases has been relatively small with the exception of a few large disease events. The PLAN indicated a relatively large disease event in 1989 from avian cholera. Another large avian cholera die-off occurred in 2008. In both of these events, more than 1,000 birds died. Botulism had not been reported here. But in 2006, 1,140 birds, mostly ducks, died from botulism from late August to early October on Meiss Lake.

Avian influenza (bird flu) has not been found in North America. However, the Department is monitoring any waterfowl die-offs to determine its cause. Surveys are routinely done looking for dead waterfowl at BVWA.

Conservation Easements

The historic Meiss Lake occurs almost entirely on BVWA. This Lake had been partitioned over the last 60 years with the west side formerly drained and farmed to cereal grain crops. About 99% of this Lake occurs on BVWA with the remaining in private ownership on the west side of the Lake. This portion of the Lake has a seasonal water

regime. In order to better manage the seasonal wetlands in Units 11A, 11B, 11C and 11D on BVWA, a conservation easement was needed on the private portions of the historic Meiss Lake.

In October, 2000, the Wildlife Conservation Board acquired a conservation easement from three private landowners on the west side of BVWA for the Department. The easement was on about 119 acres and allowed the Lake to remain flooded for a longer duration. The private landowners maintained title to their properties and could continue to farm or graze their Lake bottom lands when they were not flooded.

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