

CARTIER SLOUGH
Wildlife Management Area

Management Plan
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Idaho Department of Fish and Game
Upper Snake Region
1515 Lincoln Road
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EXECUTIVE SUMMARY

Cartier Slough Wildlife Management Area (CSWMA) is a 960 acre wetland/riparian/grassland complex which was purchased by the Army Corps of Engineers (COE) and the Bureau of Reclamation (BOR) in 1976 and 1977 respectively, as mitigation for wetland/waterfowl losses resulting from construction of Ririe Dam and Teton Dam. The management of the property was transferred to the Idaho Department of Fish and Game (the Department) by agreements with the COE and BOR.

CSWMA is managed primarily as habitat for waterfowl. However, it provides habitat for a variety of wildlife species. CSWMA is also managed to provide public access for hunting, fishing, trapping, and wildlife viewing.

This document was developed to provide long range management direction for CSWMA. Public and Department identified issues (Appendix A) were used to develop goals, objectives, and strategies for management. This plan will be used as a guide for current and future managers to achieve the maximum benefit for wildlife and the public. As new information and technology becomes available, the plan may be amended. All goals, objectives, and strategies are dependent on adequate funding, personnel, and public support.

INTRODUCTION AND PHYSICAL DESCRIPTION

The Idaho Department of Fish and Game's Cartier Slough Wildlife Management Area (CSWMA) is located along the west side of the Henrys Fork of the Snake River west of Rexburg and south of Highway 33 (Appendix B). The entire management area lies within big game management unit 63A. (T6N., R38E., Sections 25 & 36; T6N., R39E., Sections 30 & 31.)

In 1976, the Army Corp of Engineers (COE) purchased 400 acres of what is today CSWMA as partial mitigation for wetland/waterfowl habitat losses associated with the Ririe Dam and Reservoir. A 560 acre parcel was purchased in 1977 by the Bureau of Reclamation (BOR) as partial mitigation for the wetland/waterfowl losses associated with the construction of Teton Dam. Land acquisition is summarized in Appendix C. Idaho Department of Fish and Game manages both segments as wildlife habitat, for game and nongame wildlife, and for nature viewing recreation. Management is directed in part by agreements with the COE and BOR (Appendix D). There are parcels of BLM owned lands along portions of the Henrys Fork which have been included with management activities for CSWMA. No agreement currently exists for this management action.

The 960 acre CSWMA contains Cartier Slough, a channel of the Henrys Fork River, and other small channels and potholes which hold water for varying lengths of time in the spring and summer. There are approximately 2.8 miles of riverbank and approximately 3.95 miles of slough channels. The area is predominantly a grassland floodplain, but consists of a diversity of habitat types (Appendix E). Common flora includes: black cottonwood, aspen, black hawthorn, red-osier dogwood, snowberry, sagebrush, rabbitbrush, coyote, narrow-leaf, whiplash willow,

common cattail, hardstem bulrush, Baltic rush, creeping spike-rush, short-beaked sedge, canary reed grass, and Kentucky bluegrass. Elevation ranges from about 4,800 feet to 4,820 feet above sea level. Much of the willow and grassland communities flood during spring run-off in high precipitation years.

Most of the CSWMA lies on the floodplain of the Henrys Fork of the Snake River. There are three basic soil types on the CSWMA (Appendix F). Only a 35 acre portion of CSWMA was converted to agricultural fields. There is a water right associated with this parcel (Appendix G). This parcel is currently in permanent grass/forb and shrub cover and the water right is used to irrigate the parcel to improve the quality of the cover and to water the trees and shrubs which have been planted in the field.

The climate of the area is typical of the high desert. Annual precipitation ranges from 8 to 16 inches, with 12 inches average. Most of the precipitation falls as winter snow with accumulations of up to 18 inches. Winter snow depth averages about 8 inches. A moderate amount of precipitation falls as spring rain. There's an average of about 105 frost-free days. Temperatures range from -30°F to 95°F. Average summer highs are around 80°F, and winter lows are around 15°F. Freeze-up normally occurs in mid-November with river and main sloughs open until mid-December. Parts of the river and main slough remain open most of the winter. Ice depths are 8 to 14 inches. Ice-out usually occurs in late March and early April, followed by flooding which may cover up to 90% of the area through May and June.

CSWMA contains habitat important to a variety of wildlife species. Over 200 species of wildlife use the CSWMA. Canada geese and a diversity of ducks use the area for nesting, brood rearing, and staging during migration. Trumpeter swan use the area in late fall and winter. Moose, white-tailed deer, and mule deer use the area year around. Upland game that can be found on the area include: pheasant, gray partridge, mourning dove, and cottontail rabbit. Beaver and muskrat can be found on CSWMA along with other furbearers such as fox and coyote. A bald eagle's nest is located on the southern end of CSWMA. CSWMA provides a secure area for foraging and roosting eagles. A diversity of shorebirds, large wading birds, and migratory songbirds use the area for nesting and foraging. Table 5 summarizes wildlife present on CSWMA and Table 6 includes population estimates for some of the common species which use CSWMA (Appendix H).

The abundance and diversity of wildlife provides for a variety of wildlife related recreational opportunities. Wildlife viewing and appreciation is an important use of CSWMA. CSWMA is a popular public hunting area for waterfowl and big game. Currently, recreational use of the area does not appear to be in conflict with maintaining wildlife security needs and providing quality wildlife habitat features. See Appendix I for a public use summary.

Development of the area has been minimal and related to water and access developments. No buildings are present on the area. See Appendix J for a summary of the past improvement projects. Habitat development projects have included planting the agricultural fields to grass/forb cover and planting a windbreak on the east end of these fields. Nest structures have been installed for Canada geese, wood duck, and osprey.

MISSION STATEMENT

The primary mission of CSWMA is to provide mitigation for past riparian and wetland losses, to secure and improve habitat for a diversity of waterfowl, threatened, endangered, and sensitive species, as well as a other game and nongame wildlife; secondarily, to provide high quality wildlife related and nature viewing recreational opportunities compatible with CSWMA goals for the benefit of the public.

MANAGEMENT PRIORITIES

1. Waterfowl habitat, production, and hunting
2. Wildlife diversity
3. Wildlife appreciation
4. Big game habitat and hunting
5. Upland game habitat and hunting

GOALS, OBJECTIVES, AND STRATEGIES

The implementation of the strategies included in this plan are dependent on meeting the primary mission of the WMA and are subject to available funding and personnel.

I. Goal: Manage CSWMA for waterfowl production, for migrating waterfowl, and to provide waterfowl hunting.

A. Objective: Document waterfowl use on CSWMA.

Strategies:

1. Identify important duck nesting areas and determine nesting success (Appendix D).
2. Note waterfowl use on CSWMA from aerial waterfowl surveys (goose nest pair counts and mid-winter waterfowl survey).
3. Monitor goose platform and wood duck nest box use.

B. Objective: Maintain or improve waterfowl nesting success. Maintain a 30% nesting success in accordance with the Department's Waterfowl Management Plan 1991-1995 (Appendix D).

Strategies:

1. Maintain goose nest platforms on CSWMA annually.

2. Maintain wood duck boxes on CSWMA annually.
3. Monitor use and condition of nest structures annually and relocate, replace, and add structures as needed.
4. Manage habitat to encourage/improve duck nesting as needed. Noxious weed control (see Noxious Weed Control Plan, Appendix K), livestock grazing, mowing, or burning will be considered and used as needed.
5. Maintain secure nesting habitat by continuing to limit vehicular access on CSWMA and by restricting some activities on CSWMA during the nesting season.
6. Use passive predator management to limit predator habitat on CSWMA (Appendix D). This would include but not be limited to removing debris and burning brush piles (potential homes for mammalian predators).

C. Objective: Provide habitat for migrating waterfowl, particularly in the fall, to improve hunting opportunities.

Strategies:

1. Repair the existing primary water level control structure to provide more open water.
2. Investigate opportunities to install a water level control structure on an interior waterway to provide more open water in the summer and fall.
3. Investigate opportunities to construct potholes or other open water habitat.
4. Use livestock grazing, burning, or mechanical manipulation to provide short vegetation and limit willow expansion into some areas as needed.
5. Pursue opportunities to expand waterfowl habitat and hunter access along the Henrys Fork River adjacent to CSWMA using conservation easements and acquisition.

II. Goal: Manage CSWMA to maintain a diversity of healthy plant communities and a diversity of native and desirable non-native wildlife species.

A. Objective: Maintain native plant communities.

Strategies:

1. Control noxious weeds to the extent possible using a mix of chemical, mechanical, and biological control measures annually.
2. Use only native plant materials on sites other than the irrigated agricultural field.
3. Use vegetation manipulation only when necessary to meet other goals and

in a manner which will not degrade the habitat.

4. Maintain fences and gates to prevent trespass grazing and motorized vehicles.
5. Monitor and manage recreational use to ensure it does not lead to habitat degradation.
6. Document and monitor species composition and long term habitat changes in select habitats (see Appendix L for details of all survey and monitoring activities).
7. Develop a plant species inventory.

B. Objective: Maintain the diversity of native and desirable non-native wildlife species on CSWMA.

Strategies:

1. Develop and maintain a general inventory of animal species that use the CSWMA.
2. Conduct surveys to document presence/absence information for amphibians, reptiles and small mammals.
3. Conduct song bird survey (see Appendix L for details).
4. Maintain and provide habitat features for a variety of animals, including but not limited to maintaining snag trees, planting shrubs and food plants into portions of the agricultural field, and installing kestrel nest boxes, bat houses, and bluebird houses.

C. Objective: Provide suitable habitat for endangered, threatened, species of special concern, and other plants and wildlife with special designations which occur on the area.

Strategies:

1. Monitor use of CSWMA by endangered, threatened, species of special concern, and plants and wildlife with other special designations.
2. Assess the impact of management activities on endangered, threatened, species of special concern, and plants and wildlife with other special designations which are present on CSWMA.
3. Do not conduct management activities or habitat manipulations in a manner which will impact endangered, threatened, species of special concern, or plants or wildlife with other special designations.
4. Maintain secure habitat for nesting, perching, and roosting eagles by continuing to restrict vehicular access to CSWMA year around.

- D. Objective: Assess impacts of management activities and natural events on the area's plants and animals.

Strategies:

1. Collect baseline and trend data on vegetation and wildlife.
2. Develop a plan for monitoring vegetation and wildlife. This plan will be completed by the Spring of 1997 (see Appendix L for an outline).

- III. Goal: Increase the public's understanding and appreciation of CSWMA and the associated habitat types and wildlife species.

- A. Objective: Assess the public use of and interest in CSWMA.

Strategies:

1. Conduct informal surveys of CSWMA users to determine what types of activities they are participating in, where they are from, what their interests and needs are, etc. (Appendix L).

- B. Objective: Provide for a variety of wildlife related recreational and educational activities which do not lead to habitat degradation or impacts to wildlife populations nor conflict with CSWMA mission statement.

Strategies:

1. Allow foot, boat, bike and horse access to CSWMA.
2. Construct a photography/viewing blind near a wetland area for wildlife observation by year 2000.
3. Construct an interpretive trail from Beaver Dick Park into CSWMA and through the cottonwood forested area. Develop a self-guided brochure for this trail by year 2000.
4. Encourage elementary and high school classes to visit the area to learn more about wildlife, habitat, and the importance of Department owned/managed lands.
5. Monitor and manage public uses on CSWMA to insure they do not result in habitat degradation or wildlife disturbance during critical times.
6. Allow retriever trials and dog training within the Department's designated time frame. Vehicular access for these events will be restricted.

- C. Objective: Provide information to the public about CSWMA.

Strategies:

1. Develop a brochure and map of CSWMA for general public use by 1998.

2. Develop a wildlife species list for CSWMA which can be used by the public while viewing wildlife by 1998.
3. Write newspaper articles and news releases, conduct tours, etc., to promote CSWMA and its wildlife and recreational values as opportunity and need arise.

D. Objective: Maintain a positive working relationship with neighboring landowners, other management agencies, local officials, and wildlife conservation groups.

Strategies:

1. Maintain clearly marked boundaries between CSWMA and private property.
2. Cooperatively maintain fences and control noxious weeds where necessary and possible.
3. Promote the “Ask First” philosophy to CSWMA users in all literature and information about CSWMA.
4. Maintain a good working relationship with Egin Bench Canal Company and work to cooperatively control purple loosestrife along the canal upstream from CSWMA.
5. Continue to work cooperatively with Madison County Parks and Recreation Department to maintain the shelterbelt on CSWMA property.
6. Maintain a working relationship with Adopt-A-Wetland volunteers and expand the program on CSWMA as the need or interest arises.
7. Develop a cooperative agreement with the BLM to formally allow its parcels which lie between CSWMA and the Henrys Fork River to be managed in conjunction with CSWMA. Obtain a signed agreement by 1999.

IV. Goal: Maintain big game habitat and big game hunting on CSWMA.

A. Objective: Assess big game use of the CSWMA.

Strategies:

1. Estimate population numbers, seasons of use, and important areas or features by direct observations and user surveys.
2. If aerial big game surveys are conducted for unit 63A, obtain data specific to CSWMA and surrounding area.

B. Objective: Maintain habitat for big game.

1. Control noxious weeds to the extent possible using chemical, mechanical, and biological control in order to maintain a quality forage base.
2. Maintain shrub and tree communities as thermal and security cover and as browse.
3. Continue to limit vehicular access to minimize disturbance and provide security.
4. Construct fences which allow easy and safe big game passage.

C. Objective: Provide quality public hunting opportunities.

Strategies:

1. Allow nonmotorized access into the area.

V. Goal: Maintain huntable populations of upland game on CSWMA.

A. Objective: Manage and develop habitat for upland game where potential exists (Appendix D).

Strategies:

1. Estimate the population levels of pheasant, gray partridge, and rabbits using direct observation and user surveys.
2. Install a permanent diversion in the main canal to feed CSWMA irrigation ditch to make irrigation more efficient and effective for growing food plots, shrub/tree plantings, and perennial grass/forb cover planting.
3. Plant perennial food plants in portions of the irrigated agricultural field.
4. Plant shrubs in portions of the irrigated field.
5. Use passive predator management to limit predator habitat on CSWMA. This would include but not be limited to removing debris and burning brush piles (potential homes for mammalian predators).
6. Work with neighboring landowners using Habitat Improvement Program (HIP) funds to develop upland bird habitat where possible.

APPENDIX A

MANAGEMENT ISSUES

The following management issues associated with the CSWMA were identified by the public and the Department:

Issue 1: The effectiveness of CSWMA to achieve goals could be improved by expanding CSWMA. See Goal I, Objective C.

Background: There is currently an opportunity to purchase wetland/riparian property or easements using funds made available from the Bonneville Power Administration's effort to mitigate habitat losses from the construction of Palisades Reservoir. Property would only be acquired from willing sellers or cooperators.

Issue 2: The purposes for acquisition of CSWMA dictate continued management of the area for waterfowl production and migration habitat, and waterfowl hunting. See Goal I, Objectives A, B, and C.

Background: CSWMA was purchased as mitigation for waterfowl habitat losses in other areas, therefore the priority for management of the area is for waterfowl habitat and waterfowl hunting opportunities. This will be done in a manner which does not negatively impact other wildlife using the area, particularly endangered, threatened, or species of special concern.

Issue 3: Some have requested that upland game bird habitat, production, and hunting opportunities should be increased on CSWMA, including the use of game farm birds in the fall to supplement the huntable population. See Goal V, Objective A.

Background: Because much of the CSWMA floods in the spring during high water years, there is little opportunity for crop production to enhance winter food supplies critical to upland birds. The irrigated agricultural field at the north end of CSWMA is currently planted to perennial grass cover with a shelterbelt in order to provide nesting cover in a portion of CSWMA which is not flooded in the spring. Winter cover is not a limiting habitat factor.

Pheasant stocking is beyond the scope of CSWMA plan. Stocking male pheasants in the fall for the hunting season is currently being done on a few heavily hunted wildlife management areas in the state. The pheasant stocking program is independent to the management of CSWMA. The pheasant stocking program is costly to the Department and in order to be cost effective, every attempt is made to use the birds in areas where they will provide the greatest benefit to a relatively large number of hunters. CSWMA has never been used for this practice and would be a low priority for pheasant stocking.

Issue 4: Additional types of recreation could be provided on CSWMA along with their associated developments and information. These might include but not be limited to allowing retriever trials, providing convenient horse access, constructing a photography blind, and providing access information for canoeing. See Goal III, Objectives A, B, and C.

Background: The public is allowed and encouraged to use CSWMA for wildlife related activities except where they might negatively impact wildlife habitat and wildlife populations on CSWMA. Most of CSWMA is currently closed to vehicular use, other than administrative use,

to provide security to a variety of wildlife including big game and nesting waterfowl and to protect the fragile wetland habitats. The Department plans to continue this management, therefore some activities will be limited by this action. Activities which might impact the security of nesting waterfowl, endangered, threatened, or species of special concern will be restricted. There is some opportunity to improve access, create trails, construct viewing/photography facilities, and develop informational /interpretive materials.

Issue 5: Some have suggested that livestock grazing should be used to control noxious weeds and create goose pasture. See Goal I, Objectives B and C; Goal II, Objectives A, B, and C.

Background: Livestock grazing can be used as a vegetation manipulation tool to improve nesting and brood rearing habitat. The Department will consider using grazing as a vegetation management tool along with other practices such as burning, mechanical controls, and the use of herbicides to improve habitat for wildlife.

Controlling noxious weeds is important to maintaining high quality wildlife habitat. The Department will continue to use a combination of chemical, biological, and mechanical methods to try to control the spread and reduce the impacts of noxious weeds.

Creating areas of short grasses for geese may hold some resident geese on CSWMA through the summer and fall. Goose pasture however, does not appear to be limiting in the area surrounding CSWMA. Short term grazing leases may be used on an occasional basis to maintain the vigor of grasses on CSWMA. Mowing may be used in some areas to achieve the same objectives.

Issue 6: Security for nesting, calving/fawning, and wintering wildlife is a function of CSWMA. See Goal I, Objective B; Goal II, Objective C; Goal III, Objective B; Goal IV, Objective B.

Background: The Department will continue to restrict vehicular traffic on CSWMA to provide secure habitats for a diversity of wildlife during all times of the year.

Issue 7: CSWMA has been managed as a natural area with the intention of maintaining or improving a diversity of vegetative community types and native and desirable non-native wildlife. See Goal I, Objectives B and C; Goal II, Objectives A, B, and C; Goal IV, Objective B; Goal V, Objective A.

Background: There are several plant community types on CSWMA, including mature cottonwood forest, supporting a diversity of wildlife species. The Department would like to continue to manage CSWMA as a important natural area supporting a diversity of wildlife while emphasizing waterfowl habitat management.

Issue 8: Public awareness of CSWMA is important for wildlife and wildlife related recreation, and the unique ecology of this natural floodplain ecosystem could be emphasized. See Goal III, Objectives A, B, C, and D.

Background: CSWMA is a relatively small wildlife management area and appears to be known to few people other than local residents. CSWMA provides an excellent opportunity for public education and awareness.

APPENDIX B
CARTIER SLOUGH WMA MAP

Insert map

APPENDIX C
LAND ACQUISITION

Table 1. This table includes land acquisition information for CSWMA.

Acres	Year	Funds Used	Acquired From	Ownership
400	1976	Corps of Engineers	Ririe Mitigation	U.S. Corps of Engineers
560	1977	Bureau of Reclamation	Teton Mitigation	U.S. Bureau of Reclamation

APPENDIX D

MANAGEMENT AGREEMENTS AND DOCUMENTS

CSWMA is managed by Idaho Department of Fish and Game through agreements with the COE and BOR. The objective of the agreements is to manage both parcels as wildlife habitat to mitigate for waterfowl habitat losses.

The agreement for the Ririe Segment of CSWMA is between the Department, the BOR, and COE. This agreement is effective from August 18, 1976 through August 18, 2076 (100 years). The agreement is titled: Cooperative Agreement Concerning the Use of Lands and Waters For Fish and Wildlife Conservation and Management. Ririe Lake Project, Willow Creek, Idaho. Contract No. DACW68-75-C-0091; 14-06-100-9160.

The agreement for the Teton Segment of CSWMA is between the Department and the BOR. This agreement is effective from October 1, 1981 through October 1, 2006 (25 years). The agreement is titled: Operations And Maintenance Agreement Between the United States of America and the State of Idaho For Lease and Administration of Lands and Facilities For Wildlife Use. Minidoka Project, Burley, Idaho. Contract No. 1-07-10-10450.

The Department and Madison County Parks and Recreation have a cooperative agreement for the development and maintenance of a windbreak on CSWMA through the Habitat Improvement Program. The agreement states that the County develop and maintain a 1.24 acre, 5 row windbreak on CSWMA adjacent to Beaver Dick Park. The agreement is effective from May 1, 1994 until May 1, 2004 (10 years).

A number of Department plans have been used in development of this CSWMA plan because they contain constraints, strategies, information, or ideas applicable to this document and the management of CSWMA. The key plans referenced include:

Waterfowl Management Plan 1991-1995

Upland Game Management Plan 1991-1995

1981 - 1986 Policy Plan - Cartier Slough Wildlife Management Area, A segment of the Ririe and Teton Mitigation Projects.

1986 - 1990 Management Plan - Cartier Slough Wildlife Management Area, A segment of the Ririe and Teton Mitigation Projects.

1991 - 1995 Management Plan Cartier Slough Wildlife Management Area, A Segment of the Ririe and Teton Mitigation Projects.

APPENDIX E
HABITAT TYPES

Table 2. General habitat types found on CSWMA and the approximate acres of each.

Habitat Type	Acres
Floodplain grassland	379
Willow	296
Cottonwood / aspen	153
Sagebrush / grassland	42
Wet meadows	20
Irrigated perennial grass and shrubs	35
Ponds and sloughs (open water)	35

APPENDIX F
SOIL TYPES

Table 3. Soil types found on CSWMA with approximate acres of each type.

Soil Type	Acres
Haplaquolls, channeled	883
Mathon-Rock outcrop – Modkin complex, 0 to 12 percent slopes	42
Grassy Butte loamy sand, 4 to 20 percent slopes	35

Soil Descriptions are from: Soil Survey of Madison County Area, Idaho. 1981. USDA, Soil Conservation Service in Cooperation with University of Idaho, College of Agriculture and Idaho Soil Conservation Commission.

Haplaquolls, channeled

These soils are deep, very poorly drained or poorly drained and found on flood plains near the Teton and Snake Rivers. They are formed in alluvium and have slopes of 0 to 1 percent. The texture varies from fine to medium. Depth ranges from 20 to as much as 60 inches. The surface has ponds and channels measuring about 2 feet deep and 15 feet wide. The hazard of erosion is slight. Native vegetation includes cottonwood, aspen, grasses, and sedges.

Mathon-Rock outcrop-Modkin complex, 0 to 12 percent slopes

This soil complex is found laid over basalt plains. The soil formed in sandy windlaid material. Depth to bed rock ranges from 20 to 40 inches. Rock outcrops are common and make up about 30 percent of the complex. Permeability is moderately rapid, surface runoff is slow, and the hazard of erosion is moderate. The hazard of soil blowing is moderate as well. Native vegetation consists mainly of bluebunch wheatgrass and big sagebrush.

Grassy Butte loamy sand, 4 to 20 percent slopes

This deep, somewhat excessively drained soil is found laid on basalt plains. The soil formed in sandy windlaid material derived from a variety of sources. Permeability is rapid and available water capacity is low. The hazard of water erosion is slight to moderate because the surface runoff is slow or medium. The hazard of wind erosion is high. The potential native vegetation includes bluebunch wheatgrass, Indian ricegrass, needle-and-thread grass, sand dropseed, antelope bitterbrush, and big sagebrush.

APPENDIX G
WATER RIGHTS

Table 4. This table summarizes the water right associated with CSWMA.

Source	Shares	Amount	Year
Egin Bench Canals, Inc.	134.13067	60 inches	1895

APPENDIX H
WILDLIFE SPECIES INVENTORY

Table 5. Included in this table are the wildlife species that can be found on CSWMA and their relative abundance during the spring, summer, fall, and winter seasons.

KEY:

Spring (March-May)

Summer (June-August)

Fall (September-November)

Winter (December-February)

1. A-Abundant, a species which is very numerous.
2. C-Common, certain to be seen or heard in suitable habitat.
3. U-Uncommon, present but not certain to be seen.
4. O-Occasional, seen only a few times during the season.
5. R-Rare, seen at intervals of 2 to 5 years.
6. K-Unknown, species abundance unknown.

SPECIES	RELATIVE ABUNDANCE			
	Spring	Summer	Fall	Winter
MAMMALS				
Shrew species	K	K	K	K
Bat species	K	K	K	K
Raccoon	U	U	U	U
Weasel	U	U	U	U
Mink	U	U	U	U
River Otter	U	U	U	U
Badger	U	U	U	U
Striped Skunk	C	C	C	C
Coyote	C	C	C	C
Red Fox	C	C	C	C
Mountain Lion	R	R	R	R
Bobcat	-	-	-	R
Yellow-bellied marmot	U	U	U	U
Chipmunk species	K	K	K	K
Red squirrel	U	U	U	U
Beaver	U	U	U	U
Mouse, rat, & vole species	K	K	K	K
Porcupine	C	C	C	C
Cottontail rabbit	C	C	C	C

SPECIES	RELATIVE ABUNDANCE			
	Spring	Summer	Fall	Winter
Black-tailed jackrabbit	U	U	U	U
White-tailed jackrabbit	U	U	U	U
Elk	R	R	R	R
Mule deer	C	C	C	C
White-tailed deer	C	C	C	C
Moose	C	C	C	C
REPTILES & AMPHIBIANS				
Leopard frog	U	U	U	-
Chorus frog	C	C	U	-
Painted turtle	C	C	C	-
Western terrestrial garter snake	U	U	U	-
Gopher snake	U	U	U	-
BIRDS				
Common loon	O	-	-	-
Pied-billed grebe	C	C	C	-
Horned grebe	R	R	R	-
Eared grebe	U	U	U	-
Western grebe	U	U	U	-
Clark's grebe	U	U	U	-
American white pelican	C	C	C	-
Double-crested cormorant	C	C	C	-
American bittern	U	U	U	-
Great blue heron	A	A	A	-
Great egret	U	U	U	-
Snowy egret	A	A	C	-
Cattle egret	U	U	U	-
Black-crowned night heron	A	A	C	-
White-faces ibis	A	A	C	-
Tundra swan	C	-	C	-
Trumpeter swan	C	-	C	O
Greater white-fronted goose	R	-	R	-
Snow goose	O	-	O	-
Canada goose	A	A	A	C
Mallard	A	A	A	C
Gadwall	C	C	C	U
Northern pintail	C	C	C	U
Green-winged teal	C	C	C	U
Blue-winged teal	C	C	C	-

SPECIES	RELATIVE ABUNDANCE			
	Spring	Summer	Fall	Winter
Cinnamon teal	C	C	C	-
American wigeon	C	C	C	-
Northern shoveler	C	C	C	-
Wood duck	U	U	U	-
Redhead	C	U	U	-
Canvasback	C	U	U	-
Ring-necked duck	U	U	U	-
Lesser scaup	U	U	U	-
Common goldeneye	U	R	U	U
Barrows goldeneye	R	R	R	R
Bufflehead	C	C	C	R
Ruddy duck	U	U	U	R
Common merganser	U	U	U	O
Hooded merganser	U	U	U	-
Red-breasted merganser	U	-	U	-
Turkey vulture	O	O	O	-
Northern goshawk	R	-	R	R
Sharp-shinned hawk	O	O	O	-
Cooper's hawk	O	O	O	-
Red-tailed hawk	C	C	U	U
Swainson's hawk	O	O	O	-
Rough-legged hawk	O	R	O	U
Ferruginous hawk	O	O	R	-
Golden eagle	U	U	U	U
Bald eagle	C	C	C	C
Northern harrier	C	C	C	U
Osprey	C	C	C	-
Prairie falcon	O	O	O	-
Peregrine falcon	R	R	R	-
Merlin	R	R	R	-
American kestrel	C	C	C	U
Sharp-tailed grouse	-	-	-	R
Sage grouse	-	R	R	-
Ring-necked pheasant	U	U	U	U
Gray partridge	U	U	U	U
Greater sandhill crane	C	U	U	-
Virginia rail	U	U	U	-
Sora	U	U	U	-
American coot	A	A	A	R
Semipalmated plover	-	R	-	-
Black-bellied plover	R	R	-	-
Killdeer	C	C	C	-

SPECIES	RELATIVE ABUNDANCE			
	Spring	Summer	Fall	Winter
Common snipe	U	U	U	-
Long-billed curlew	U	U	U	-
Solitary sandpiper	R	R	-	-
Spotted sandpiper	O	O	R	-
Willet	C	O	R	-
Greater yellowlegs	R	-	R	-
Lesser yellowlegs	R	-	R	-
Western sandpiper	O	-	O	-
Least sandpiper	O	-	O	-
Semipalmated sandpiper	R	-	R	-
Baird's sandpiper	R	-	R	-
Long-billed dowitcher	U	-	U	-
Short-billed dowitcher	R	-	R	-
Pectoral sandpiper	R	-	R	-
Dunlin	U	-	U	-
Sanderling	U	-	U	-
American avocet	U	U	R	-
Black-necked stilt	U	U	R	-
Marbled godwit	R	-	R	-
Wilson's Phalarope	O	U	U	-
Red-necked phalarope	R	R	R	-
Herring gull	-	-	O	-
California gull	A	A	U	-
Ring-billed gull	A	A	U	-
Franklin's gull	A	A	U	-
Common tern	O	-	O	-
Forster's tern	U	O	U	-
Black tern	C	C	U	-
Mourning dove	C	A	O	-
Rock dove	O	O	O	-
Western screech owl	U	U	U	-
Great horned owl	C	C	C	C
Burrowing owl	R	R	R	-
Long-eared owl	O	O	O	-
Short-eared owl	U	U	U	-
Saw-whet owl	O	O	O	-
Common nighthawk	U	C	U	-
Poorwill	U	-	-	-
Rufous hummingbird	O	O	R	-
Broad-tailed hummingbird	O	O	R	-
Calliope hummingbird	O	O	R	-
Black-chinned hummingbird	O	O	R	-

SPECIES	RELATIVE ABUNDANCE			
	Spring	Summer	Fall	Winter
Belted kingfisher	C	C	C	R
Northern flicker	C	C	C	C
Lewis' woodpecker	U	U	-	-
Red-naped sapsucker	U	U	U	-
Hairy woodpecker	U	U	U	-
Downy woodpecker	U	U	U	-
Eastern kingbird	C	C	U	-
Western kingbird	C	C	U	-
Say's phoebe	R	R	R	-
Willow flycatcher	O	U	O	-
Western flycatcher	-	U	-	-
Dusky flycatcher	R	R	-	-
Olive-sided flycatcher	R	R	-	-
Western wood peewee	U	U	-	-
Horned lark	C	C	C	C
Violet-green swallow	C	C	U	-
Tree swallow	C	C	U	-
Bank swallow	C	C	U	-
Rough-winged swallow	U	U	U	-
Barn swallow	U	U	U	-
Cliff swallow	U	U	U	-
Stellar's jay	-	-	-	R
Black-billed magpie	A	A	A	A
Common raven	R	-	R	U
Common crow	C	C	C	C
Black-capped chickadee	C	C	C	C
Red-breasted nuthatch	-	O	-	-
White-breasted nuthatch	-	-	-	R
Brown creeper	-	-	-	R
House wren	U	U	O	-
Long-billed marsh wren	C	C	U	-
Mockingbird	R	R	R	-
Catbird	O	O	O	-
Sage thrasher	U	U	O	-
Hermit thrush	U	-	U	-
American robin	C	C	C	O
Townsend's Solitaire	U	-	U	-
Mountain bluebird	U	O	U	-
Blue-gray gnatcatcher	O	-	-	-
Ruby-crowned kinglet	U	-	-	-
Water pipit	-	O	-	-
Bohemian waxwing	C	-	O	O

SPECIES	RELATIVE ABUNDANCE			
	Spring	Summer	Fall	Winter
Cedar waxwing	C	U	O	C
Northern shrike	O	-	O	-
Loggerhead shrike	O	O	U	-
Starling	C	C	C	U
Solitary Vireo	U	-	U	-
Warbling Vireo	U	U	U	-
Orange-crowned warbler	U	-	-	-
Yellow warbler	C	U	U	-
Yellow-rumped warbler	U	-	O	-
Townsend's warbler	U	-	U	-
Yellowthroat	U	U	U	-
Wilson's warbler	O	-	O	-
MacGillivary's warbler	U	U	O	-
House sparrow	C	C	C	-
Bobolink	-	R	-	-
Western meadowlark	C	C	C	-
Yellow-headed blackbird	C	C	C	-
Red-winged blackbird	C	C	C	-
Northern oriole	U	U	U	-
Brewer's blackbird	C	C	C	-
Brown-headed cowbird	C	C	U	-
Western tanager	U	U	U	-
Black-headed grosbeak	O	-	-	-
Evening grosbeak	U	O	U	-
Lazuli bunting	U	U	O	-
Pine siskin	-	-	O	-
Gray-crowned rosy finch	-	-	-	R
Common redpoll	-	-	-	R
American goldfinch	C	C	C	-
Dark-eyed junco	C	C	C	C
Green-tailed towhee	-	-	O	-
Savannah sparrow	C	C	C	-
Baird's sparrow	C	C	C	-
Lark bunting	-	R	-	-
Vesper sparrow	C	C	U	-
Brewer's sparrow	O	O	-	-
Lark sparrow	U	U	O	-
Sage sparrow	U	U	O	-
American tree sparrow	U	-	U	C
Chipping sparrow	U	U	U	-
Clay-colored sparrow	-	-	-	U
Harris' sparrow	-	-	-	U

SPECIES	RELATIVE ABUNDANCE			
	Spring	Summer	Fall	Winter
White-crowned sparrow	C	C	U	-
White-throated sparrow	R	-	R	R
Song sparrow	-	U	U	U
Lapland longspur	O	-	-	O
Snow bunting	-	-	-	O
FISH				
Rainbow trout	C	U	C	C
Cutthroat trout	C	U	C	C
Mountain whitefish	C	C	C	C
Sucker	A	A	A	C
Utah chub	A	A	A	U

Table 6. This table includes population estimates for some of the common resident and migratory wildlife species which use CSWMA. Estimates are based on 1986-1990 and 1991-1995 Management Plans - Cartier Slough Wildlife Management Area and current observations (as of 1997) by Department personnel.

Species	Resident	Seasonal
Mule deer	25	25
White-tailed deer	25	
Moose	6	6
Beaver	10	
Muskrat	100	
Cottontail rabbit	100	
Canada goose	300	500
Snow goose		1,000
Tundra swan		20
Trumpeter swan		60
Mallard	100	1,000
Gadwall		100
Pintail		3,000
Green-winged teal		400
Cinnamon teal		600
American wigeon		80
Redhead		30
Canvasback		10
Wood duck		10
Common goldeneye		100
Common merganser	20	
Hooded merganser		10
Coot		200
White pelican		20
Double-breasted cormorant		50
White-faced ibis		200
Snowy egret		40
Great blue heron		30
Black-crowned night heron		40
Greater sandhill crane		15
Gray partridge	20	
Ring-necked pheasant	15	
Mourning dove	150	

APPENDIX I
PUBLIC USE

Table 7. This table includes the common public activities for which CSWMA is used and an estimate of the number of users and user days annually. Estimates are based on information in the 1986-1991 and 1991-1995 Management Plan - Cartier Slough Wildlife Management Area and recent observations (as of 1997) by Department personnel.

Use	Users	User Days
Waterfowl hunting	30	100
Deer hunting	10	20
Moose hunting	5	10
Upland bird / dove hunting	10	10
Small game / nongame hunting	10	20
Trapping	2	10
Fishing	20	30
Education	40	40
Wildlife / nature viewing	80	120
Photography	2	5
Hiking	30	50
Horseback riding	2	5
Skiing	3	5
Biking	2	10
Boating / canoeing	10	10
Dog field trials / training	0	0

APPENDIX J
CAPITAL IMPROVEMENTS AND DEVELOPMENTS

Water Control

1. A large water control structure was added to the main Cartier Slough. This allows water to be held during low water periods so the water surface area is increased (1978).
2. An old flood channel off of the river was re-opened to create an approximately 4,100 foot long and 15-20 foot wide channel. Five islands were constructed in this channel which are high enough to be safe from flooding at high water (1978).
3. A 1,000 foot channel from the river was re-opened to provide more water to the main Cartier Slough (1978).
4. An oxbow island was created by constructing a 400 foot channel from the river (1978).

Irrigation

1. A head gate was added to the WMA ditch which irrigates a 35-acre field at the north end of the WMA (1978). This field is diked to improve irrigation.

Roads/Bridges/Boat Ramp

1. An unimproved vehicle trail has been established through CSWMA, but it is not accessible during high water.
2. Three water crossings have culverts installed (1977) and one crossing has a vehicle accessible bridge (1987).
3. A foot/4-wheeler bridge was constructed in 1996 to allow access to the oxbow island.
4. An unimproved boat ramp is located on the north end of CSWMA. It is accessible by a two track off the main access road. It is signed and marked on the area map.

Fencing

1. Interior fences, except one on the south side of the agricultural field have been removed.
2. Approximately 4.5 miles of boundary fence was constructed after acquisition. Boundary fences are maintained annually.
3. A parking area was fenced in at the north end of the WMA.
4. Four fence crossings have been installed or constructed to allow foot access.

Nest Structures

1. Thirty-five goose nest platforms have been installed on the area and are maintained annually.
2. Thirty-four wood duck nest boxes have been installed on the area and are maintained annually.
3. Two osprey nest platforms have been installed on the area (1986).

Habitat Plantings

1. The north agricultural field was planted to crested wheat and alfalfa after acquisition. The alfalfa had been lost from the planting and in 1995, the crested wheat was interseeded with a grass/forb mix.
2. A shelterbelt was planted in 1994 on the east end of the agricultural field using HIP funds and is maintained by the Madison County Parks and Recreation personnel for Beaver Dick Park.

APPENDIX K
NOXIOUS WEED CONTROL PLAN

HISTORY

Cartier WMA encompasses 960 acres along the Henrys Fork Snake River west of Rexburg in Madison County. Weed control has been undertaken annually since the Department began administering the area. Control measures are often hampered by high water levels and inaccessibility during spring and early summer.

Annual flooding, past overgrazing by cattle, and motor vehicles along the access road have probably been the main factors contributing to the noxious weed infestations at Cartier WMA. Noxious weeds, especially purple loosestrife, are spread via flowing water in the river, sloughs, and an irrigation canal which flows through part of the WMA. Noxious weeds such as spotted knapweed, Canada, and musk thistle are likely spread by motor vehicles as the main infestations are along the entry road. The area has not been grazed by livestock since 1993. A combination of chemical and biological control has been done in the past, as well as reseeding disturbed areas to increase competition by desirable plant species.

Noxious weed control efforts were minimal in 1997 due to record flooding in the upper Snake River which kept most of the Cartier WMA under water until late July. There is some concern that colonies of biological control agents beginning to develop in the leafy spurge may have been lost or significantly reduced during the May-July 1997 flooding. High water again in 1998 prevented access to much of the WMA until August, so chemical control of leafy spurge and thistles was of limited success as the weeds were already in flower when sprayed.

Noxious weed infestations identified on the area include leafy spurge, Canada thistle, musk thistle, spotted knapweed, and purple loosestrife. Previous control efforts for these species involved both biological and chemical controls:

Leafy Spurge	
Biological	Chemical
1991 – releases of <i>Aphthona flava</i>	1991 – 2,4-D, Banvel
1993 – releases of <i>Aphthona nigriscutis</i>	1993 – Krenite
1995 – releases of <i>Aphthona nigriscutis</i>	1995 – Krenite
1996 – releases of <i>Spurgia esulae</i>	1996 – Krenite
1997 – releases of <i>Aphthona nigriscutis</i>	1997 – Krenite
1998 – releases of <i>Aphthona lacertosa</i> & <i>Aphthona spp.</i>	1998 – Krenite
1998 – releases of <i>Oberea erythrocephala</i>	

Canada and Musk Thistle		
	Biological	Chemical
	[<i>Rhinocyllus conicus</i> already present in musk thistle]	1991, 1993 – 2,4-D, Banvel
	1996 – releases of <i>Cassida rubiginosa</i>	1995, 1996 – 2,4-D
	1997 – releases of <i>Larinus planus</i> & <i>Cassida rubiginosa</i>	
	1998 – releases of <i>Cassida rubiginosa</i> & <i>Trichosirocalus horridus</i>	1998 – 2,4-D
Purple Loosestrife		
	Biological	Chemical
	None	1990, 1991 – 2,4-D, Banvel 1993, 1995, 1996, 1998 - Rodeo
Spotted Knapweed		
	Biological	Chemical
		1993 – 2,4-D, Banvel
	1997 – releases of <i>Metzneria Paucipunctella</i>	1995, 1996 – Curtail
	1998 – releases of <i>Metzneria Paucipunctella</i> , <i>Agapeta zoegana</i> , & <i>Urophora quadrifasciata / affinis</i>	1998 - Curtail

In late summer 1997, the High Country RC&D was funded by Bonneville Power Administration (BPA) to implement the Palisades Wildlife Mitigation Weed Control program. This program will emphasize biological control within a framework of integrated weed management on riparian lands in Bonneville, Madison, and Jefferson counties. The program is being implemented through a committee involving state, federal, and county representatives, with close involvement of the local soil conservation districts. An existing committee, the South Fork Biological Weed Control Committee, has already been coordinating biological weed control in Bonneville county. It is anticipated that most biological control costs and possibly some of the chemical costs for Cartier Slough WMA will be covered through this program for the next five years or so.

Regular meetings of the Biological Weed Control Committee provide a good forum to coordinate with several Madison County representatives involved in weed control efforts. Madison County is very interested in working closely with IDFG, the Egin Bench Canal Co., and private landowners to address the purple loosestrife problems on the Henrys Fork.

I. GOALS

- A. Prevent the spread of established noxious weed infestations into other areas of the WMA and to adjacent lands.
- B. Prevent the establishment of new noxious weed species to the area. Species we will be closely watching for are dalmation toadflax and tamarisk (salt cedar), both of which are present upstream along the Teton River.
- C. Decrease the size and vigor of established infestations.
- D. Document control measures, establish monitoring procedures to evaluate the success of control programs using the infestation areas mapped in 1993. Continue to map and gather baseline information on infestation areas as necessary.
- E. Develop an insectory of riparian-adapted leafy spurge control insects for long-term redistribution elsewhere in the upper Snake River corridor.

II. PRIMARY METHODS OF INFESTATION

- A. Deposition of seed material on the site during periods of high water flows.
- B. Human activity, primarily motor vehicles, leads to the dispersal of noxious weed seeds on the area.
- C. Cattle grazing in the past probably contributed to noxious weed infestations and seed dispersal.

III. CONTROL MEASURES

A. BIOLOGICAL

The use of biological control will be emphasized because of the inaccessibility of much of the area. The abundance of open water on the area limits the options for use of chemicals.

Biological control for leafy spurge will be emphasized and expanded. Additional species of insects are now available which are better adapted to moist sites. Releases will be primarily of *Aphthona lacertosa*, *A. cyparissiae*, and *A. flava*. Another insect, *Oberea erythrocephala*, has been released successfully in cottonwood and willow riparian habitats. This insect will also be released at Cartier WMA. Insect releases to control the spread of musk thistle, Canada thistle, and spotted knapweed will also be continued as there have been few releases for these species in the past.

B. CHEMICAL

Access limitations and concerns about impacting non-target species limits the use of chemicals. Chemical treatment of leafy spurge will be done with Krenite and will focus on the edges of the infestations and patches found in previously uninfested areas. Musk thistle, Canada thistle, and spotted knapweed will be treated with 2,4-D and/or Curtail. Purple loosestrife will be treated with Rodeo.

C. LAND USE PRACTICES

1. FARMING

No farming will occur on the area.

2. DOMESTIC LIVESTOCK GRAZING

The use of goat or sheep grazing to control leafy spurge will be further researched.

3. BIG GAME WILDLIFE DISTRIBUTION

White-tailed deer and moose are year around residents of the WMA and elk can be found on the area during some winters. Big game movements could result in the dispersal of weed seeds to and from the WMA, however this does not appear to be a significant factor in noxious weed distribution at the Cartier WMA.

4. PUBLIC ACCESS MANAGEMENT

The WMA is closed to motorized vehicles except the main access road and parking areas along the north side of the WMA. The access road is infrequently maintained and has become very wide in some places where people are trying to drive around mud holes. These sites have become problem areas for noxious weeds, especially thistle and knapweed. We will explore ways to confine the roadway to allow the adjacent vegetation to re-establish. Motor vehicles do occasionally traverse the WMA for administrative purposes. Although it is possible this has contributed to the spread of noxious weeds on the WMA, based on where the weed infestations are and where the administrative trails are, this does not appear to be a major problem. This will be monitored more closely in the future.

5. DISTURBED AREA MANAGEMENT

There are two forms of chronic disturbance which leave sites at high risk of noxious weed infestation on the Cartier WMA. One is the annual flooding which leaves areas of exposed bare soil. Nothing can be done to reduce this disturbance nor would it be desired; the annual flooding is highly beneficial to the wildlife habitats at Cartier WMA. The other form of disturbance is from the motor vehicles along the main access road. As discussed above, options to address this problem will be explored. In the interim, weed infestations along the access road will be treated very aggressively to prevent their spread further out from the road corridor.

D. MECHANICAL

The inaccessibility of the area somewhat limits the use of mechanical methods such as mowing. However, hand pulling will be used for small infestations of purple loosestrife and spotted knapweed. Clipping of flowerheads will also be used for isolated infestations of purple loosestrife.

APPENDIX L

MONITORING PLAN

The development of the monitoring plan for CSWMA is currently in progress and will be added to this management plan when completed. The following is an outline of the current and anticipated monitoring for the CSWMA. Monitoring practices are listed roughly in order of priority and implementation will be dependant on funding and personnel. Monitoring currently being implemented is denoted by *.

The monitoring program for CSWMA is designed to:

1. Provide baseline information
2. Provide status information on select wildlife species or habitat components
3. Document long term trend information
4. Collect information useful in evaluating management practices

Waterfowl nest structure use*

Objective: Determine to what extent artificial nest structures (goose platforms and wood duck boxes) are used. To document nest success and obtain information to aid in future structure placement decisions.

Methodology: Check nest structures after nesting season, document use and success.

Frequency: Annually following nesting.

Duck nesting information

Objective: Identify important duck nesting areas on CSWMA and document nest success. Maintain a database of waterfowl nesting on CSWMA. Analyze data to evaluate effects of management practices on duck nesting.

Methodology: Nest search by foot or cable drag selected areas.

Frequency: Annually for two years then every third year.

Winter waterfowl use of WMA *

Objective: Document use of CSWMA and adjacent areas by wintering waterfowl.

Methodology: Mid-winter waterfowl aerial survey.

Frequency: Annually.

Noxious weed control effectiveness*

Objective: Document the effectiveness of biological and chemical weed control measures on leafy spurge and other noxious weeds.

Methodology: Photo-points at insect release locations and chemical treatment sites.

Frequency: Photo-points established in 1998. Resurvey every other year.

Public use*

Objective: Document consumptive and nonconsumptive use by type of use and relative level of use. Identify individual users and user groups which can be contacted for input, assistance, and support. Obtain hunter harvest information. Use information in access management decisions and facility development.

Methodology: Survey all visitors encountered by Department personnel in the field with the user data survey forms, survey hunters to obtain harvest information, and install voluntary user sign-in because CSWMA is patrolled somewhat irregularly.

Frequency: Continuous.

Habitat trends

Objective: Document long term changes in habitats. Determine the effects of management practices on the vegetative communities. Use information in habitat management decisions. Develop a data base of plant species composition by habitat type.

Methodology: Photo-points have been established. Transects will be established in 1999 at these points to monitor species composition and cover value.

Frequency: Annually if time allows, otherwise every third year and in conjunction with management practices or natural disturbances which impact habitat.

Big game use*

Objective: Determine important use areas and seasons of use for moose, mule deer, and white-tailed deer on CSWMA. Estimate numbers of big game animals on or adjacent to CSWMA. Document changes in use patterns and numbers over time.

Methodology: Direct observation by Department personnel. User observations. Harvest information. If aerial survey of Unit 63A is ever done, collect data specific to CSWMA and surrounding area.

Species diversity documentation*

Objective: Obtain presence/absence information for small mammals, reptiles and amphibians. Document bird use and relative abundance by season and obtain an estimate of breeding bird density. Monitor bald eagle nest success and use of the area. Monitor use of the area by other wildlife with special designations.

Methodology: Bird use and relative abundance is obtained by direct observation. Breeding bird density estimates can be obtained by using a point count method or mapping method. Points and sample areas were established in 1996. Surveys will be done annually for three years and every other year following.

-The bald eagle nest is monitored annually and use/production information is available in Annual Bald Eagle Productivity Report, Idaho Portion of the Greater Yellowstone Ecosystem.

-Small mammal presence/absence information can be obtained using direct observation, mist netting for bats, live traps for rodents, and pitfall traps for shrews. Surveys can be done annually as time allows.

-Amphibian and reptile presence/absence information can be obtained using direct observation, aquatic sampling and pitfall traps. Surveys can be done annually as time allows.

Frequency: Observations can be made and recorded continuously. Breeding bird surveys can be done every third year.