Niagara Springs
Wildlife Management Area

Management Plan
2014

Magic Valley Region

Niagara Springs Wildlife Management Area

2014 – 2023 Management Plan

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Table of Contents

List of Tables

List of Figures

Executive Summary

Idaho Department of Fish and Game (Department) manages 32 Wildlife Management Areas (WMAs). Researchers from the University of Idaho and The Nature Conservancy evaluated the value of Idaho's WMAs to wildlife. They found the WMA network, created to support game species, "also conserves the full range of Idaho's wildlife and other ecological features" (Karl et al. 2005). Surveys and monitoring work conducted by Department biologists on Magic Valley Region WMAs confirms their value to big game, nongame, and many at-risk species identified in Idaho's State Wildlife Action Plan (SWAP). In many cases, WMAs provide the principal habitat for at-risk species in the Magic Valley Region.

Wildlife Management Areas often abut other protected lands such as national forests, Bureau of Land Management (BLM) lands, and state or private lands protected by conservation easements. Due to the wildlife-focused management, WMAs often serve as highly productive core areas of the landscapes in which they exist. Management of these areas involves a combination of restoring and maintaining important natural habitats to contribute to landscape-level habitat function (e.g., sage-steppe, slough wetlands) and creating hyper-productive habitats (e.g., food plots, nesting cover, impounded wetlands) to enhance the carrying capacity for certain wildlife species.

Wildlife Management Area management plans strive to direct management that upholds these values. They may also be bounded by legislative and/or funding mandates, Department species plans, SWAP, conservation partner objectives, national wildlife conservation strategies and plans (federal and non-government organizations), and especially the Department's own strategic plan, *The Compass*." Priorities, management directions, performance targets and strategies have been developed to be as consistent as possible with all of these documents and to capture the broader conservation values already provided by WMAs and ensure these values are protected and enhanced.

The Department's Magic Valley Region manages six WMAs that collectively comprise 11,141 acres of land. Wildlife Management Area management focus is to maintain highly functional wildlife habitat and provide wildlife-based recreation. These WMAs include:

- Niagara Springs WMA, a combination of riparian and cliff habitats along the Snake River in Gooding County
- Hagerman WMA, a spring-fed wetland complex critical for wintering waterfowl in Gooding County
- Billingsley Creek WMA, which provides a mosaic of upland and wetland habitats in Gooding County
- Camas Prairie-Centennial Marsh WMA, a high prairie, seasonally-flooded wetland in Camas County
- Carey Lake WMA, a lake and upland complex in Blaine County
- Big Cottonwood WMA, a canyon landscape in the Big Cottonwood Creek drainage in Cassia County

Examples of at-risk species partially dependent on Magic Valley Region WMAs include greater sage-grouse (*Centrocercus urophasianus*), bald eagle (*Haliaeetus leucocephalus*), sandhill crane (*Grus canadensis*), trumpeter swan (*Cygnus buccinator*), long-billed curlew (*Numenius americanus*), northern leopard frog (*Rana pipiens*), western burrowing owl (*Athene cunicularia*), Swainson's (*Buteo swainsoni*) and ferruginous hawks (*Buteo regalis*).

All WMAs are funded through a combination of hunting license dollars and appropriations via the Wildlife and Sport Fish Restoration Programs. These federal programs collect excise taxes derived from the sale of ammunition, guns, archery equipment, and fishing and boating equipment and supplies, and distribute the revenue generated from the taxes to all of the states in the nation. The federal excise tax money received by the Department pays for a large portion of the management tab on WMAs; hence, many operational activities on WMAs are designed to provide recreational opportunities for hunters and anglers and are considered a priority along with wildlife conservation priorities. Wildlife Management Areas also provide public access to other areas such as the Snake River and federal and state lands that border Department-managed lands. Visitors to WMAs who do not hunt or fish also benefit from the varied wildlife resources on WMAs and enjoy non-consumptive activities such as horseback riding, wildlife photography, and bird watching.

The 976-acre Niagara Springs Wildlife Management Area (NSWMA) is located along the banks of the Snake River approximately 6.5 miles south of the town of Wendell, Idaho, in southern Gooding County. The NSWMA was purchased with federal and license funds by the Department in 1972. Eight adjacent islands were acquired previously in 1971 from the BLM. An additional parcel was obtained in 1973. Niagara Springs WMA was purchased to provide 976 acres of habitat for waterfowl and upland game production and public use.

The area supports wildlife habitat for upland game, waterfowl, mule deer (*Odocoileus hemionus*) and other species. Waterfowl and upland game bird hunting are major attractions to the WMA in the fall and winter months. There is a native trout fishery that can be enjoyed within a closed system on the WMA as well as generous access to the Snake River fishery.

This document provides direction in the form of goals, objectives, and strategies for the management of NSWMA. The management direction for NSWMA was developed after receiving input from the public during a series of public meetings conducted throughout the Magic Valley Region. Issues pertaining to NSWMA were identified by the public and the Department. These issues were developed into goals, objectives, and strategies consistent with the Department Strategic Plan, *The Compass*.

This management plan will serve as a guide for current and future managers in planning where to direct efforts and resources for maximum wildlife benefit, public enjoyment, and efficient operation. As new information and technology becomes available, and as more property is acquired, strategies may be modified to effectively reach the goals and objectives in this plan. All goals, objectives, and strategies are dependent on adequate funding, personnel, and public support.

Introduction

This management plan is designed to provide broad guidance for the long-term management of Niagara Springs Wildlife Management Area (NSWMA). It replaces an earlier management plan written in 1999. This updated plan was completed during 2012 and 2013 with extensive public input. This plan is tiered off other Idaho Department of Fish and Game (Department) plans and policies summarized below.

- State Wildlife Action Plan (2005)
- Statewide management plans for:
  - waterfowl (1991)
  - upland game (1991)
  - mule deer (2010)
  - white-tailed deer (2005)
  - elk (2014)
  - moose (1991)
  - furbearer (1991)
- Statewide big game depredation management plan (1988)
- Conservation Plan for the Greater Sage-grouse in Idaho (2006)
- Policy for Avian and Mammalian Predation Management (2000)

Department Mission

All wildlife, including all wild animals, wild birds, and fish, within the state of Idaho, is hereby declared to be the property of the state of Idaho. It shall be preserved, protected, perpetuated, and managed. It shall be only captured or taken at such times or places, under such conditions, or by such means, or in such manner, as will preserve, protect, and perpetuate such wildlife, and provide for the citizens of this state and, as by law permitted to others, continued supplies of such wildlife for hunting, fishing and trapping (Idaho Code Section 36-103).

Department Strategic Goals

The Department's 2005 Strategic Plan, *The Compass*, is the primary guiding document for all other Department plans and outlines four goals for the Department:

- Fish, Wildlife and Habitat: Sustain Idaho's fish and wildlife and the habitats upon which they depend.
- Fish and Wildlife Recreation: Meet the demand for fish and wildlife recreation.
- Working With Others: Improve public understanding of and involvement in fish and wildlife management.
- Management Support: Enhance the capacity of the Department to manage fish and wildlife and serve the public.

The 2014 Wildlife Management Area (WMA) plans describe the management direction for each of the 32 WMAs the Department manages to help accomplish these goals. The specific *Compass* goals and objectives relevant to WMA management are included in Appendix I.

Statewide WMA Vision

Our WMAs are managed to provide and showcase important habitat for all wildlife and to offer high quality, wildlife-based public recreation.

Niagara Springs WMA Mission

Protect and manage the wildlife resources of the NSWMA, to ensure sufficient quantities of high quality and secure habitat for mule deer, upland game bird species, and for a wide variety of other game and nongame species. Provide high quality wildlife-based recreational opportunities and nature viewing compatible with this primary mission for the benefit of the public.

Modification of Plan

This plan provides broad, long-term management direction for NSWMA. It will be evaluated at least every five years to determine if adjustments are needed. The plan will be modified as needed to accommodate changing conditions and goals and to incorporate available advancements in management knowledge and techniques.

Other Considerations

All strategies proposed in this plan are bound by the contractual agreements between cooperating agencies, the mission of NSWMA, and all applicable Department species management plans and policies. Issues and strategies that are inconsistent with the mission were not considered. In addition, the implementation of all strategies will be subject to available funding, personnel, and safety considerations.

Area Description and Current Status

The 976-acre NSWMA is located 6.5 miles south of Wendell, Idaho, in southern Gooding County and lies along the north bank of the Snake River (Figure 1). The area is approximately 0.5 miles wide and 3.5 miles long. It is bounded on the north by private agricultural land and a 40-acre Bureau of Land Management (BLM) Wildlife Habitat Area; the east by a private fish hatchery; the south by the Snake River; and on the west by an Idaho Department of Transportation's constructed wetland mitigation site. The northern portion of NSWMA is dominated by shrub/steppe habitat along the flat top of the canyon rim. The canyon rim is about 320 ft. above the Snake River and drops down a sheer cliff to the talus slope below. The base of the talus slope tapers into a mixture of irrigated pastures, shrub/steppe habitat, melon gravel rock formations, and eventually to the riparian zone along the north shore of the river. Several islands in the Snake River adjacent to NSWMA also provide riparian habitat. Boulder Rapids is a prominent part of this stretch of the middle Snake River.

The NSWMA provides a popular waterfowl, upland game bird, and big game hunting destination in the fall and winter months as well as fishing and non-consumptive recreation throughout the year. The Snake River and the multiple developed ponds coupled with annual and perennial food plots attract a multitude of waterfowl to the WMA. In addition to pursuing California quail, the Department annually supplements the pheasant population on the WMA for sportsmen. The public access to the river corridor is utilized by sportsmen to hunt mule deer during the general fall season. During the spring and summer months, the majority of the NSWMA is limited to no motorized access to minimize the disturbance to nesting and brood-rearing habitat, decrease the spread of noxious weeds, and reduce the wildfire hazard. However, vehicle access to multiple parking areas on the western portion of the WMA is provided during the fall hunting season to enhance sportsman opportunity.

The NSWMA has a closed system wild trout fishery sustained by natural reproduction in the May's Ditch fed by Niagara Springs. The ditch originates at Niagara Springs and flows through the eastern half of the WMA where it terminates in two earthen diked ponds. Any outflow from the ponds is limited to a small wetland that infiltrates into the soil and dries up before reaching the Snake River. The May's Ditch is the sole source of water for the ponds and provides the only spawning habitat for this fishery.

In addition to providing hunting and fishing opportunities, the NSWMA provides a multitude of non-consumptive uses. Horseback riding, hiking, and bird watching are common year-round activities on the WMA. The soil on NSWMA is very sandy and highly erodible and is not suitable for off-road vehicle traffic, thus it is currently not allowed.

The North Side Canal is a major irrigation canal for the private farmland to the north of the WMA. The terminal end of the canal is located just above the rim on the WMA in the form of three ponds. The water being at the terminal end of the irrigation canal is laden with agricultural-related nutrients. Historically, the ponds would reach their maximum holding capacity and excess water would drain through an overflow and spill off the rim and into the Snake River

without filtration. The North Side Canal Company worked with the Department to establish an artificial wetland on the NSWMA below the rim in which this water now drains. The wetland not only filters and cleans the water prior to it entering the Snake River, but it also provides quality wildlife habitat.

There are few access points to the Snake River in the Magic Valley because of the steep slopes of the canyon walls. Niagara Springs WMA provides public access to 3.5 miles of the Snake River. As more public use is prohibited from surrounding private property, undeveloped public land becomes more important. Undeveloped land is also important for local wildlife. Therefore, NSWMA is a valuable parcel of land that needs special management for the future.

Noxious weeds are controlled on the WMA to reduce displacement of desirable vegetation and to comply with Idaho state noxious weed law. Control efforts have focused on preventing the establishment of new weed species and controlling or reducing existing weed populations. Current species of concern that exist on the NSWMA include Canada thistle (*Cirsium arvense*), Russian knapweed (*Centaurea repens*), rush skeletonweed (*Chondrilla juncea L.*), perennial pepperweed (*Lepidium latifolium*), Russian olive trees (*Elaeagnus angustifolia L.*), and purple loosestrife (*Lythrum salicaria*).

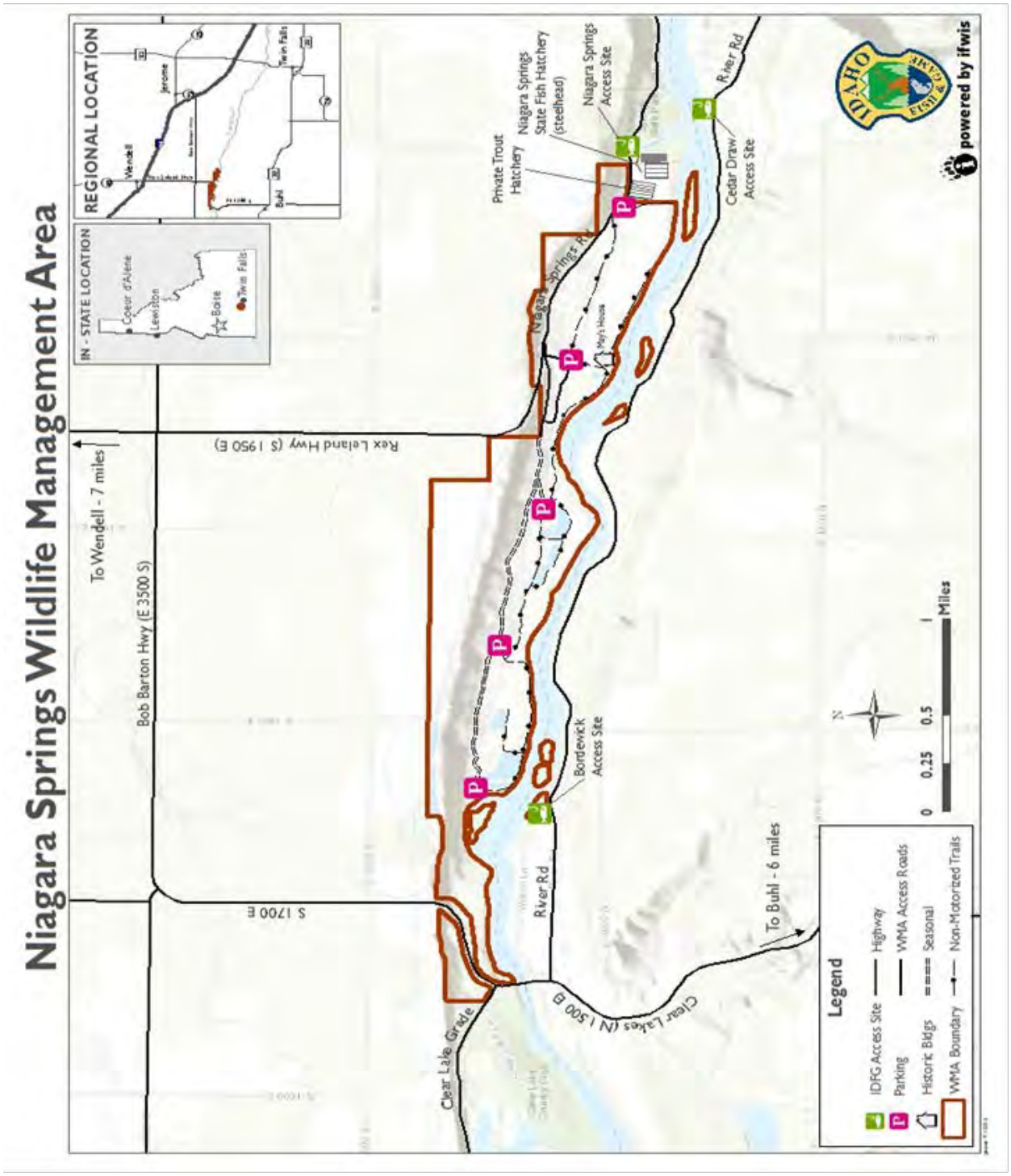

Figure 1. Map of Niagara Springs Wildlife Management Area.

Management Issues

Regional habitat staff presented information on the WMAs and solicited input from the public at four big game season setting public meetings during March and April of 2012; a total of 120 people attended the four meetings. These meetings were held in Hailey, Burley, Jerome, and Hagerman. Regional habitat staff participated in each meeting and manned displays that highlighted the WMAs, the planning process, and management issues that we had identified prior to the meetings. We encouraged the attendees to give us written comments regarding management of the WMAs and any issues they felt that we need to address in our future management. We directed attendees to the online survey available on the Department website and provided a form at the meetings for those wishing to provide written comments.

Throughout 2012 (Feb-Dec), and from May through June of 2014, an online survey form was available on the Department website. The survey allowed participants to answer questions and provide feedback on WMA management statewide and the management of specific WMAs. A news release was printed in several newspapers located in the Magic Valley Region inviting the public to take the online survey and to participate in the public meetings mentioned previously.

We received 64 online surveys specific to NSWMA and five on-site paper surveys from NSWMA users during 2012 and 2014. Of these completed surveys, ten (15%) included suggestions for improved management of NSWMA. Most of the respondents who filled out the surveys were either satisfied (48.4%) or very satisfied (29.5%) with the current management of the NSWMA. Additional information gathered from these surveys on visitor use trends is available in Appendix IV.

A list of issues was developed after public input and a complete of comments is described in Appendix IV. Department policy direction and NSWMA staff management experience also helped shape the list of current issues. The issues identified by the public and Department regional staff were grouped based on similarity into three general categories: Habitat Management, Wildlife Management, and Public Use Management. Similar comments were then combined to form management issue statements under each category. In the section below, we summarize each management issue and discuss some potential management options on NSWMA.

Habitat Management

1. **Noxious weeds are displacing desirable vegetation that would otherwise provide a higher quality of wildlife habitat.**

   Discussion: The NSWMA is located in a very xeric climate. This harsh climate coupled with historical disturbance to the landscape has led to establishment of multiple noxious weed species. These include, but are not limited to Canada thistle, rush skeletonweed, purple loosestrife, perennial pepperweed, puncture vine, Russian knapweed, and Russian olive.

These noxious weeds displace desirable vegetation that would otherwise provide a higher quality of wildlife habitat.

The Department has historically and is currently utilizing several kinds of biological, mechanical, and chemical means of weed control. The weeds in the irrigated and actively farmed acres of the WMA are controlled either through herbicide applications or through mechanical removal. Mechanical removal consists primarily of tillage, mowing, and haying practices. Mechanical removal has proven to dramatically decrease annual and perennial weed occurrence and increase the competitiveness of desirable plant species.

Outside of the intensely managed irrigated acres, and where feasible, a biological control program is the preferred method of noxious weed control. Many weed species such as purple loosestrife can be controlled with releases of biological control agents more economically and effectively than by mechanical or chemical means. However, many weed species do not have approved biological control agents or are not present in high enough densities to support a biological control agent population. In such cases, the most effective method of control has been found to be through selective herbicide applications. Herbicide applications should be selective for target species and should be minimized whenever possible.

Russian olive trees are established throughout the NSWMA and have historically encroached upon and overcrowded riparian areas. In the absence of other woody species, Russian olive trees provide escape and winter cover for upland birds and mule deer. In addition, the small olive-like fruit is utilized by nongame and upland game bird species as a food source. In low densities, Russian olive trees do offer habitat value; however, in the high densities they are found along the riparian areas on the WMA, they reduce the habitat value as they form a dense monoculture that outcompetes all desirable native species. In addition, these dense stands are nearly impenetrable and hang over into the open water of the May's Ditch. This leads to blockages and slowing of the stream flow that leads to silt deposition and degradation of trout spawning habitat.

The Department has performed a large-scale mechanical removal along the east end of the May's Ditch to relieve some of the overcrowding. The trees were cut, piled, and burned to remove the debris. The freshly-cut stumps received herbicide treatment to reduce suckering from the stump. However, Russian olive trees aggressively tiller from the roots as well as from seed. Further encroachment should be managed through a combination of herbicide application and mechanical removal to prevent overcrowding of the riparian areas. Removal of Russian olive trees along the remainder of the May's Ditch should be made a priority to ensure the protection of the trout spawning habitat and to increase riparian habitat value.

2. <u>Quantity and spatial dispersion of quality nesting, brood rearing, and escape cover limits carry over and nesting success due to predation and hunter pressure.</u>

<u>Discussion</u>: The NSWMA currently provides a wide diversity of upland game bird and waterfowl habitats. These habitats range from riparian habitat, palustrine wetlands, riverine wetlands, xeric sagebrush steppe uplands, wooded areas, irrigated perennial herbaceous

cover, and annual food plots. The irrigated areas exist primarily in the eastern portion of the WMA and focus on providing annual and perennial forage crops for upland birds, deer, and waterfowl as well as nesting and escape cover for upland birds and waterfowl.

Waterfowl utilize NSWMA on a year-round basis with the heaviest use occurring in the fall and winter months. However, low to moderate levels of use are seen throughout the year. The multiple ponds and open waters of the flowing ditches are utilized by waterfowl as a resting and loafing area as they migrate south annually. The uplands adjacent to these waters are utilized by resident waterfowl for nesting in the spring. The ponds, ditches, and Snake River then provide the important brood-rearing habitat in late spring and summer. The uplands on the west side of the WMA, with the exception of approximately 25 acres of established tall wheatgrass and saltbush, are dominated by annual grasses and provides poor to moderate nesting and escape cover. The west side of the WMA coincidentally has the majority of the waterfowl brooding habitat; thus, increasing and improving waterfowl nesting habitat on the western half of the WMA should be a priority. The WMA currently supports a multitude of nest predators including coyote, red fox, skunks, badgers, corvids, raccoons, and weasels. Establishing diverse, perennial, herbaceous, and woody stands will improve the overall vertical and horizontal cover and improve nesting success due to lower predator detection.

Currently, the Department implements a supplemental pheasant stocking program during the fall hunting season on the NSWMA. This stocking program is very popular with the local sportsmen and leads to an innately high density of hunters that causes artificially high levels of pressure on all wildlife species on the WMA during the fall. With high levels of sportsman pressure, abundant, high quality, escape cover becomes highly important. Improving and increasing escape cover on the WMA would improve sportsman experience as well as help prolong the availability of stocked birds. Currently, the majority of the stocked birds are harvested in the first 48 hours following release. This has led to the opportunity presented with the stocked birds being offered to a limited number of sportsmen that are present during those 48 hours. With the high cost of the supplemental stocking program, increasing the number of birds released is not feasible. Thus, improving the temporal availability of the stocked birds is the most feasible method of increasing the number of sportsmen the opportunity is made available to. Historic surveys conducted prior to the initiation of the stocking program have shown zero nesting occurring by pheasants on the WMA. These historic records coupled with the high pressure related to the stocking program prevent the exploitation of natural production from being a feasible solution.

3. <u>Wild trout production limited by annual silting of spawning habitat in May's Ditch.</u>

<u>Discussion</u>: The wild trout population on the NSWMA relies on a fairly small-scale, closed habitat system. This system consists of the earthen ditch, known as the May's Ditch, that originates from Niagara Springs to the east of the WMA and runs approximately two miles to the west where it terminates into two small ponds. There is no outlet to the Snake River and all production occurs within the ponds and the ditch. The ditch provides all spawning habitat for this population. Currently, gravelly substrate that provides the necessary wild trout spawning habitat is threatened annually by sedimentation and silting. This is due to the

slowing of flows from weedy vegetation encroachment coupled with the wind deposition of silt. As the flows of the ditch are slowed, it loses its ability to carry the silt and it is deposited in the already limited spawning grounds.

The Department has made efforts in the past to mechanically remove vegetation and return normal flows. Continuing to mechanically remove the debris is a viable short term solution. However, replacing the weedy species with more desirable perennial species may be a more cost effective and long term solution. In addition, the addition of large rock and/or woody debris at key points within the stream channel may narrow flow, increase depth, and improve its ability to move sediment. These areas will retain the silt-free, gravel bottom necessary for spawning.

Wildlife Management

1. **Limited public access to private land hunting places severe pressure on NSWMA pheasant populations.**

   Discussion: Pheasant hunting is a vastly popular recreational activity throughout Idaho. The majority of pheasant habitat and thus the pheasant population in the Magic Valley Region occur on private lands. Places like NSWMA that are open to the public provide opportunity for many sportsmen that would otherwise not exist. The overall popularity of hunting pheasants on the WMA and the limiting scale and quality of habitat leads to abnormally high hunter density and resulting harvest. For this reason, there are very few wild pheasants found on the WMA.

   Currently, the Department performs supplemental stocking of ring-necked pheasants throughout the upland game bird season. This program is very popular with local sportsmen as it provides an opportunity for harvest that many hunters without access to larger or more productive tracts of land would not otherwise have. The Department should continue the supplemental stocking program as long as it continues to align with the goals, as outlined in the Departments strategic plan, *The Compass*, to: "Use artificial propagation, stocking, and translocation where appropriate and cost effective."

2. **Vacant habitat could provide increased fishing opportunity to meet public demand if stocked or self-sustaining populations established.**

   Discussion: The NSWMA offers harvestable fishing for a multitude of species from the Snake River and from the wild trout population found in the two ponds and May's Ditch. The wild trout fishery on the WMA has a two-fish limit due to its limited production. The ponds that hold the wild trout populations require an approximately one mile hike to access them for the majority of the fishing season. There is currently a small pond located in close proximity to the main WMA parking area that did not historically have a population of catchable fish. The pond received several improvements in order to maintain a seasonal population of fish. This pond does not connect to the system supporting the wild trout population and does not have dependable flows throughout the summer months. The pond

was stocked in fall 2013 with catchable trout as a pilot project to see if a fall/winter fishery could be maintained. If the fishery proves to be maintainable and adequate public use occurs, the stocking program could be evaluated for long term use.

3. **Hatchery raised fish have potential to endanger health and genetic integrity of native wild trout.**

   Discussion: The wild trout population on the NSWMA is a unique population as it is a completely closed system with no additional input to the population. This fishery is popular with the public and frequently produces trophy quality fish. To manage against overharvest of this small population, the Department has set a two-fish daily take limit. If stocking is to occur on the WMA, care should be taken not to introduce foreign diseases to the waters containing wild trout. None of the waters that may potentially receive supplemental stocking currently possess connectivity to the waters containing wild trout. Maintaining this lack of connectivity ensures the introduction of hatchery raised fish will not endanger the health of the current wild trout population.

Public Use Management

1. **The NSWMA needs better informational signage and maps.**

   Discussion: Visitors to NSWMA often get confused by the close proximity of the Niagara Springs State Park, Niagara Springs WMA, and the actual Niagara Springs. Having nearly adjacent lands managed by different state agencies makes it difficult for visitors to decipher the rules and regulations of each property.

   In addition, access to the NSWMA changes throughout the year due to seasonal road closures. During the spring and summer months, the roads and parking areas on the western portion of the WMA are closed to motorized vehicles. This tremendously limits access to the west half of the WMA during periods with high non-consumptive use. With limited access and poor signage, many recreationist are unaware of what the WMA has to offer during the spring and summer months.

   The Department will improve signage and maps at the current three kiosk stations located at the east parking lot, the main WMA entry, and the main parking lot. Additional signage and maps should be evaluated for all ephemeral roads and parking areas.

2. **Littering on the NSWMA, especially during the high use periods of the fall and winter hunting season, decreases aesthetic value.**

   Discussion: Littering, especially during the fall and winter hunting season on the WMA, is problematic. The high use areas of the parking lots and popular hunting areas experience a high occurrence of littering including an abundance of empty shotgun hulls. Niagara Springs WMA does not provide public refuse services due to logistical and financial constraints. The NWSMA is signed and designated as a “Pack it In, Pack it Out” area. Increased signage and

literature informing the public of the NSWMA trash policy and the negative effects of littering will help reduce the current problem. In addition, volunteer work groups may be utilized to clean up litter on the WMA throughout the year.

3. **Access to a large portion of the WMA is restricted during seasonal road closures due to poor trail conditions.**

Discussion: Non-consumptive uses including horseback riding, hiking, bird watching, and other activities are very common at NSWMA. During the fall and winter hunting seasons, the road providing public access to the western half of the WMA is open. However, there is a seasonal closure of this road throughout the spring and summer months to protect habitat and reduce wildlife disturbance. This closure timing coincides with the peak utilization period by non-consumptive recreationists. There is a primitive trail system throughout the NSWMA that these recreationists utilize during the road closure period. The trail often becomes overgrown with vegetation that restricts access. In addition, users must cross May's Ditch from the open parking areas to access the trail. There are several small foot bridges in place that require regular maintenance.

The Department will continue to maintain, and when needed, improve the trail and bridge system to provide adequate access for non-consumptive recreationists such as horseback riders.

Niagara Springs WMA Management Program

The Department is responsible for the conservation, protection, perpetuation, and management of all wildlife, fish, and plants in Idaho. Wildlife Management Areas enable the Department to directly affect habitat to maximize suitability for species in key areas and are an integral component in the Department's approach to fulfill its mandate in Idaho Code. Management to restore and maintain important natural habitats and create hyper-productive habitats that enhance carrying capacity for selected wildlife species remain key strategies on NSWMA. However, the most pervasive threats to WMA ecological integrity, such as noxious weeds, rural residential/commercial development, increased water diversion, and conflicting land uses on public lands, typically come from outside the WMA's boundary. Therefore, WMA managers must recognize and create opportunities to collaborate with adjacent landowners, expanding our collective conservation efforts for WMA-dependent wildlife.

We propose that an effective way to enable a broader influence over the future of NSWMA is through the use of conservation targets to guide management. Conservation Targets could be either a focal species or a habitat-type that benefits numerous species. According to Noss et al. (1999), focal species are those used by resource managers to determine the appropriate size and configuration of conservation areas. Conservation of species within landscapes used for other enterprises such as forestry, recreation, agriculture, grazing, and commercial development requires managers to determine the composition, quantity, and configuration of landscape elements required to meet the needs of the species present (Lambeck 1997). Since it is impractical to identify key landscape elements for all species dependent on NSWMA, a carefully selected suite of conservation targets can help provide for the conservation needs of many species. Additionally, identifying landscape-scale conservation targets across ownership boundaries helps address wildlife-related issues on NSWMA and creates a platform for conservation partnerships on the surrounding landscape.

The following six-step process was used to create the NSWMA management program described in this plan. Each of these steps is described in detail on the ensuing pages.

1) Summary of Management Priorities
2) Focal Species Assessment
3) Selection of Conservation Targets
4) Viability Assessment
5) Spatial Delineation of Conservation Target Landscapes
6) Creation of Management Program Table

Summary of Management Priorities

Niagara Springs WMA, like many other WMAs, was created for a specific purpose and therefore has inherent management priorities. Niagara Springs WMA was created to protect and enhance wildlife and fish habitat and outdoor recreation opportunity.

Additionally, legal mandates associated with the 2001 appropriation of federal funding for the State Wildlife Grants program also guide the Department's management priorities. The U.S. Congress appropriated federal funds through the State Wildlife Grants program to help meet the need for conservation of all fish and wildlife. Along with this new funding came the responsibility of each state to develop a State Wildlife Action Plan (SWAP). The Department coordinated this effort in compliance with its legal mandate to protect and manage all of the state's fish and wildlife resources (IDFG 2005). The SWAP does not distinguish between game and nongame species in its assessment of conservation need and is Idaho's seminal document identifying species at-risk. Therefore, at-risk species identified in the SWAP, both game and nongame, are a management priority for the Department.

In addition to the biological goals of preserving, protecting, and perpetuating all fish and wildlife in the state of Idaho, the Department also has a statewide goal of protecting and improving wildlife-based recreation and education. The Department's strategic plan, *The Compass*, outlines multiple strategies designed to maintain or improve both consumptive (e.g., hunting, trapping, fishing) and non-consumptive (e.g., wildlife watching) wildlife-based recreation opportunities across the state.

Taking the biological and funding resources of NSWMA into consideration, in concert with these foundational priorities of NSWMA and statewide Department priorities, the Department developed the following list of broad-scale NSWMA Management Priorities.

Niagara Springs WMA Management Priorities (listed in order of priority):

1. Upland Game Bird Habitat
2. Waterfowl Habitat
3. Public Hunting, Fishing, and Wildlife-based Recreation and Education
4. Wild Trout Habitat

Focal Species Assessment

This section of the NSWMA Plan is an assessment of various conservation priority wildlife species on the NSWMA in order to identify focal species to guide management. Table 1 evaluates taxa that are either flagship species (Groves 2003) and/or at-risk species identified by the Department in the Idaho Comprehensive Wildlife Conservation Strategy (IDFG 2005) and key federal agencies.

Flagship species are popular, charismatic species that serve as symbols and catalysts to motivate conservation awareness, support, and action (Heywood 1995). Flagship species often represent a

landscape or ecosystem (e.g., Snake River Corridor riparian system or cliff/canyon ecotone), a threat (e.g., habitat loss or climate change), organization (e.g., state government or non-government organization), or geographic region (e.g., protected area, Department Region or state; Veríssimo et al. 2009). Waterfowl are an example of a group that fit the criteria as both focal and flagship species. Therefore, waterfowl are an important flagship species group/guild considered in the NSWMA assessment.

A principal limitation of the flagship species concept is that by focusing limited management resources on culturally and economically important species, more vulnerable species may receive less or no attention (Simberloff 1998). To overcome this limitation, we are also considering a variety of at-risk species (Groves 2003); yielding a more comprehensive assessment that includes culturally and economically important species (e.g., waterfowl and upland game birds) along with formally designated conservation priorities (e.g., bald eagle). Categories of at-risk vertebrate species considered in this assessment are: 1) species designated as Idaho Species of Greatest Conservation Need (SGCN); 2) species designated as Sensitive by Region 4 (Intermountain Region) of the U.S. Forest Service (USFS); and 3) species designated as Sensitive by the Idaho State Office of the BLM.

The Idaho SGCN list was developed as part of the Idaho Comprehensive Wildlife Conservation Strategy (IDFG 2005). The Comprehensive Wildlife Conservation Strategy document is now referred to as the SWAP. Idaho's plan serves to coordinate the efforts of all partners working toward conservation of wildlife and wildlife habitats across the state.

Although the Idaho SWAP SGCN includes most of the special status species identified by land management agencies in Idaho, some species not listed as SGCN are considered priorities by other agencies. The Snake River Canyon Riparian system, including NSWMA, is comprised of multiple land ownerships; private lands are the dominate ownership; state and federal owned and managed lands constitute the remainder. Idaho Department of Parks and Recreation, the Department, and private landowners are key partners in this landscape as their management actions can directly influence ecological function on NSWMA.

United States Forest Service Sensitive Species are animal species identified by the Intermountain Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. The Forest Service Manual (FSM 2670.22) directs the development of sensitive species lists. This designation applies only on USFS–administered lands.

Bureau of Land Management Sensitive Species are designated by State Directors in cooperation with the State fish and wildlife agency (BLM manual 6840). The Idaho State BLM Office updated these designations in 2003. The sensitive species designation is normally used for species that occur on BLM public lands and for which BLM has the capability to significantly affect the conservation status of the species through management.

Information on species status, occurrence, beneficial management/conservation actions and threats were derived through consultation with Department Regional Habitat, Fisheries and Wildlife staff; occurrence records in the Department's Idaho Fish and Wildlife Information System database; consultation with various BLM and USFS species lists; and species summaries provided in the Idaho SWAP.

Magic Valley Regional Habitat staff with assistance from other regional staff estimated the suitability of assessed species as a focal species based on descriptions in Groves (2003) and USFWS (2005). Potentially suitable focal species may include species with one or more of the following five characteristics*:*

- *Species with high conservation need*
- *Species or habitats that are representative of a broader group of species sharing the same or similar conservation needs*
- *Species with a high level of current program effort*
- *Species with potential to stimulate partnerships*
- *Species with a high likelihood that factors affecting status can realistically be addressed* (USFWS 2005)

Table 1. Status of Conservation Priority Species on the Niagara Springs WMA including their potential suitability as focal species for management.

Species	Status Designation(s)	Occurrence Context in Niagara Springs WMA Landscape	Threats	Beneficial Management and Conservation Actions	Suitability as a Focal Species for Niagara Springs WMA
Resident Wild Trout – presumed to be Inland Redband Trout (*Oncorhynchus mykiss gairdneri*),	At-risk Species; SGCN; BLM Sensitive	Found in the interior Columbia River Basin from east of the Cascades upstream to geologic barriers such as Shoshone Falls on the Snake River. Current rangewide abundance in Idaho is unknown. Species occupies a range of stream habitats from desert areas in southern Idaho to forested mountain streams in central and northern Idaho. The drainages surrounding Niagara Springs WMA are within the predicted range for this species.	Habitat loss, fragmentation of current habitat, isolation of existing populations, and hybridization with Coastal Rainbow Trout and Cutthroat Trout are the principal threats to this species.	Continue a sterile fish planting program in areas where Inland Redband Trout and introduced hatchery fish overlap. Develop conservation status and management plan. Continue statewide population distribution and trend monitoring program.	**Potentially suitable as a focal species.** Native trout are important to Idaho biologically because they evolved here and are best adapted to their historical waters; ecologically, because their presence is an indicator of the overall health of Idaho's waters, and socially, because Idaho anglers place a high value on native trout. Many anglers also specifically target native trout for their uniqueness thus adding great value to Idaho's economy.
Amphibian Guild	At-risk Species; SGCN; BLM Sensitive	Northern Leopard Frog (*Rana pipiens*) was at one time the most commonly encountered amphibian in Twin Falls County. NSWMA is within historic/predicted distribution for this species. There are several records in the Hagerman valley vicinity (1894 to 1957); one record from 1957 located two miles downstream from the WMA. Presence of bullfrogs in surrounding drainages suggests a possible limiting factor and/or threat. The ACD shows one record for Western Toad (*Anaxyrus boreus*) on the WMA (2008) and several in a 15-mile radius. The WMA is outside of the range of the Southern Rockies Distinct Population Segment of Western Toad, which has been petitioned for listing under ESA. The WMA is also within the predicted distribution of Woodhouse's Toad (*Bufo woodhousii*) and Great Basin Spadefoot (*Spea intermontana*), though the nearest records are >50 mile downstream and 30 miles northeast, respectively. Suitable breeding habitat exists on the WMA for all four species, though presence and conservation status for all four species are currently unknown.	Loss and degradation of wetland and riparian habitat is the most prevalent threat to populations. Introduced competitors and predators (i.e., bullfrogs, sport fishes) can cause amphibian population declines and losses. Disease is also a concern, particularly the chytrid fungus, *Batrachochytrium dendrobatidis*, which is a primary threat to Western Toad populations. This is compounded by habitat alteration around wetlands and human-facilitated expansion of natural and introduced predators. Habitat fragmentation isolates breeding populations, which increases the effects of these widespread threats and the risk associated with other threats, such as local changes in water quality, timber harvest, livestock grazing, fire, and toxic chemicals.	Wetland protection and/or restoration of degraded sites, disease management, cataloging and monitoring population status, delineating important habitat, and protecting delineated habitat are beneficial to the Northern Leopard Frog, Western Toad, Woodhouse's Toad, and Great Basin Spadefoot, but will also benefit other amphibians (i.e., Boreal Chorus Frog, Sierran Chorus Frog) and wetland-associated fish and wildlife.	**Potentially suitable as a focal guild.** Amphibians are an important indicator of healthy riparian and wetland systems in southern Idaho. Management for this guild would enhance habitat connectivity across an arid landscape and benefit multiple wetland/riparian-dependent species. Highly desirable watchable wildlife species.
Waterfowl Guild (Mallard, Eurasian Widgeon, Wood Duck, Cinnamon Teal, Green-winged Teal, Canada Goose, Pintail)	Flagship; SGCN (Trumpeter Swan, Northern Pintail, Lesser Scaup)	A combination of mild winter weather and open water draws more than 5,000 ducks and several hundred Canada geese to Niagara Springs WMA during winter months, providing excellent opportunities for hunting and wildlife viewing recreation. The WMA's riparian and wetland habitats support critical resting, feeding, and nesting areas for waterfowl species including Canada geese, green-winged teal, cinnamon teal, mallard, and wood duck.	Drainage of wetlands, agricultural alterations, and the competing demands for human uses of water pose the primary threats to waterfowl. Overhead power lines can be a major source of mortality for breeding and migratory waterfowl.	Maintenance and restoration of wetlands and riparian systems through cooperative joint ventures and integration of waterfowl management with agricultural practices. Site power lines and infrastructure away from flight paths.	**Highly suitable as a focal guild**. Guild is a good indicator of quality wetland habitat. WMA provides critical overwintering, migratory, and nesting habitat for waterfowl, and waterfowl hunting opportunity. Niagara Springs WMA is a designated Idaho Birding Trail site due in part to spectacular concentrations of waterfowl in winter months.

Species	Status Designation(s)	Occurrence Context in Niagara Springs WMA Landscape	Threats	Beneficial Management and Conservation Actions	Suitability as a Focal Species for Niagara Springs WMA
Bald Eagle (*Haliaeetus leucocephalus*)	At-risk Species; SGCN; USFS Sensitive; BLM Sensitive	Wintering waterfowl concentrations and open water attract Bald Eagles during winter months. Niagara Springs WMA falls within Pacific Bald Eagle Recovery Zone 20, covering a wide swath of the Snake River from Idaho Falls to below Bruneau. This reach of the Snake River supports approximately 20 nesting territories, one of which occurs on Niagara Springs WMA.	Most pressing threat in Idaho is disturbance during the nesting period from activities including recreation, construction projects, and forestry practices. Shooting, poisoning, and electrocution remain threats, though incidences are less common than in past decades. Loss of suitable shoreline habitat due to human development remains a threat. Certain insecticides sprayed for mosquito abatement may pose a risk of bioaccumulation and subsequent reproductive impediment.	For wintering Bald Eagles, identify and protect roost sites and foraging perches. Maintenance and restoration of wetlands and riparian systems through cooperative joint ventures will sustain winter populations of waterfowl, the primary prey resource for wintering Bald Eagles. For nesting Bald Eagles, establish buffer zones around primary and alternate nest sites and identify and protect important perch and roost sites. Avoid or minimize disturbance around nest sites, particularly in late winter/early spring when eagles initiate breeding activities. Site power lines and infrastructure away from Bald Eagle flight paths and nest sites to avoid bird strikes and electrocutions.	**Highly suitable as a focal species.** Bald Eagles have a high public profile as our national bird and as an Endangered Species Act recovery success. Winter concentrations of Bald Eagles, and their interactions with waterfowl and other water-associated birds, provide a highly desirable watchable wildlife opportunity for the public. Presence of a Bald Eagle nest territory on NSWMA is a unique asset among WMAs.
Golden Eagle (*Aquila chryasaetos*)	Flagship	The ACD shows several records for nesting Golden Eagles on the canyon rim traversing the WMA. A 2011 comprehensive survey for Golden Eagles in southern Idaho found 86% of Golden Eagle territories (145 of 168) in the Shoshone and Burley BLM Field Offices, primarily in the Snake River Corridor. Niagara Springs WMA spans the boundary of these two field offices.	Renewable energy development, particularly collisions with wind turbines and electrocution. Human disturbance during the nesting season. Secondary poisoning from lead or rodenticides.	Identify migratory corridors and monitor breeding territories to identify potential energy development impact "hot spots"; develop mitigation strategies, and enable a more proactive approach to review and evaluation of energy development projects. Minimize human disturbance at nest sites. Properly site and construct transmission lines and infrastructure to minimize bird strikes and electrocutions. Apply best management practices for rodent/pest control to avoid secondary poisoning of Golden Eagles from rodenticides, pesticides, or lead bullet fragments.	**Highly suitable as a focal species.** Golden Eagle could serve as a management indicator for canyon, upland, and sage-steppe habitat types on the WMA and surrounding lands. Highly desirable watchable wildlife species.
Cliff & Canyon Bird Guild	Flagship	The special geological formations on Niagara Springs WMA, including rock outcrops, cliffs, talus slopes, caves, and crevices, provide nesting sites, foraging locations, retreat sites from predators, and vantage points within territories for many avian species. Cliff-nesting birds include Canyon Wren, Rock Wren, Say's Phoebe, Prairie Falcon, Golden Eagle, American Kestrel, Red-tailed Hawk, Western Screech Owl, Great-horned Owl, White-throated Swift, Violet-green Swallow, Cliff Swallow, and Mountain Bluebird. Most of these species are migratory, departing the WMA in fall.	Human disturbance at nest sites; mining-related alteration of cliff substrates; bird strikes resulting from improper placement of wind power turbines and transmission lines.	Cliff tops directly above nests should remain undeveloped; establish nest buffer distances for various human disturbances (i.e., rock climbing, hiking trails, motorized/non-motorized aircraft); route power lines and wind farms away from nest sites and foraging areas; avoid applying pesticides around occupied cliff nests during the breeding season.	**Potentially suitable as a focal guild**. The cliff/rock landforms on NSWMA provide a spectacular backdrop to many species of cliff-nesting birds that illustrate a wide range of bird adaptations. This guild is very conspicuous by sight (i.e., Golden Eagle) and song (i.e., Canyon Wren) and is highly valued by birders and wildlife enthusiasts.
Riparian Woodland Bird Guild	Flagship	Riparian woodlands are a significant feature on Niagara Springs WMA. In the arid Intermountain West, riparian areas comprise less than 1% of the landscape, but they are the single most productive type of habitat, benefiting the majority of Idaho's wild species. Nearly half of Idaho's 242 species of breeding birds use riparian areas as their primary nesting habitat. Cottonwood forests, in particular, offer complex structural habitat for canopy- and cavity-nesting birds and act like a web across the landscape	Drainage of wetlands, water diversions, and the competing demands for human uses of water pose the primary threats to riparian woodland systems. Loss of floodplain function limits recruitment and retention of cottonwood galleries. Improper livestock grazing can eliminate understory herbaceous and shrub layers; decrease the number of	Maintain multiple vegetation layers in woody riparian habitats. Ensure that cottonwoods and other woody species are stable or increasing, with all age-classes present. Manage for a variety of native plant species and eliminate non-natives. Maintain good water quality. Consider potential disturbance to nesting birds when locating camping sites, picnic areas, and other areas of human activity. Implement monitoring to assess species diversity,	**Potentially suitable as a focal guild.** Rare habitat type within southern Idaho landscape. Supports diverse assemblage of fish and wildlife including, neotropical migratory birds, amphibians, bats, fish, small mammals, and mule deer. Favored habitat type for wildlife viewing, bird watching, and hiking.

Species	Status Designation(s)	Occurrence Context in Niagara Springs WMA Landscape	Threats	Beneficial Management and Conservation Actions	Suitability as a Focal Species for Niagara Springs WMA
		to link patches of critical habitat along migration routes. Key riparian birds on the WMA include Tree Swallow, Common Yellowthroat, Yellow Warbler, Yellow-breasted Chat, Bullock's Oriole, and Song Sparrow.	cottonwood seedlings and saplings; and degrade stream banks and water quality.	abundance, and trends.	
Desert Valvata (*Valvata utahensis*)	At-risk Species; SGCN; Federally Endangered	The Desert Valvata (a snail) was listed as an endangered species in 1992. Today, it is known to occur in the Snake River from RM 585 to the confluence of the South Fork and Henry's Fork, Snake River at RM 837. Colonies inhabit areas between sand and silt/mud grains, in shallow shoreline water, and in pools adjacent to rapids or in perennial flowing waters associated with large spring complexes. The ACD shows a 1991 record for Desert Valvata found at Boulder Rapids on the north side of the Snake River at high water mark.	The Desert Valvata is impacted by and vulnerable to threats from proposed hydroelectric development, operation of existing hydroelectric dams, degraded water quality, diversion of water for irrigation and aquaculture, lack of regulatory protections for spring habitats, and invasion of the introduced New Zealand Mudsnail.	A recovery plan has been developed for the federally listed snails occurring in the Snake River, including this species (http://ecos.fws.gov/docs/recovery_plan/951126.pdf). Measures include protection of the remaining free-flowing mainstem and cold-water spring habitats in occupied reaches of the Snake River; stabilization of water levels; improvement of water quality; augmentation of flows above Milner Dam; and control of exotic, competitive species. U.S. Fish and Wildlife Service has implemented a monitoring program, which should encompass Niagara Springs and Hagerman WMAs.	**Potentially suitable as a focal species.** Suitable habitat for this federally endangered snail likely occurs on Niagara Springs WMA. Beneficial management for the Desert Valvata will benefit a wide range of aquatic and terrestrial fish/wildlife requiring excellent water quality, sand and silt/mud substrates, and adequate flows and contribute to the species' recovery efforts.
Snake River Physa (*Physa natricina*)	At-risk Species; SGCN; Federally Endangered	The Snake River Physa was listed as an endangered species in 1992. It is believed to be confined to the Snake River, inhabiting areas of swift current on sand to boulder-sized substrate. The known modern range of the species was believed to be from Grandview, Idaho (RM 487) to the Hagerman Reach of the Snake River (RM 573). Recent surveys have shown this species to occur as far downstream as Ontario, OR (RM 368), with another population known to occur downstream of Minidoka Dam (RM 675). The snail has been recorded in only 5% of over 1,000 samples collected within its 300 river mile geographic range. The species' status is uncertain within the current known range, but portions of the middle Snake River (e.g., Milner Reservoir, RM 663 to Lower Salmon Falls Reservoir, RM 572) are of questionable habitat value given current water quality and water use issues.	Effluence from agriculture, freshwater aquacultures, human settlement, and industrial development has resulted in the eutrophication of the middle Snake River. The presence of impoundments and dams alters the temperature regime and dynamics of the river, which may affect this sensitive cold-water species. Introductions of exotic mollusks are also a potential threat.	A recovery plan has been developed for the federally listed snails occurring in the Snake River, including this species (http://ecos.fws.gov/docs/recovery_plan/951126.pdf). Measures include protection of the remaining free-flowing mainstem and cold-water spring habitats in occupied reaches of the Snake River; stabilization of water levels; improvement of water quality; augmentation of flows above Milner Dam; and control of exotic, competitive species. U.S. Fish and Wildlife Service has implemented a monitoring program, which should encompass Niagara Springs and Hagerman WMAs.	**Marginally suitable as a focal species.** While Niagara Springs WMA is located within the core geographic range of the Snake River Physa, the species occurs at such low densities that beneficial management and conservation actions on the WMA may be undiscernible at the species' population level.
Bliss Rapids Snail (*Taylorconcha serpenticola*)	At-risk Species; SGCN; Federally Threatened	The Bliss Rapids snail was listed as a threatened species in 1992. The snail is known to occur in 14 cold water springs and spring-fed tributaries to the Snake River, distributed discontinuously from River Mile (RM) 547-560, RM 566-572, and at RM 580. The species is primarily found on cobble boulder substrate, and in water temperatures between 59-61° F. While there are no records for this species on the WMA proper, several records exist immediately adjacent to the WMA, including four records dated from 1991-2006 from Niagara Spring above the Fish Hatchery. Potential habitat for the Bliss Rapids snail may occur on the WMA.	The Bliss Rapids Snail is impacted by and vulnerable to continued adverse habitat modifications and deteriorating water quality due to one or more of the following: hydroelectric development, peak-loading effects from existing hydroelectric project operations, water pollution, inadequate regulatory mechanisms, and invasion of the non-native New Zealand Mudsnail.	A recovery plan has been developed for the federally listed snails occurring in the Snake River, including this species (http://ecos.fws.gov/docs/recovery_plan/951126.pdf). Measures include protection of the remaining free-flowing mainstem and cold-water spring habitats in occupied reaches of the Snake River; stabilization of water levels; improvement of water quality; augmentation of flows above Milner Dam; and control of exotic, competitive species. U.S. Fish and Wildlife Service has implemented a monitoring program, which should encompass Niagara Springs and Hagerman WMAs.	**Potentially suitable as a focal species.** Suitable habitat for this federally threatened snail may occur on Niagara Springs WMA. Beneficial management for the Bliss Rapids Snail will benefit a wide range of aquatic and terrestrial fish/wildlife requiring excellent water quality, stable substrates, and adequate flows and contribute to the species' recovery efforts.

Species	Status Designation(s)	Occurrence Context in Niagara Springs WMA Landscape	Threats	Beneficial Management and Conservation Actions	Suitability as a Focal Species for Niagara Springs WMA
Middle Snake River Federally-listed Gastropods: Bliss Rapids Snail (*Taylorconcha serpenticola*), Desert Valvata (*Valvata utahensis*), Banbury Springs Limpet (*Lanx* sp.), Snake River Physa (*Physa natricina*)	At-risk; SGCN; Federally-listed Endangered or Threatened	Ecologically, these four listed species share many characteristics, and in some locations two or more can be found sharing the same habitat. Habitat requirements generally include cold, clean, well-oxygenated flowing water of low turbidity. With the exception of Desert Valvata, the listed snails prefer gravel-to-boulder size substrate. Despite these affinities, each of the four species has slightly different habitat preferences. The Snake River Physa is found only in the free-flowing mainstem Snake River. The Bliss Rapids Snail and Desert Valvata occur in both cold-water springs or mainstem habitats, while the Banbury Springs Limpet only occurs in three cold-water spring complexes in the Middle Snake drainage.	These four species are impacted by and vulnerable to continued adverse habitat modifications and deteriorating water quality due to one or more of the following: hydroelectric development, peak-loading effects from existing hydroelectric project operations, water pollution, inadequate regulatory mechanisms, and invasion of the non-native New Zealand Mudsnail.	A recovery plan has been developed for the federally listed snails occurring in the Snake River, including this species (http://ecos.fws.gov/docs/recovery_plan/951126.pdf). Measures include protection of the remaining free-flowing mainstem and cold-water spring habitats in occupied reaches of the Snake River; stabilization of water levels; improvement of water quality; augmentation of flows above Milner Dam; and control of exotic, competitive species. U.S. Fish and Wildlife Service has implemented a monitoring program, which should be coordinated with Niagara Springs and Hagerman WMAs.	**Potentially suitable as a focal guild.** Suitable habitat for the Bliss Rapids Snail and Desert Valvata may occur on Niagara Springs WMA. Beneficial management for these listed gastropods will benefit a wide range of aquatic and terrestrial fish/wildlife requiring excellent water quality, sand and silt/mud substrates, and adequate flows and contribute to the species' recovery efforts.
Upland Game Bird Guild (Ring-necked Pheasant, California Quail, Mourning Dove)	Flagship	A combination of dense woody cover, abundant forage and good nesting cover provide excellent habitat for ring-necked pheasant, California quail and mourning doves.	Upland game bird species on the WMA are vulnerable to nesting and brood rearing failure due to exposure to poor weather conditions, disturbance, and predation.	Maintenance and restoration of nesting cover and food plots coupled with control of noxious weeds and integration of upland game management with agricultural practices. Protecting key habitats from human disturbance during critical periods.	**Highly suitable as a focal guild.** Guild is a good indicator of quality upland habitat. The NSWMA provides excellent nesting, foraging and security habitats for upland game bird species.
Mule Deer (*Odocoileus hemionus*)	Flagship	Niagara Springs WMA is important year-round habitat for mule deer in Department game management Unit 53.	Mule deer on the WMA and surrounding areas are susceptible to habitat loss due to rural development, noxious weeds, and fire.	Maintenance of woody cover and food plots. Thin dense stands of Russian olive to provide more usable areas of security cover. Provide technical assistance to private landowners to expand tolerance and available habitat on private lands; provide technical assistance to county planning and zoning staffs to minimize loss or degradation of habitat.	***Potentially Suitable as a focal species.*** Mule deer are a culturally and economically important wildlife species in the Magic Valley and are a species with a good potential for developing conservation partnerships.

Selection of Conservation Targets

The biodiversity of NSWMA is represented by numerous vertebrates, invertebrates, plants, and ecological communities. It is impractical to evaluate and plan for the conservation of all these elements. Therefore, Conservation Targets, a sub-set of species and communities, were selected to represent the biodiversity of NSWMA for management and conservation; while still reflecting the management priorities of NSWMA.

Conservation Targets for the NSWMA Management Plan were selected from species ranked as potentially or highly suitable focal species in Table 1. Invertebrates and plants are not included in this assessment due to practical considerations including lack of data and funding. Conservation Targets could also include habitats that effectively represent suites of the flagship and special status species evaluated in Table 1, regardless of their potential suitability as a focal species. A final consideration in the selection of Conservation Targets was the best professional judgment of the Magic Valley Regional Habitat Manager and NSWMA staff. Effective Conservation Targets cannot be selected based solely on species assessments. They must reflect regional threats, priorities, existing conservation partnerships, and the limitations of WMA personnel and funding.

The Conservation Targets selected to guide management on NSWMA (conservation priority species in parenthesis) are:

1. Upland Game Bird Habitat (Ring-necked Pheasant & California Quail)
2. Waterfowl Habitat (Waterfowl Guild)
3. Resident Wild Trout Habitat (Inland Redband Trout)

Upland Game Bird Habitat

Ring-necked pheasant and California quail are flagship species and are the most common upland game bird species presence on NSWMA. They occupy a majority of the diverse habitats on the WMA. California quail are closely associated with the riparian corridors that exist along the May's Ditch and Snake River. Adjacent shrub steppe communities and grass uplands provide nesting habitat for both species. Ring-necked pheasant utilize the irrigated cropland for escape cover. These species meet three of the five potential characteristics of a focal species mentioned in the Focal Species Assessment section. In addition, upland game bird hunting is one of the most popular uses of NSWMA.

Waterfowl Habitat

Waterfowl are flagship species that are historic and current management priorities on NSWMA. Mallards are by far the most common waterfowl species found on the WMA. They meet three of the five guiding criteria for focal species selection recommended by USFWS (2005). Niagara Springs WMA provides important winter refuge habitat for mallards and other waterfowl that utilize the Pacific Flyway. In addition, their broad habitat requirements and distribution make

them good surrogates for a wide variety of SGCN and other wildlife. Waterfowl hunting is a very popular activity on NSWMA for sportsmen.

Resident Wild Trout Habitat

A resident trout population occurs on NSWMA. All inputs and outputs to their habitat occur on the WMA. The production of this population is dependent upon the availability of high quality spawning habitat found in the May's Ditch as well as high water quality and quantity throughout the system. The presence of all of these is a direct reflection of management of the surrounding WMA uplands, riparian areas, and water delivery systems. Trout fishing is a very popular sportsman activity on the WMA and throughout the Magic Valley and is a major economical contributor to the region. The resident trout population meets four of the five guiding criteria for focal species selection recommended by USFWS (2005).

Coverage Assessment of Selected Conservation Targets

We define an effective Conservation Target as one providing meaningful conservation benefits for multiple species that share similar habitat requirements or life history traits. They are useful for directing limited management resources and maximizing conservation effort. One measure of effectiveness is to assess the number of species that a Conservation Target benefits (or covers) within the management landscape.

Regional Habitat and Diversity staff worked together to complete the coverage assessment table (Table 2). We evaluated each of the Conservation Targets to determine which species from Table 1 would benefit from management activities focused on that target. Evaluations are based on knowledge of species habitat requirements, occurrence within the management landscape, and the scope of current and planned management actions. The assessment considered only those habitat features or needs relevant to the species as it occurs on the management landscape. For instance, we emphasized the importance of resting and foraging habitat needs for the Waterfowl/Mallard Guild, knowing that most breeding activity for these species occurs elsewhere. Our results indicate that the selected Conservation Targets on NSWMA provide substantial, but variable habitat benefits for an array of assessed species.

We also evaluated which species or guilds would receive little or no tangible benefit from management actions for specific Conservation Targets; these are designated "conservation needs." We identified conservation needs for several species or guilds and determined that further data will be useful to inform the next WMA planning process. Recent studies suggest the conservation needs of some of these species (e.g., the Myotis guild) are increasing dramatically. A prudent management strategy is to consider a landscape where these species may be prioritized for management in the future. Broad strategies for addressing these management needs are identified in the following Management Program Table (pages 34-36), but typically include collection of additional baseline data.

Table 2. Analysis of Conservation Target coverage and identification of conservation needs.

	Conservation Targets[a]			
Species Assessed in Table 1	**Waterfowl Habitat**	**Upland Game Bird Habitat**	**Resident Wild Trout Habitat**	**Conservation Need**
Trout	P	P	X	
Amphibian Guild	X		P	
Waterfowl Guild	P	P	P	
Golden Eagle	P	P		
Cliff and Canyon Bird Guild		P		
Riparian Bird Guild	P	P	P	
Bliss Rapids Snail	P		X	
Upland Game Bird Guild	P		X	
Myotis Guild	P		P	

Entries marked with "X" indicate that the majority or all habitat needs for an assessed species within the management landscape are being met by management actions benefitting the Conservation Target. Entries marked with "P" indicate only a portion of the species habitat needs are being met by management actions for the Conservation Target. Conservation needs exist where target-specific management actions provide little or no tangible habitat benefit for an assessed species. Blank cells under conservation targets may indicate a conservation need or where dissimilar habitat needs preclude conservation benefits.

Spatial Delineation of Conservation Target Landscapes

Some of the focal species utilized to select Conservation Targets for NSWMA also utilize habitats off of the WMA to meet their annual needs. The ring-necked pheasant and mallard species utilized to select the Upland Game Bird Habitat and Waterfowl Habitat Conservation Targets will benefit from management directed off the NSWMA. Therefore, it is crucial that we actively participate in habitat conservation efforts within the landscape, beyond the borders of the WMA, if we are to maximize the potential benefits of management actions on the WMA. As a hypothetical example, if agricultural lands adjacent to NSWMA were converted to non-agricultural lands such as sub-divisions, it removes the main food resource for wintering waterfowl on NSWMA. Bossenmaier and Marshall (1958) and Reed (1971) reported the maximum distance of flights for ducks from roosting areas to feeding areas (agricultural fields) was 17.6 and 19.2 km, respectively. Jorde et al. (1983) documented foraging flights of mallards increased from 3.2 to 20 km during periods of severe weather; this movement was associated with ducks seeking out grazed cornfields or feedlots which provided better access to corn than ungrazed fields. If waterfowl did not have a food source on the immediately surrounding landscape that was within an acceptable foraging flight distance, they would leave NSWMA to look for other roosting areas.

The following sections describe the methods used to define spatial landscapes for each species utilized to select the Conservation Targets for NSWMA. We used the best data available (i.e., professional knowledge from Department biologists and Conservation Officers who were

familiar with waterfowl movements on NSWMA, feeding patterns, foraging flight movement data, and other ecological data from peer reviewed scientific literature, and local knowledge) to construct these Conservation Target-specific landscapes. These landscapes are then utilized in the Management Program Table (pages 34-36) to identify Conservation Target-specific Management Directions, Performance Targets, and Strategies, for both NSWMA and for the delineated landscape.

Ring-necked Pheasant and California Quail (Upland Game Bird Habitat)

The boundary for the landscape polygon for ring-necked pheasant and California quail (Figure 2) was developed using the following information:

- A study of hen pheasants during their nesting season by Kuck et al. (1970), found the home range of broods ranged from 2 to 11 hectares.
- In a South Dakota study, 73% of radioed male pheasants dispersed an average of 3.2 km in the spring from wintering areas (Leif 2005).
- Leif (2005) also found home ranges of male pheasants varied from 18.4 hectares to 45.4 hectares.
- Gatti et al. (1989) studied the habitat use and movements of female pheasants during fall and winter and documented average home ranges of 24.2 hectares.
- Emlen (1939) reported on home ranges of California quail during the winter of four coveys in the Central Valley of California. He found that these coveys had home ranges of 7.7, 8.9, 6.9 and 18.2 hectares, respectively.
- Mean home range size of radio-marked female California quail in western Oregon ranged from 4 to 22 hectares, Kilbride (1991).

Mallard Duck (Waterfowl Habitat)

The boundary for the landscape polygon for mallards (Figure 3) was developed using the following information:

- A maximum flight distance of 20km (approximately 8.5 miles) for foraging flights from the WMA. This was based on review of scientific literature (already mentioned above).
- The availability of agricultural fields in the area, focusing primarily on corn and small grain fields.
- Regional staff input of known waterfowl flight patterns in the area.

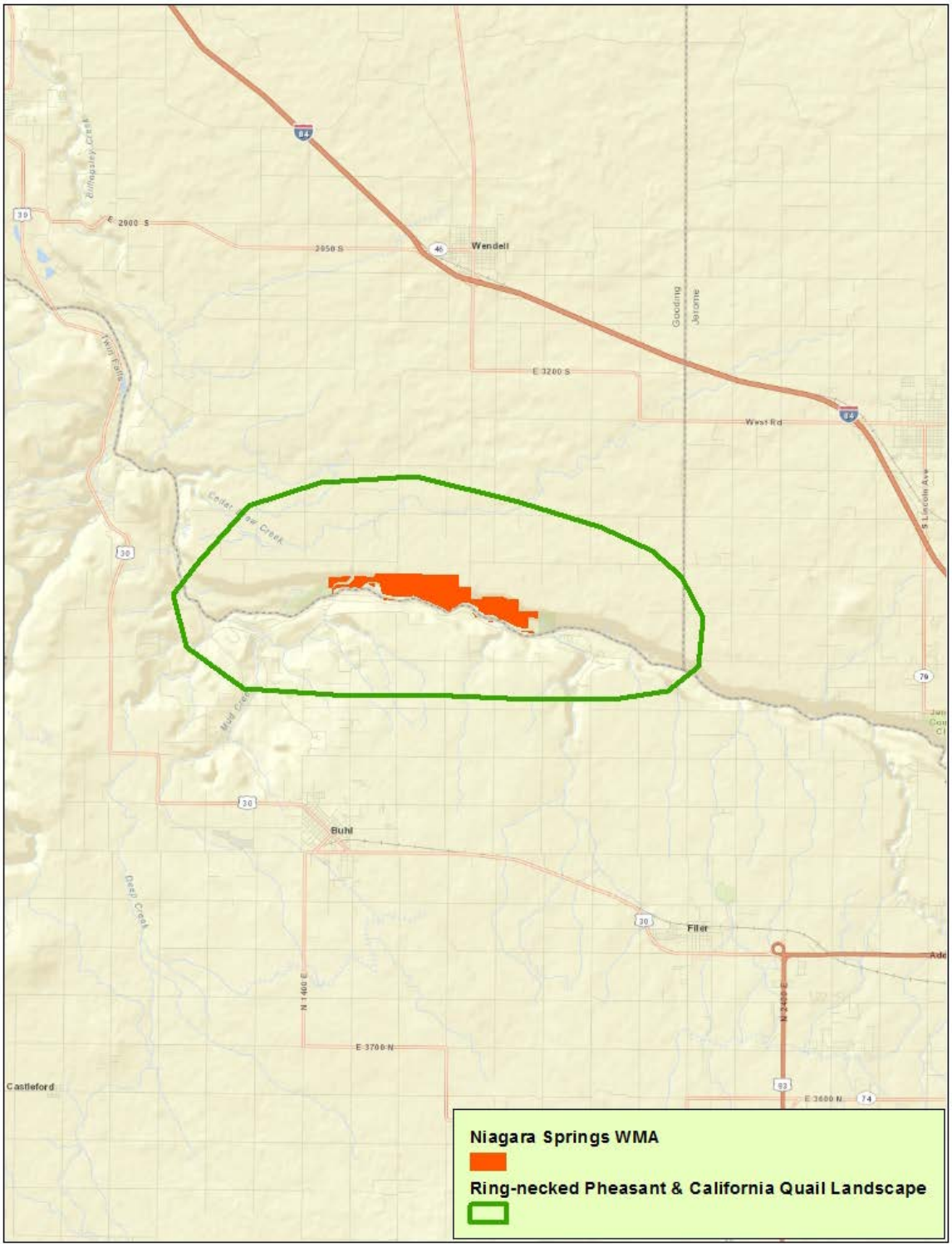

Figure 2. Landscape as used by ring-necked pheasant and California quail in correlation to Niagara Springs WMA.

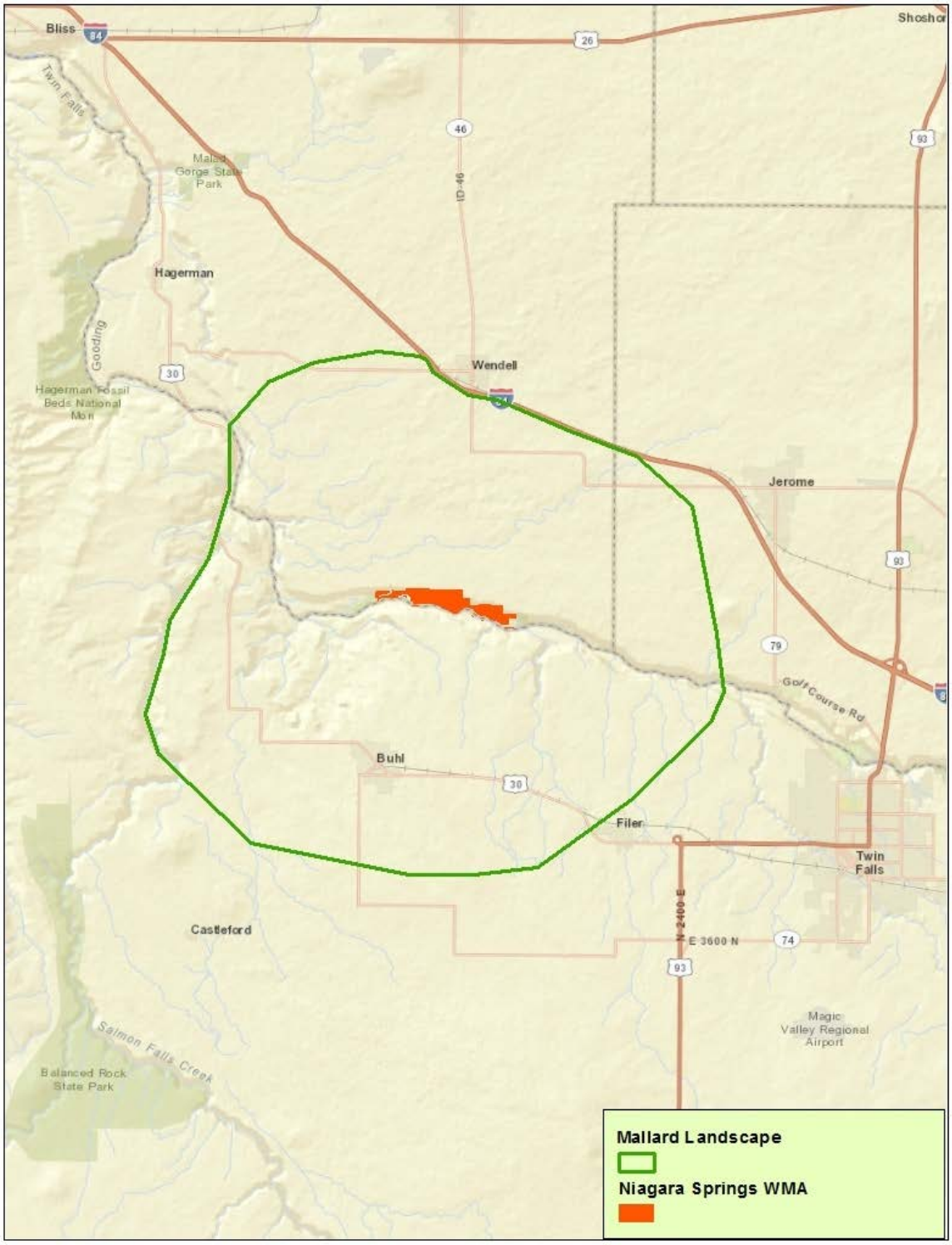

Figure 3. Landscape as utilized by mallard ducks in correlation with Niagara Springs WMA.

Resident Trout (Resident Wild Trout Habitat)

The boundary for the landscape polygon for resident trout (Figure 4) was developed using the following information:

- Populations of resident trout are known to occur within the borders of the Niagara Springs WMA from Niagara Springs downstream, through the May's Ditch, and terminating in the two man-made ponds in the center of the WMA.
- This population of trout is limited in their distribution due to the presence of fish barriers upstream of the WMA and the lack of downstream connectivity with the Snake River.
- Based on the life history of the species and its lack of dispersal capabilities, the most significant influence management activities at NSWMA would have on resident trout is within the May's Ditch.

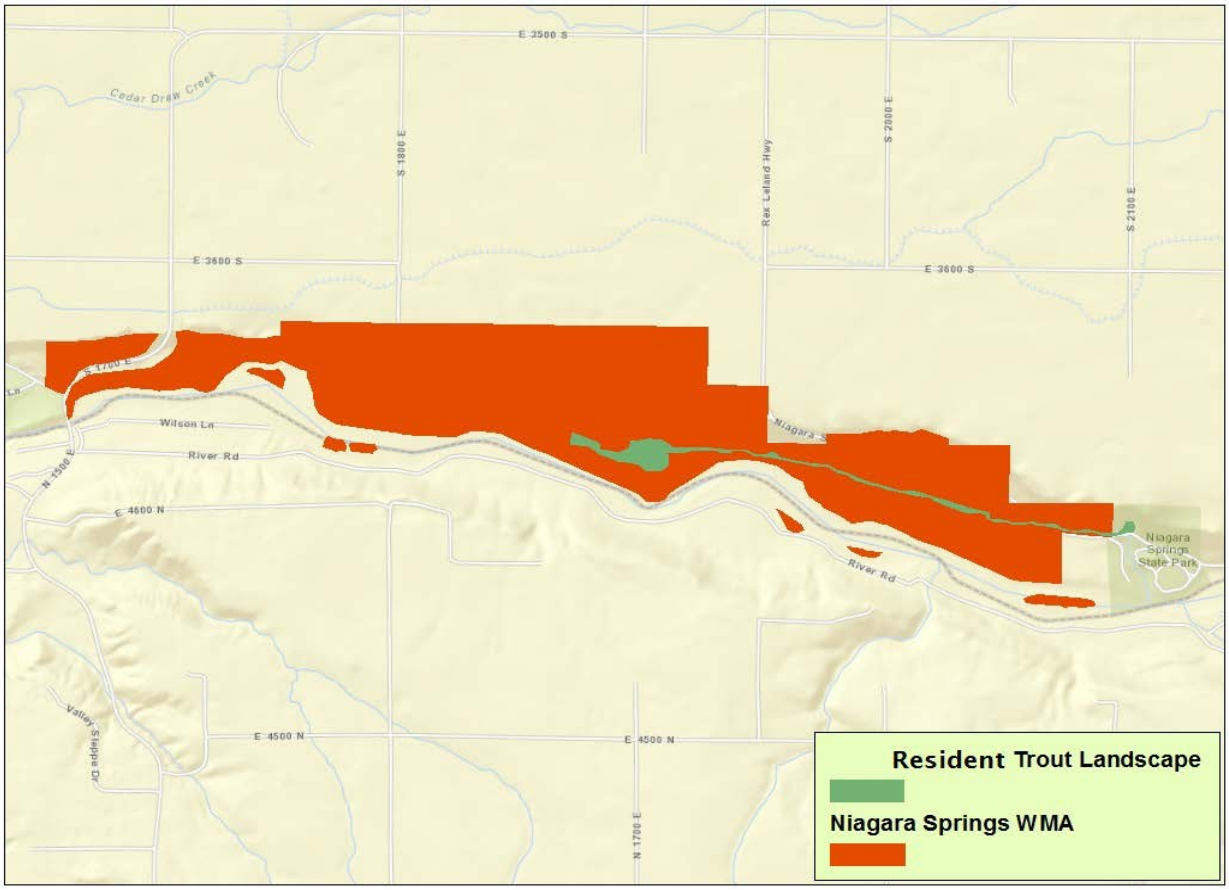

Figure 4. The landscape of the closed system population of trout found within Niagara Springs WMA.

Niagara Springs WMA Management Program Table

The following table outlines the Management Directions, Performance Targets, Strategies, and Outcome Metrics NSWMA staff will use to manage for the Conservation Targets selected (page 27) to represent each NSWMA Priority (page 20) at both the NSWMA and Conservation Target-specific landscape scale. The Compass Objective column links the Management Directions in this table to the objectives of the Department's strategic plan, "*The Compass*" (Appendix I).

WMA Priority: Upland Game Bird Habitat					
Conservation Target: Ring-necked Pheasant and California Quail					
Scope	**Management Direction**	**Performance Target**	**Strategy**	**Metric**	**Compass Objective (Appendix I)**
NSWMA	Maintain at least 500 acres of high quality, year-round upland game bird habitat.	Rehabilitate five acres of annual grass-dominated sites annually.	Map and evaluate best areas on the WMA remove annual grass dominated stands.	Acres treated	A, B, C, D, J, K
			Utilize mechanical and chemical methods to eliminate selected areas of annual grasses.		
			Rehab sites after annual grass removal with perennial grasses, forbs, or grains.		
		Maintain at least 50 acres of upland game bird habitat annually.	Create GIS layer of the current vegetation types on the WMA.	Acres improved or actively managed	
			Create GIS layer of noxious weed infestations and develop a weed management plan to reduce and control noxious weeds on the WMA.		
			Control off-trail access during upland game bird nesting season (Apr - Jun)		
			Work with user groups to manage group activities on the WMA so they do not impact nesting upland game birds.		
			Convert undesirable annual stands to nesting and brood-rearing cover.		
			Work with conservation organizations and volunteers on upland game bird habitat enhancement projects on NSWMA.		
			Plant native species of fruit/seed bearing trees and shrubs.		
			Maintain areas of bulrush and cattails to provide dense wintering habitat.		
Landscape	Provide high quality, year-round upland game bird habitat on at least 750 acres within the Upland Game Bird Habitat Landscape annually.	Improve upland game bird habitat on private lands by working with two private landowners to improve 10 acres annually.	Provide consultation to landowners regarding what they can do on their lands to improve or develop upland game bird habitat.	Acres improved	
			Use the Habitat Improvement Program (HIP) to cost-share with private landowners to improve or develop upland game bird habitat.		
		Work with County, State and Federal land managers in the landscape area to improve or enhance upland bird habitat on their lands.	Meet with the NRCS and FSA annually to promote, develop, and improve utilization of wildlife friendly USDA Farm Bill programs on private lands.	Acres improved or protected	
			Work with local city & county planning and zoning committees to reduce the impacts of development on upland game bird habitat.		

WMA Priority: Waterfowl Habitat					
Conservation Target: Mallard					
Scope	**Management Direction**	**Performance Target**	**Strategy**	**Metric**	**Compass Objective (Appendix I)**
NSWMA	Maintain high quality, year-round waterfowl habitat on at least 200 acres.	Create or maintain at least five acres of cereal grain food plots per year.	Evaluate best areas on the WMA to create food plots that will maximize waterfowl utilization.	Acres of food plot	A, B, C, D, J, K
			Utilize wildlife friendly modern farming practices to establish and maintain food plots.		
		Improve and/or actively manage at least 50 acres of waterfowl nesting habitat annually.	Create GIS layer of the current vegetation types on the WMA.	Acres improved or actively managed	
Landscape	Maintain high quality, year-round waterfowl habitat.	Improve waterfowl habitat on private lands by working with two private landowners to improve 10 acres annually.	Provide consultation to landowners regarding what they can do on their lands to improve or develop waterfowl habitat.	Acres improved	
			Use the Habitat Improvement Program (HIP) to cost-share with private landowners to improve or develop waterfowl habitat.		
		Work with County, State and Federal land managers in the landscape area to improve or enhance waterfowl habitat on their lands.	Meet with the NRCS and FSA annually to promote, develop, and improve utilization of wildlife friendly USDA Farm Bill programs on private lands.	Acres improved or protected	
			Work with local planning and zoning committees to reduce the impacts of development on waterfowl habitat.		
WMA Priority: Resident Wild Trout Habitat					
Conservation Target: Resident Trout					
Scope	**Management Direction**	**Performance Target**	**Strategy**	**Metric**	**Compass Objective (Appendix I)**
NSWMA and NSWMA Landscape	Maintain high quality, year-round habitat for resident trout in Mays Ditch and two terminal ponds.	Protect and enhance habitat on all waters where resident trout have been found on the WMA.	Map resident habitat on NSWMA.	Acres of habitat protected or enhanced.	A, B, C, D, E, F, J, K
			Mitigate impacts of WMA operational activities on wild resident trout habitat.		
			Monitor for silting of resident trout spawning habitat in Mays Ditch.		
			Ensure spatial separation of wild resident trout and hatchery raised trout to ensure genetic integrity and minimize introduction of disease into wild population.		
			Protect and enhance riparian vegetation along May's Ditch and ponds where resident trout currently reside.		
			Work with user groups to manage group activities on the WMA so they do not impact resident trout habitat.		
			Use signs to educate the public and manage access in sensitive areas.		
			Monitor population trends of resident trout on NSWMA.		
WMA Priority: Public Hunting, Fishing, and Wildlife-based Recreation Opportunity and Education					
Scope	**Management Direction**	**Performance Target**	**Strategy**	**Metric**	**Compass Objective (Appendix I)**
NSWMA	Provide opportunity for consumptive and non-consumptive wildlife-based recreation and education.	Provide a minimum of 1,500 hunter/angler user days consistent with the NSWMA mission.	Improve west access on NSWMA to facilitate waterfowl hunting and fishing along Snake River, J-8 ponds, and Empire ponds.	Hunter and Angler User Days	A, B, C, D, J, K
			Work with North Side Canal Company to maintain and improve irrigation settling ponds to provide waterfowl and upland game bird hunting opportunity.		
			Maintain supplemental pheasant stocking program as long as it continues aligns with Department Strategic Plan.		

WMA Priority: Public Hunting, Fishing, and Wildlife-based Recreation Opportunity and Education					
Scope	**Management Direction**	**Performance Target**	**Strategy**	**Metric**	**Compass Objective (Appendix I)**
NSWMA	Provide opportunity for consumptive and non-consumptive wildlife-based recreation and education.		Initiate and maintain a supplemental fish stocking program in open waters were resident trout are not populated.		A, B, C, D, J, K
		Provide a minimum of 4,000 total user days for wildlife-based recreation and education opportunities consistent with the NSWMA mission	Coordinate with local schools to provide nature tours on NSWMA.	Public Use Days	
			Publish article/video for local media highlighting wildlife viewing opportunities on NSWMA.		
			Work with special interest groups to facilitate and promote group activities and functions on WMA that align with management goals.		
		Maintain facilities, signage, and roads/trails to facilitate recreation and education.	Improve and maintain high quality signage defining WMA boundaries, uses, and regulations.	Facilities maintained	
			Maintain walk-in road, seasonal parking areas, and trail system.		
			Use signs to educate the public and manage access in sensitive areas.		
			Improve Snake River access from WMA.		

Monitoring

Monitoring and reporting are critical for tracking accomplishment of performance targets identified in the WMA Management Program Table. Monitoring can be separated into three categories: compliance monitoring, biological monitoring, and public use monitoring.

Compliance Monitoring

Compliance monitoring documents the completion of regular management tasks that are essential to WMA operations. These include but are not limited to:

- Maintaining WMA facilities and access sites
- Maintaining infrastructure at ponds and wetlands
- Providing technical assistance to local agency staff and private landowners
- Maintaining public access sites

Compliance monitoring will be reported annually at work plan meetings between regional and headquarters staff.

Biological Monitoring

Wildlife Management Areas across the state have a range of established biological monitoring programs and needs. Additional monitoring needs may have been identified during development of the NSWMA Management Program Table. Biological monitoring includes wildlife, vegetation, and habitat monitoring. It may also include assessing the effectiveness of management and restoration activities. Monitoring may occur at multiple spatial and temporal scales, depending on objectives.

Electro-fishing and mark and recapture surveys have been conducted historically on the May's Ditch and the two wild trout ponds. In addition, visual assessment surveys have been conducted of the May's Ditch to assess trout spawning activity. All these surveys were conducted between 1987 and 2000. Monitoring over the next 10 years will focus on spawning and recruitment success in the May's Ditch and angler use and success in the pond system.

Historically, waterfowl surveys have been conducted on NSWMA. Surveys began in 1994 and continued through 1997. Crow counts and roadside surveys were conducted to assess pheasant and quail populations from 1986 through 1994. General wildlife observation surveys were conducted throughout the 1990s. Qualitative surveys are continually conducted on the WMA; however, no recent quantitative wildlife surveys have been conducted. Waterfowl monitoring will focus on winter utilization and spring brood production over the next 10 years. Upland game bird monitoring will focus on improving the survival rate of adult pheasants between stocking events and production of California quail broods.

Ongoing noxious weed control measures, including weed surveys, are conducted annually on NSWMA. In addition, weed control methods are logged annually to track chemical use and help detect chemical resistance in weeds.

In Table 3, future monitoring needs associated with performance targets and strategies identified in the NSWMA Management Program Table are summarized. The goal is to measure success or effectiveness of strategies that are implemented to reach performance targets. A detailed monitoring plan including specific techniques will be completed for the NSWMA by December 31, 2014.

In 2010, the Department initiated a statewide, long-term habitat monitoring program for all WMAs. The goal of the program is to collect quantitative and comparable baseline data to monitor habitat change on all WMAs due to management actions or other causes. The baseline data collected will be specific to each WMA, based on the habitat types present and its unique management issues. Baseline data typically includes:

- Distribution and extent of cover types, including mapping of vegetation cover types
- Vegetation structure, composition, and condition
- Presence or abundance of noxious weeds and other invasive plants
- Riparian and wetland condition and function assessment
- Photo points

To date, this program has collected baseline data on five WMAs, with surveys of all 32 WMAs expected to be completed by 2019. This is a long-term program and will be repeated starting in 2020.

Public Use Monitoring

Wildlife Management Areas use public surveys and monitoring tools (e.g., traffic counters) to evaluate public satisfaction and use patterns as well as identify issues of concern. In some areas, hunter check stations monitor hunter success and satisfaction. These survey data help managers determine whether they are meeting the goals for the WMA.

Volunteer public use surveys have historically been, and are currently, collected throughout the entire calendar year on the WMA via sign-in boxes. The volunteer survey information is analyzed annually to determine levels of resource use and to collect public input on current management. In addition, hunter check stations are conducted multiple times throughout the season to monitor hunter use and success rates.

In 2012, regional habitat staff presented information on the NSWMA and solicited input from the public at four public meetings. The public provided written comments on the current resource status and management of the WMA. In addition, an online survey was solicited on the Department website. The results from the public meeting and online survey were utilized to assess use and management concerns from the public.

Public use monitoring will continue for the duration of this management plan. Monitoring will assess the amount, timing, and type of use on the WMA and will be utilized to direct current and future management activities.

Reporting

Each WMA will produce a five-year report on implementation of this WMA plan in 2019, including a summary of accomplishments and progress towards meeting performance targets. During the five-year review, NSWMA staff will determine whether modifications to the plan are needed to meet performance targets, to accommodate changing conditions and priorities, or to incorporate advancements in management knowledge and techniques.

Table 3. Biological Monitoring for Niagara Springs WMA, 2014-2023.

Performance Target	Survey Type	Survey Frequency
Rehabilitate five acres of annual grass dominated sites annually	Vegetation type and condition survey, photo point, and mapping	Annually
Improve and/or actively manage at least 50 acres of upland game bird habitat and waterfowl nesting habitat annually	Vegetation species composition, % cover assessment, and GIS habitat type spatial distribution mapping	At least once pre-project initiation and then annually for first four years post-project completion
Create or maintain at least five acres of cereal grain food plots per year	Conduct waterfowl use survey	Annually
Improve and/or actively manage at least 50 acres of waterfowl nesting habitat annually	Conduct waterfowl brood surveys on all ponds and May's Ditch	Annually
Protect and enhance habitat where resident trout are found on the WMA	Single pass electrofishing of predefined transects analyzing age class by length frequency	Every three years

References

Bossenmaier, E. F., and W. H. Marshall. 1958. Field feeding by waterfowl in South-eastern Manitoba. Wildlife Monograph No. 1. Wildlife Society.

Emlen, J. T. 1939. Seasonal movements of a low-density valley quail population. Journal of Wildlife Management 3:118–30.

Gatti, R. C., R. T. Dumke, and C. M. Pils. 1989. Habitat use and movements of female ring-necked pheasants during fall and winter. Journal of Wildlife Management 53:462-475.

Groves, C. 2003. Drafting a Conservation Blueprint: A Practitioner's Guide to Planning for Biodiversity. Island Press, Washington, D.C.

Heywood, V. H. 1995. Global biodiversity assessment. Cambridge University Press, Cambridge.

Idaho Department of Fish and Game. 2005. Idaho Comprehensive Wildlife Conservation Strategy. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, Idaho. https://fishandgame.idaho.gov/public/wildlife/cwcs/ [Accessed March 3, 2014].

Jorde, D. G., G. L. Krapu, and R. D. Crawford. 1983. Feeding ecology of mallards wintering in Nebraska. Journal of Wildlife Management 47:1044-1053.

Karl, J. W., J. M. Scott, and E. Strand. 2005. An assessment of Idaho's wildlife management areas for the protection of wildlife. Natural Areas Journal 25:36-45.

Kilbride, K. M. 1991. Applications of radio-telemetry to studies of California quail in western Oregon. M.S. thesis, Oregon State University, Corvallis.

Kuck, T. L., R. B. Dahlgren, and D. R. Progalske. 1970. Movements and behavior of hen pheasants during the nesting season. Journal of Wildlife Management 34:626-630.

Leif, A. P. 2005. Spatial ecology and habitat selection of breeding male pheasants. Wildlife Society Bulletin Vol. 33:130-141.

Lambeck, R. J. 1997. Focal Species: A Multi-Species Umbrella for Nature Conservation. Conservation Biology. Volume 11, Issue 4, pages 849–856, August 1997.

Noss, R. F., E. Dinerstein, B. Gilbert, M. Gilpin, B. J. Miller, J. Terborgh, and S. Trombulak. 1999. Core areas: where nature begins. *In* J. Terborgh and M. Soule, eds., Continental Conservation: Scientific Foundations of Regional Reserve Networks, pp. 92-128. Washington D.C.: Island Press.

Reed, L. W. 1971. Use of western Lake Erie by migratory and wintering waterfowl. M.S. Thesis, Michigan State University, East Lansing.

Simberloff, D. 1998. Flagships, umbrellas, and keystones: Is single-species management passé in the landscape era? Biological Conservation 83:247-257.

U.S. Fish and Wildlife Service. 2005. The U.S. Fish and Wildlife Service's Focal Species Strategy for Migratory Birds Measuring success in bird conservation. http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/FocalSpecies/The%20Focal%20Species%20Fact%20Sheet%20and%20Table.pdf [Accessed December 6, 2012].

Veríssimo, D., I. Fraser, R. Bristol., J. Groombridge, and D. MacMillan. 2009. Birds as tourism flagship species: A Case Study on Tropical Islands. Animal Conservation 12:549-558.

Appendices

I. THE COMPASS – THE DEPARTMENT'S STRATEGIC PLAN

In 2006, the Department completed a strategic plan—*The Compass*—based on public input and legislative mandates. It continues to guide the Department in 2014 and is the primary guiding document for all other Department plans developed since 2006. The following table presents the goals, objectives, and strategies from *The Compass* that are most relevant to WMA management. *Compass* objectives are lettered on the left side for reference in the Management Program Table.

The Compass
GOAL—Fish, Wildlife, and Habitat
A. Objective – Maintain or improve game populations to meet the demand for hunting, fishing, and trapping.
B. Objective – Ensure the long-term survival of native fish, wildlife, and plants.
C. Objective – Increase the capacity of habitat to support fish and wildlife.
D. Objective – Eliminate the impacts of fish and wildlife diseases on fish and wildlife populations, livestock, and humans.
GOAL—Fish and Wildlife Recreation
E. Objective – Maintain a diversity of fishing, hunting, and trapping opportunities.
F. Objective – Sustain fish and wildlife recreation on public lands.
G. Objective – Maintain broad public support for fish and wildlife recreation and management.
H. Objective – Increase opportunities for wildlife viewing and appreciation.
I. Objective – Increase the variety and distribution of access to private land for fish and wildlife recreation.
GOAL—Working With Others
J. Objective – Improve citizen involvement in the decision-making process.
K. Objective – Increase public knowledge and understanding of Idaho's fish and wildlife.
GOAL—Management Support
L. Objective – Attract and retain a diverse and professional workforce.
M. Objective – Provide equipment and facilities for excellent customer service and management effectiveness.
N. Objective – Improve funding to meet legal mandates and public expectations.

II. HISTORY

The Niagara Springs WMA was purchased with federal and state license funds by the Department in 1972. Eight adjacent islands were acquired previously in 1971 from the BLM. An additional parcel adjacent to the WMA was obtained in 1973. In 2002, the Department made a land trade with Idaho Transportation Department (ITD). The Department gave ITD approximately 9.0 acres that is now the ITD Rest Area adjacent to Highway 30 and Hagerman WMA. In return, the Department received 88.97 acres of land along the western border of NSWMA. This property includes the Empire Ponds. The NSWMA was acquired to provide 976 acres of habitat for waterfowl and upland game production and public use.

Beginning in 1996, the North Side Canal Company and the Department collaborated to construct four settling ponds below the J-8 irrigation ditch discharge on the west side of the WMA. These ponds were constructed to allow natural filtering of irrigation water prior to discharge into the Snake River and to provide wildlife habitat. These ponds are popular waterfowl hunting destinations.

Prior to the Department's tenure, the area had multiple owners and uses ranging from dairy farming to cattle ranching. The native uplands had been intensively used and were in poor condition. In addition, due to its scenic nature, the riparian zone and canyon rim were threatened by domestic development. One of the historical ranch houses remained standing on the east side of the WMA when the Department acquired the property. In the fall of 2012, it was deemed the house was no longer hospitable and was thus demolished.

Niagara Springs WMA has a resident trout fishery sustained by natural reproduction in the May's Ditch, fed by Niagara Springs. The May's Ditch terminates in two ponds located on the WMA and has no connectivity to the nearby Snake River.

III. MANAGEMENT REQUIREMENTS AND AUTHORITIES

Federal funds, including those derived from the Land and Water Conservation Fund and USFWS Federal Aid Program, have been used in part to acquire and manage NSWMA lands. Certain activities are prohibited from funding with Federal Aid funds, and all provisions of Federal Aid funding will be followed.

Other federal and state laws also affect management of NSWMA. The Department has responsibility under provisions of the Endangered Species Act to ensure that management actions protect threatened and endangered species, and responsibility under the Clean Water Act to ensure that water quality standards and guidelines are in place on NSWMA lands and waters. Under the National Historic Preservation Act, the Department must ensure that historic properties are protected on the NSWMA.

The Idaho Noxious Weed Law under Idaho Code 22-2405 requires all landowners to eradicate noxious weeds on their lands, except in special management zones. The counties are required to enforce the law and the State of Idaho is required to ensure the counties do so.

Consistent with Idaho Codes 38-101 and 38-111, and through a cooperative agreement with the Idaho Department of Lands, the Department is required to pay a fee for fire protection on all forest and some rangeland acreage it owns, and for residences in forest areas. Fees are submitted annually based on the number of qualified acres and residences owned by the Department.

The Department is required by Idaho Code 63-602A to pay a fee-in-lieu of taxes (FILT) for lands that are owned by the Department and meet certain code requirements. These fees are submitted annually to affected counties based on the number of qualifying acres and agricultural tax rates.

IV. PUBLIC INPUT SUMMARY

Magic Valley Region habitat staff presented information on the WMAs in the Magic Valley Region and the preparation of the 2014 WMA plans at four big game season setting public meetings during March and April of 2012; a total of 120 people attended the four meetings. These meetings were held in Hailey, Burley, Jerome, and Hagerman. Regional habitat staff participated in each meeting and manned displays that highlighted the WMAs, the planning process, and management issues that we had identified prior to the meetings. We encouraged the attendees to give us written comments regarding management of the WMAs and any issues they felt that we need to address in our future management. We directed attendees to the online survey available on the Department website and provided a form at the meetings for written comments.

Throughout 2012 (Feb-Dec), and May through June of 2014, an online survey form was available on the Department website. The survey allowed participants to answer questions and provide feedback on WMA management statewide and the management of specific WMAs. A news release was printed in several newspapers located in the Magic Valley Region inviting the public to take the online survey and to participate in the public meetings mentioned previously.

The following is a list of online and written comments submitted by the public at the open house meetings or online. The following comments are responses to Questions #6 (*Suggestions to Improve Visit*) and #7 (*General Suggestions*); each comment has been listed under a general category that has the best association with the comment, and only comments specific to NSWMA have been included:

Habitat Management

- Remove invasive species.
- Irrigate more acres.
- Plant more vegetation for wildlife habitat especially for pheasant and partridge.

Wildlife Management

- Continue pheasant stocking program.
- Stock more pheasants
- Stock trout in ponds.
- Stock other upland species.

Public Use Management

- Make the islands more available for birding and hiking around.
- Further limit motorized vehicle use on the WMA.
- Garbage facilities or signing about packing out spent shotgun shells.
- Add toilet, garbage, & recycling. Improve trails.

- Restrict parking to parking lots.
- Maps or directions for access are difficult or impossible to find.
- Better boat ramps.

V. 1999-2013 ACCOMPLISHMENTS

Since the NSWMA plan was revised in 1999, these accomplishments have occurred relative to the goals and objectives of the 1999 plan.

Goal: Provide optimal quality and diverse habitat for wildlife.

Objective: Maintain and enhance 184 acres of irrigated cover.

Accomplishments:

- With the construction of the sediment ponds below the J-8 canal by the North Side Canal Company and the terminal failure of the delivery system from the J-8 ponds, irrigation of the west side of the WMA has been ceased. However, perennial shrub/steppe communities and wooded windbreaks have been established and persist.
- Alfalfa fields have been managed (~12-25 acres/year) using a combination of haying and noxious weed control to maintain stand vigor and provide a well-structured palatable food and cover source.
- Approximately 60-75 acres of irrigated perennial dense nesting cover is maintained annually.
- Approximately 5-20 acres of annual grain food plot is established and maintained annually.

Objective: Control noxious and undesirable weeds.

Accomplishments:

- Chemical and mechanical control of noxious weeds has been conducted annually throughout the WMA.
- Numerous successful releases of bio-control agents have been conducted on the WMA. These include multiple successful releases for purple loosestrife control.

Objective: Maintain and enhance artificial nesting structures annually.

Accomplishments:

- Goose nesting platforms and wood duck nesting boxes are established and maintained throughout the WMA, including the Snake River islands, annually.

Objective: Maintain and enhance 37 acres of constructed ponds.

Accomplishments:

- Approximately 52 acres of constructed ponds have been developed and are annually maintained and/or enhanced on the WMA to date. In addition to the ponds existing in 1999 when this objective was set, the following accomplishments contribute to the current 52 acres:
    - The North Side Canal Company and the Department successfully completed the construction of and habitat development of four sediment ponds totaling approximately 20.5 acres.
    - The Department acquired the Empire Ponds totally approximately 5.0 acres in 2002.
    - The Wood Duck Pond near the old May's house was rehabilitated in 2012. It is approximately 1.0 acre and is scheduled to be stocked with trout in 2013.

Objective: Maintain and enhance 94 acres of riparian cover and Snake River islands.

Accomplishments:

- Russian olive trees along the May's Ditch were thinned and removed in the winter of 2012/2013.
- Tree and shrub plantings were performed along the Wood Duck pond and the May's Ditch.

Objective: Maintain and enhance 661 acres of shrub/steppe cover.

Accomplishments:

- Existing shrub/steppe habitats are maintained annually through noxious weed control and wildfire precautions such as limiting vehicle access.
- Approximately 25-30 additional acres of annual grass dominated sites have been converted to shrub/steppe habitat.

Goal: **Provide optimal recreational activity without adversely impacting wildlife.**

Objective: Provide optimal hunting opportunity.

Accomplishments:

- Seasonal access and parking on the west half of the WMA is provided during the upland game bird and waterfowl seasons.
- Weekly releases of pheasants are performed on the WMA throughout the youth and general upland game bird season.

Objective: Provide optimal fishing opportunity.

Accomplishments:

- A two-fish limit was placed on the wild trout fishery on the WMA to ensure the fisheries longevity.
- Stocking of trout in the Wood Duck Pond began in fall 2013 and will provide additional fishing opportunity that is readily accessible.
- The trail access to the trout ponds is maintained annually.

Objective: Provide optimal trapping opportunity.

Accomplishments:

- Trapper access to the west side of the WMA has been improved through seasonal opening of roads and parking areas.
- WMA trapping permits are limited to prevent overharvest and ensure longevity of trapping opportunity.
- Addition and enhancement of ponds has increased furbearer habitat and trapping opportunity.

Objective: Provide optimal motorized access and facilities.

Accomplishments:

- Six parking areas have been established across the WMA to enhance access.
- Seasonal opening of roads have been implemented and provide access to the west half of the WMA during peak utilization periods.
- A permanent bathroom facility has been developed at the main entrance parking area.

Objective: Provide optimal non-consumptive recreational and educational opportunity.

Accomplishments:

- A trail system, complete with foot bridges across the canals are maintained throughout the WMA annually to provide non-motorized access for activities such as horseback riding and hiking.
- Picnic benches have been installed along the May's Ditch and the wood duck pond to provide day use opportunity.
- Multiple special interest groups such as bird dog clubs, etc. are issued special use permits to conduct educational and recreational functions on the WMA annually.

VI. VEGETATION

Vegetation cover types can be classified into four general categories; the shrub/steppe, irrigated, riparian, and wetland/pond cover types.

Shrub/Steppe Cover Type

This cover type is a mixture of native and introduced dryland species. The dominant species include: four-wing saltbush (*Atriplex canescens*), basin big sagebrush (*Artemisia tridentata tridentata*), spiny hopsage (*Grayia spinosa*), rabbitbrush (*Chrysothamnus* spp.), immigrant forage kochia (*Kochia prostrata*), Indian ricegrass (*Oryzopsis hymenoides*), streambank wheatgrass (*Agropyron riparium*), Sandberg bluegrass (*Poa sandbergii*), sand dropseed (*Sporobolus cryptandrus*), basin wildrye (*Leymus cinereus*), cheatgrass brome (*Bromus tectorum*), crested wheatgrass (*Agropyron cristatum*), purple aster (*Machaeranthera canescens*), penstemon (*Penstemon* spp.), and tumble mustard (*Sisymbrium altissimum*).

Irrigated Cover Type

This cover type is a mixture of perennial grasses, perennial alfalfa, annual cereal grain food plots, and tree and shrub shelterbelts. All are artificially irrigated with water rights from Niagara Springs. Irrigated grass habitats includes tall (*Agropyron elongatum*) and intermediate wheatgrass (*A. intermedium*), sand dropseed (*Sporobolus cryptandrus*), quackgrass (*A. repens*), basin wildrye (*Leymus cinereus*), and alfalfa (*Medicago savita*). Several cereal grain food plots are planted annually with corn, sorghum, triticale, wheat, and millet. The shelterbelts have a mixture of Rocky Mountain juniper (*Juniperus scopulorum*), Siberian peashrub (*Caragana arborescens*), Woods' rose (*Rosa woodsii*), Peking cotoneaster (*Cotoneaster acutifolia*), nanking cherry (*Prunus tomentosa*), silver leafed buffaloberry (*Shepherdia argentea*), and skunkbush sumac (*Rhus trilobata*).

Riparian Cover Type

The riparian zones along the river, spring seeps, and irrigation canal have a mixture of Russian olive (*Elaeagnus angustifolia*), coyote willow (*Salix exigua*), peach-leaf willow (*S. amygdaloides*), cottonwood (*Populus trichocarpa*), black locust (*Robinia pseudoacacia*), river birch (*Betula nigra*), reed canarygrass (*Phalaris arundinacea*), Woods' rose, goldenrod (*Solidago* spp.), dock (*Rumex* spp.), skunkbush sumac, golden currant (*Ribes aureum*), scouringrush (*Equisetum hyemale*), bulrush (*Scirpus* spp.), sedges (*Carex* spp.), rushes (*Juncus* spp.), and cattail. There are Lombardy poplars (*Populus nigra*) on irrigated field edges.

Wetland/Pond Cover Type

All the ponds on NSWMA are artificial and are either spring fed via an irrigation canal from Niagara Springs or from wastewater via the J-8 irrigation drain (Figure 1). The ponds are dominated by bulrush, cattails, sedges and rushes. Duck potato (*Sagittaria* spp.), bulrush, cattail, and spikerush (*Eleocharis parvula*) are also pioneering the J-8 ponds.

VII. WILDLIFE AND FISH SPECIES LIST

(*Selected Common Species; additional information available at www.idfg.idaho.gov*)

Common Name	Scientific Name	Common Name	Scientific Name
Mammals		***Birds***	
Coyote	*Canis latrans*	Cooper's Hawk	*Accipiter cooperii*
Ord's Kangaroo Rat	*Dipodomys ordii*	Northern Goshawk	*Accipiter gentilis*
Porcupine	*Erethizon dorsatum*	Sharp-shinned Hawk	*Accipiter striatus*
Sagebrush Vole	*Lemmiscus curtatus*	Western Grebe	*Aechmophorus occidentalis*
Yellow-bellied Marmot	*Marmota flaviventris*	Red-winged Blackbird	*Agelaius phoeniceus*
Striped Skunk	*Mephitis mephitis*	Northern Pintail	*Anas acuta*
Long-tailed Vole	*Microtus longicaudus*	American Widgeon	*Anas americana*
Short-tailed Weasel	*Mustela erminea*	Green-winged Teal	*Anas carolinensis*
Long-tailed Weasel	*Mustela frenata*	Northern Shoveler	*Anas clypeata*
Mink	*Mustela vison*	Cinnamon Teal	*Anas cyanoptera*
Mule Deer	*Odocoileus hemionus*	Blue-winged Teal	*Anas discors*
Muskrat	*Ondatra zibethicus*	Mallard	*Anas platyrhynchos*
Raccoon	*Procyon lotor*	Gadwall	*Anas strepera*
Fox Squirrel	*Sciurus niger*	Great Blue Heron	*Ardea herodias*
Mountain Cottontail	*Sylvilagus nuttallii*	Short-eared Owl	*Asio flammeus*
American Badger	*Taxidea taxus*	Lesser Scaup	*Aythya affinis*
Red Fox	*Vulpes vulpes*	Redhead	*Aythya americana*
Reptiles and Amphibians		Ring-necked Duck	*Aythya collaris*
Racer	*Coluber constrictor*	Canvasback	*Aythya valisineria*
Western Skink	*Eumeces skiltonianus*	American Bittern	*Botaurus lentiginosus*
Gopher Snake	*Pituophis catenifer*	Canada Goose	*Branta canadensis*
Pacific Tree Frog	*Pseudacris regilla*	Great Horned Owl	*Bubo virginianus*
Bullfrog	*Rana catesbeiana*	Common Goldeneye	*Bucephala clangula*
Western Terrestrial Garter Snake	*Thamnophis elegans*	Bufflehead	*Bucephala albeola*
Fish		Red-tailed Hawk	*Buteo jamaicensis*
Rainbow Trout	*Oncorhynchus mykiss*	Rough-legged Hawk	*Buteo lagopus*
		California Quail	*Callipepla californica*

Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
***Birds* (*cont.*)**		***Birds* (*cont.*)**	
Turkey Vulture	*Cathartes aura*	Song Sparrow	*Melospiza melodia*
Canyon Wren	*Catherpes mexicanus*	Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*	Ruddy Duck	*Oxyura jamaicensis*
American Dipper	*Cinclus mexicanus*	Osprey	*Pandion haliaetus*
Northern Harrier	*Circus cyaneus*	House Sparrow	*Passer domesticus*
Marsh Wren	*Cistothorus palustris*	Savannah Sparrow	*Passerculus sandwichensis*
Northern Flicker	*Colaptes auratus*	Gray Partridge	*Perdix perdix*
Rock Dove	*Columba livia*	Ring-necked Pheasant	*Phasianus colchicus*
American Crow	*Corvus brachyrhynchos*	Black-billed Magpie	*Pica hudsonia*
Common Raven	*Corvus corax*	Eared Grebe	*Podiceps nigricollis*
Tundra Swan	*Cygnus columbianus*	Pied-billed Grebe	*Podilymbus podiceps*
Western Flycatcher	*Empidonax difficilis*	Vesper Sparrow	*Pooecetes gramineus*
Prairie Falcon	*Falco mexicanus*	Sora	*Porzana carolina*
American Kestrel	*Falco sparverius*	Virginia Rail	*Rallus limicola*
American Coot	*Fulica americana*	Ruby-crowned Kinglet	*Regulus calendula*
Bald Eagle	*Haliaeetus leucocephalus*	Golden-crowned Kinglet	*Regulus satrapa*
Barn Swallow	*Hirundo rustica*	Bank Swallow	*Riparia riparia*
Yellow-breasted Chat	*Icteria virens*	Rock Wren	*Salpinctes obsoletus*
Dark-eyed Junco	*Junco hyemalis*	Say's Phoebe	*Sayornis saya*
Northern shrike	*Lanius excubitor*	European Starling	*Strunus vulgaris*
Loggerhead Shrike	*Lanius ludovicianus*	Western Meadow Lark	*Sturnella neglecta*
Herring Gull	*Larus argentatus*	Violet-green Swallow	*Tachycineta thalassina*
California Gull	*Larus californicus*	American Robin	*Turdus migratorius*
Ring-billed Gull	*Larus delawarensis*	Barn Owl	*Tyto alba*
Hooded Merganser	*Lophodytes cucullatus*	Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Belted Kingfisher	*Megaceryle alcyon*	Mourning Dove	*Zenaida macroura*
Western Screech Owl	*Megascops kennicottii*	White-crowned Sparrow	*Zonotrichia leucophrys*

VIII. LAND ACQUISITIONS AND AGREEMENTS

Land Acquisitions				
Year	**Funds Used**	**Segment**	**Acres**	**Acquired From**
02/23/71	Department	8 Islands	19.39	BLM
10/03/72	LWCF	Main WMA	934.59	Floyd Langford
03/27/73	None/Quit Claim	N of entry Rd	21.8	Lester A. Bornt
11/27/02	PR	Clear Lakes	88.97	Idaho Transportation Dept.

Water Rights			
Year	**Number**	**Amount**	**Primary Use**
1912	36-4020A	8.72 cfs	Irrigation, Wildlife, & Domestic
1956	36-2711	0.24 cfs	Irrigation & Domestic
1959	36-4020B	1.28 cfs	Irrigation
1983	36-4020C	8.70 cfs	Wildlife & Wildlife Storage
1972	36-7234	1.6 cfs	Irrigation
1893	36-4076	3.59 cfs	Aesthetics, Recreation, & Wildlife

IX. INFRASTRUCTURE

Building/structures
30’x40’ steel shop
6’x6’ Concrete restroom

Earth structures
7 earthen diked ponds

Water improvements
Approximately five miles of pressurized irrigation system

Roads and trails
7 miles of roads maintained by the Department
Approximately four mile of trail maintained by the Department

Fences
5 miles of 4-strand barbed wire fence

NIAGARA SPRINGS

WILDLIFE MANAGEMENT AREA PLAN

Approval

Submitted by:

Dennis Newman, Habitat Biologist

Reviewed by:

Mark Fleming, Regional Habitat Manager

H. Jerome Hansen, Regional Supervisor

Tom Hemker, State Habitat Manager

Approved by:

Virgil Moore, Director