City of Loveland
Natural Areas Sites

July 2008

In the Nature of Things:
City of Loveland
Natural Areas Sites

An update to the citizens and officials of Loveland, Colorado on the City's most significant natural areas

Cedar Creek Associates, Inc.
City of Loveland

July 2008

Acknowledgements and Credits:

The City of Loveland Open Lands Advisory Commission reviewed the location of possible sites that were not included in the original study in 1996.

The photographs were created by the consultant or the City of Loveland.

“In the Nature Of Things: Loveland’s Natural Areas, October 1996”

Contents

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Loveland's Natural Areas

The purpose of this study is to update the 1993/1996 natural areas report "*In the Nature of Things: Loveland's Natural Areas*." In the early 1990s, the City of Loveland hired Design Workshop, Inc., ERO Resources Corp., and Stoecker Ecological Consulting, Inc., to complete a study of natural areas in and around Loveland. *Natural areas* are defined as undeveloped lands containing potential natural values such as wildlife habitat, plant diversity, and wetlands. A second phase of the study became necessary after the adoption in 1994 of the Comprehensive Master Plan, which created the City's Area of Community Influence. Both phases (a total of 129 sites) were summarized in the 1996 report "*In the Nature of Things: Loveland's Natural Areas*." The information in the 1996 report has been a useful tool for planners and landowners in the development process. Open lands entities such as the City of Loveland Parks and Recreation Department Natural Areas Division, Larimer County Open Lands, and Legacy Land Trust have also used the data to help identify priority areas for preservation. This update will continue to be valuable for land-use decision makers, city planners, developers, and property owners to make informed decisions regarding urban development, open lands, and natural resource preservation and enhancement opportunities.

The main goal of this update is to gather information on sites that may have been overlooked in the original report. A secondary goal of this update is to identify sites that have been developed or preserved and label those sites as inactive. Ratings and comments for the original 129 sites and 13 new sites are contained in Table 1 and in Appendix A, and locations of all 142 sites are shown in Figure 1. Sites are numbered 1-153, but several sites were eliminated during the 1996 and 2007 phases of the report, after field review indicated that they did not have characteristics associated with natural areas, thus a total of 142 sites are included here.

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How the update was completed

Using GIS and the most currently available aerial photos, a base map was prepared showing all of the natural areas identified in the 1993/1996 report. The map indicated natural areas that have been permanently preserved through the subdivision process or by action from the Natural Areas Division or other conservation entities (e.g., Legacy Land Trust, Larimer County Open Lands). The City of Loveland Open Lands Advisory Commission and city staff reviewed the base map and recommended 15 additional areas as possible natural area sites for inclusion in this update.

Cedar Creek Associates, Inc. was contracted to evaluate the 15 potential additional sites recommended for possible inclusion. City staff contacted landowners for permission to access each site. Each landowner was informed that a site visit would be beneficial to the site assessment. If access was denied, landowners were informed that other data such as aerial photography would be used to analyze the property. This update utilized the same methodology that was used in 1993 and 1996 to analyze each site. Numerical evaluations were given to 14 attributes. The ratings ranged from low (1) to high (10) and include ratings for overall habitat quality, wetlands, animal and plant diversity, and habitat quality for songbirds, raptors, waterbirds, mammals, and herptiles (reptiles and amphibians). Enhancement potential indicates potential habitat enhancement possibilities. The following discussion presents more detailed definitions of terms used in evaluating each site.

Overall Habitat Quality – This is an overall habitat evaluation for the entire site. It is a synthesis of all the separate ratings for the site. It is not an arithmetic average of the separate ratings because the separate ratings tend to be weighted differently regarding their contribution to the overall rating. Categories which typically are weighted highest include songbirds, raptors, waterbirds and mammals. However, the degree of weighting depends on the species. For example, a nesting area for rather rare water birds might be rated higher than an area where the endangered bald eagle is only occasionally seen.

Wetland Rating – wetlands are primarily evaluated in terms of functions and values related to wildlife. As with upland habitat evaluations, the ranking reflects the structural and biological diversity of the vegetation, the size of the site, surrounding land uses, presence or absence of open water, overall habitat diversity, and relative areal extent of habitat types. The non-wildlife functions and values of wetlands are discussed in the comment sections, but are not reflected in the numeric rankings.

Animal and Plant Diversity – Diversity, for both animals and plants, refers to the number of different species on the site. This type of diversity is often termed "richness." The comment section is used as needed to discuss other kinds of biological diversity (e.g., clumped vegetation, vertical structure in a riparian forest, edge effects, and so on).

Ratings for the Wildlife Species Groups – Songbirds, Raptors (birds of prey), Waterbirds, Mammals, Herptiles (amphibians and reptiles), Other Wildlife (upland game birds, fish, insects) are given ratings based on the existing habitat quality; specifically, the potential of the habitat to support that species group. A rating of 1 or 2 means the existing habitat quality is very low. A rating of 10 would indicate the highest quality of wildlife habitat that could be expected to occur in areas of similar vegetation and topography within the region. The size of the area is factored into the rating as well. A very small area will be rated lower than a larger area having the same habitat quality. The quality ratings do not imply current wildlife population levels. The rationale for emphasizing habitat quality rather than numbers of animals is that animal numbers are typically more variable over time than quality of habitat.

Enhancement Potential – This category is used for notations regarding potentially feasible habitat enhancement possibilities. A rating scale of 1 to 10 is not used, but simply the notations Low, Medium, or High. Enhancement suggestions are made in the comment section without regard to financial feasibility, property ownership, water rights, etc.

Sites included in the 1996 report were not re-analyzed; data on these sites, including ratings, comments, and enhancement potential, remain the same and are included in this report. Characteristics of some natural areas may have changed over the years, but including the original data provides the baseline condition at the time of evaluation.

Natural areas that have been developed and no longer contain natural features are indicated as "inactive" and their status is noted with a "D" in Table 1. In addition, natural area sites that have been preserved are also listed as "inactive" and are noted with a "P." Natural areas that have been partially preserved and partially developed are indicated as "inactive" and noted with a "D, P."

Two of the 15 potential new sites were eliminated after field review indicated they did not have characteristics associated with natural areas.

The City of Loveland Department of Development Services protects natural areas as defined in the *Loveland Comprehensive Plan* and environmentally sensitive areas as defined in the *Loveland Municipal Code*. The Current Planning Division of Development Services requires, at the time of development, the preparation of an Environmentally Sensitive Areas Report to determine the *current* overall habitat quality (rating) of environmentally sensitive areas and natural areas, assess the potential impacts of development, and recommend appropriate protection and mitigation measures. The Building Division of Development Services may issue a grading permit only if: 1) the

grading is associated with an active development application in the City's current planning review process, or 2) the grading will not disturb any natural areas or environmentally sensitive areas.

The City and Cedar Creek Associates jointly prepared the text, tables and maps for this update. This report will be reviewed by the Natural Areas staff, Parks and Recreation Director, Planning staff and the City of Loveland Open Lands Advisory Commission. Upon approval of the report by the Open Lands Advisory Commission and the Parks and Recreation Director, it will be recommended for adoption as part of the update of the city's *Comprehensive Plan* in 2008.

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Overall Results

The following table summarizes the information from the 1996 report and also includes data for the 13 additional sites added to the inventory in 2007. The table includes numerical ratings for each attribute and an indication of enhancement potential for each site. The table also indicates whether a site is now considered "inactive" due to development or preservation subsequent to the 1996 report. Figure 1 depicts the location of all 142 sites. Appendix A includes more detailed comments on each site, including its general location, a description of natural area attributes, and enhancement suggestions. As may be expected, many of the natural areas are found along the Big Thompson River and around many of the area's lakes, as well as throughout major drainages and along the prominent ridgetop west of the city and north of US 34. These areas also tend to coincide with priority areas identified for preservation in the City of Loveland 2003 *Open Lands Plan*. It is anticipated that these natural areas will continue to be priorities for acquisition and preservation on a willing-seller basis.

-Click for Table 1 here-

-Click for Figure 1 (11 x 17 map) here-

Appendix A

Detailed Site Comments

1993 COMMENTS (SITES 1-95*)

SITE 1 - HOUTS LAKE
Site 1 is Houts Lake. It is a large open water body surrounded by active agricultural lands. Trees and shrubs are generally lacking. A fringe of wetland vegetation is present along the northwest shoreline. The large amount of open water is valuable to waterfowl, especially as resting habitat for migrating species. A portion of the adjacent agricultural lands appears to be inundated, which would provide feeding habitat for shorebirds as well as waterfowl. The agricultural lands themselves provide feeding habitat for waterfowl using the lake. The DOW notes that ducks and geese rest on the lake and feed extensively in nearby fields. The lack of significant emergent wetland vegetation limits the lake's potential for water-qua1ity improvement. The creation of large wetland areas would improve this function. This may be an important enhancement suggestion for the long-term health of the aquatic ecosystem, as it appears that runoff from the agricultural lands enters the lake and may overload it with nutrients over time. The addition of shrubs and trees around the lake would increase songbird and raptor habitat.

SITE 2 - EQUALIZER LAKE
Site 2 is Equalizer Lake. It is a large water body north of Hwy. 34, west of I-25. Several large wetland areas are present, as are scattered medium to large trees, some with dead snags. Included in the site are adjacent grassy fields supporting prairie dogs. The large amount of open water in combination with the large wetland areas provides exceptionally good waterfowl habitat for both migrating and resident species. The DOW notes that the lake receives heavy use by waterfowl that rest on the lake and feed in adjacent fields. Additionally, shore1ines that are exposed during drawdown provide suitable habitat for shorebirds. The large trees on site provide good raptor perches and moderately good songbird habitat, which could be improved with the addition of a shrub canopy. The DOW notes that raptors frequently use the large trees in the area. The wetlands provide only minor water qua1ity improvement benefits, as they are relatively small in comparison to the large amount of open water and large agricultural land area that may be contributing runoff. The creation of additional herbaceous and shrub-dominated wetlands would greatly benefit a variety of both upland and wetland wildlife and improve the water quality function. The creation of a densely vegetated island in the open water would improve duck nesting habitat while discouraging goose nesting. The island would also create additional surface area for wetland creation. Songbird habitat could be provided if the island is planted with shrubs. The prairie dog colony in the adjacent grassy fields provides a prey base for raptors. The preservation of dead trees and snags will maintain the existing raptor perch sites. Additionally, the preservation of downed limbs, etc. will provide cover and nesting habitat for small and medium-sized mammals. The small shrubs scattered throughout the site provide this function

currently. The prairie dogs on this site should be preserved, as they provide a significant prey base. Russian olive trees should not be allowed t o invade the site and upland weeds such as thistle should be controlled in a manner that is not harmful to the aquatic environment. The site also appears to be used as a dumping area for waste cement. These piles may be providing nesting and cover habitat for small mammals. However, many other species would benefit if the trash was removed and replaced with native shrubs.

SITE 3 - BIG THOMPSON RIVER NEAR I-25

Site 3 is a moderately impacted stretch of the Big Thompson River. It is bordered by the Big Thompson Ponds State Wildlife Area on the south and by active agricultural lands on the north. The northern shore appears to be impacted by grazing. Pasture grasses dominate the herbaceous under story and a shrub canopy is generally lacking. Large trees are present, however, and provide suitable songbird habitat and perches for raptors. The DOW notes that bald eagles are present in the winter. Small Russian olive trees are present as well. These should be removed, and their re-establishment prohibited. Aside from the cattail marsh at the east end of the site, wetlands within the river are generally lacking. This stretch of the river is slow-moving and would be well suited to wetland re-establishment along the river banks. Additional enhancement suggestions include restricting grazing along the north shore, planting a diversity of native trees and shrubs along both sides of the river, and re-establishing native grasses and forbs in the understory.

SITE 4 - BIG THOMPSON PONDS

Site 4 consists of several old gravel ponds that comprise the Big Thompson Ponds State Wildlife Area. Most of the ponds have steep side slopes with only narrow wetland 1ittoral zones, if any. Algae is prevalent in some of the lakes. The value of the site to wildlife reflects the presence of the ponds and the proximity of the site to the Big Thompson River. Wildlife using the river corridor will also use the ponds. Waterfowl will be attracted to the open water and some species such as mallards and blue-winged teal likely nest in the area. The creation of additional wetlands will benefit the aquatic environment and may help t o improve water quality. Noxious species such as Russian olive and Canada thistle should be controlled. The DOW notes that bald eagles are seen in this area in the winter. The lakes also provide a public fishing area for bass, catfish and bluegi1l.

SITE 5 - GRAVEL PONDS E. OF I-25

Site 5 consists of gravel ponds and adjacent uplands dominated primarily by weedy species and pasture grasses. For the most part, the ponds have steep side slopes and are lacking 1ittoral zones. Trees and shrubs adjacent to the open water areas are also generally lacking. These ponds provide a large amount of open water among large tracts of agricultural lands and grassy fields. The aquatic and wetland diversity benefits wildlife greatly in an otherwise agricultural setting. The enhancement potential of these ponds is high. They are well suited to wetland creation that would increase waterfowl, songbird, mammal, and fisheries values. Shorelines could be reconfigured to have an undulating appearance which would provide additional surface area for wetland plants. Also, the addition of trees and shrubs near the open water would improve wildlife habitat.

SITE 6 - FIELDS AND WETLANDS E. OF CR 9E

Site 6 contains pastures, open water stock ponds and associated wetlands. The site is lacking significant trees and shrubs. It is surrounded by active agricultural lands and is bordered by Site 7 to the south. Enhancement suggestions include adding a diversity of upland trees and shrubs adjacent to the stock ponds. Additionally, the slopes of the ponds could be laid back to facilitate

wetland development and to reduce erosion. Impacts to shore1ine wetland vegetation can be reduced by control1ing grazing.

SITE 7 - PASTURE AT CR 9E AND CR 20C
Site 7 is a large grass/forb meadow supporting a small open water area and mesic wetland drainage. The site is bordered by the large grassy areas of Site 9, the ponds of Site 5 and the grass/forb areas and wetlands of Site 6. Site 7 provides good small mammal habitat and is 1ikely used heavily by raptors, fox, and other predators. The DOW notes that raptors frequently use this area. The wetland has moderate water qua1ity improvement potential. The enhancement rating of this site is high. One important action that should be implemented is the removal of the invading Russian olive trees and Canada thistle. These species will soon overtake the entire area if left unchecked. The control of noxious weeds and establishment of native trees and shrubs can make this a very valuable wildlife area. Additional areas of open water would increase the wetland rating and provide better waterfowl habitat.

SITE 8 - PASTURE N. OF BIG THOMPSON RIVER/E. OF CR 9E
Site 8 consists of an actively grazed pasture with scattered trees and a small wetland swale. The pasture appears to be heavily grazed. Weedy species such as thistle and Russian olive appear to be encroaching as well. The wetland swale is dominated by bulrush. The site received a low habitat rating because of its small size and lack of structural plant diversity. However, the wetland is 1ikely of some value to waterfowl and to small mammals. The site has a high enhancement potential due to its location near the river and adjacent open water areas. The site could be restored to native grasses and shrubs which would provide valuable upland habitat for many wildlife species. Currently its value to wildlife could be improved by controlling noxious weeds and reducing grazing. The site could function as a valuable upland component of the Big Thompson corridor if a diverse shrub and tree canopy was created and native grasses established.

SITE 9 - ABANDONED SUGAR PLANT PONDS
Site 9 is a large site near the Big Thompson River that is surrounded by a variety of habitat types including open water, wetlands and grasslands. The site could be improved by re-establishing native grasses, trees and shrubs and creating sheltered movement corridors to the river and adjacent habitats. The addition of open water and/or wetland habitat would increase overall habitat values. Additionally, the DOW notes that ferruginous hawks and harriers are common on this site.

SITE 10 - POND ADJACENT TO BIG THOMPSON RIVER
Site 10 is a large pond located adjacent to the Big Thompson River. It is surrounded by actively grazed pasture. The banks of the pond are fairly steep and lack significant wetland vegetation. Trees are scarce except for scattered Russian olives. The enhancement rating of the site is medium. Side slopes could be reduced and wetland vegetation established. Russian olive trees should be removed, and their re-establishment prohibited. A diversity of native trees and shrubs should be planted to increase songbird and raptor habitat. Livestock grazing should be reduced and native herbaceous vegetation established on the side slopes and adjacent uplands. This pond is also functioning as part o f the Big Thompson corridor. Uplands between the pond and river are heavily impacted by livestock. To improve the overall wildlife value of the area and particularly the corridor values, an understory of native grasses and shrubs should be established. The DOW notes that bald eagles and several hawk species have been observed in the pond area.

SITE 11 - BIG THOMPSON RIVER N. OF HERON DRIVE
Site 11 is a narrow stretch of the Big Thompson River that has been heavily impacted by adjacent agricultural land uses, particularly grazing. The impacts of past and current grazing are evident.

Most of the herbaceous understory has been closely grazed, and weedy noxious species such as thistle are invading. Russian olive trees are also present. In some areas, unvegetated river banks are eroding severely. Many large trees are present in this stretch. The control or elimination of grazing would improve the understory greatly. Additionally, streambanks should be stabilized, native vegetation re-established and noxious species eradicated. The establishment of a thick , shrubby understory would significantly improve songbird and small mammal habitat, particularly cover and nesting habitat.

SITE 12 - BIG THOMPSON RIVER E. OF CR 9E

Site 12 is the Big Thompson River east of CR 9E. The north river bank supports a fairly continuous tree canopy with a shrub understory. Narrow fringes of emergent wetland vegetation are present in some areas. The tree and shrub canopy provide very good songbird habitat. Raptors will also use the large trees. The continuous cover of the north bank enhances the wildlife movement function of the river corridor. The enhancement rating of the site is medium. A diversity of trees and shrubs should be established on the south bank, to add additional wildlife habitat and enhance the corridor function. Russian olive trees should be eradicated and their reintroduction prohibited. Emergent wetlands should be created along the river banks where possible. Dead trees and snags should be preserved throughout this section to provide additional raptor perches, habitat for cavity nesting species and insects for songbirds.

SITE 13 - WETLAND E. OF CR 9E, N. OF HWY 402

Site 13 contains a cattail-dominated drainage and open water area surrounded by active agricultural lands, principally pastures. Several Russian olive trees are adjacent to the pond and in the pasture. The site is currently grazed. The wetland received a low rating for wildlife due to the monoculture of cattails and lack of shrubs and trees. However, it appears that the drainage receives runoff from the adjacent pastures and, as such, is 1ikely providing water qua1ity improvement to a high degree. The wetland also appears to trap sediment and may also attenuate flood flows. Some areas of cattails appear to be dying out. In these areas and throughout the drainage, cattails should be thinned. Additional enhancement suggestions include establishing a diversity of trees and shrubs along the drainage and pond. This will provide songbird and small mammal habitat. In time, larger trees will provide nesting habitat for many bird species.

SITE 14 - UPLANDS/WETLANDS E. OF CR 9E

Site 14 contains a diversity of grasses and forbs. It also contains several large trees which, in combination with adjacent grass/forb areas, create a good hunting area for raptors. Some of the forested areas contain a dense shrub understory which provides good overall songbird habitat and cover habitat for mammals. The wetlands on site consist, primarily, of a cattail drainage. Although the monoculture of cattails is rated low in regard to wildlife habitat, cattail stands have moderate to high potential for water quality improvement. This site contains a diversity of plant species as well as structural diversity that is not found in surrounding agricultural lands or adjacent sites. Consequently, the site 1ikely functions in part as a wildlife movement corridor.

SITE 15 - WETLAND ADJACENT TO CR 9E

Site 15 is a wetland supporting a diversity of herbaceous species including cattails, rushes, sedges, grasses and forbs. The site was given a low rating in terms of its value to wildlife due, primarily, to its small size and lack of structural plant diversity. Nonetheless, the wetland has high potential to provide water qua1ity improvement due to the presence of dense herbaceous vegetation and a shallow slope that allows sufficient retention time. This wetland also adds diversity to adjacent upland and open water habitats found in sites 9, 14 and 16.

SITE 16 - GRAVEL PONDS NEAR CR 9E

Site 16 contains five ponds located adjacent to CR 9E. Two of the ponds are included in the Simpson Ponds State Wildlife Area. Large grassy berms separate some of the ponds. Wetland 1ittoral zones are generally lacking, as the pond side slopes are typically steep. Adjacent upland vegetation is lacking around some ponds and is dominated by Russian olive trees near others. The site is rated high for enhancement because the large open water areas are in close proximity to the Big Thompson River and can be enhanced to function as part of the river corridor. Current wildlife use of the ponds is affected by high human recreational use and adjacent urban development (mining) activities. In regard to human use, the DOW notes that that area has recently been closed to vehicles and recreation will be walk-in only. The aquatic environment can be greatly improved on this site with the creation of emergent wetlands. Shorelines should be reconfigured to produce additional areas for wetland creation. Both herbaceous and shrub-dominated wetlands should be created. The wetlands will increase the water quality improvement function of the ponds as well as provide suitable fish habitat. The DOW notes that the ponds currently support bass, bluegill and catfish. Russian olives should be eradicated from the area and replaced with native trees and shrubs, which will improve songbird habitat. The addition of shrubs in selected shoreline areas will also function as a buffer to nearby human activities. The DOW notes that many areas under their control will be revegetated in 1994.

SITE 17 - PONDS W. OF CR 9E, N. OF RIVER

Site 17 is part of the Simpson Ponds State Wildlife Area. The Big Thompson River is immediately to the south and additional ponds in Site 16 border the site to the north. Active mining is occurring at the west end of the site. Scattered small trees are present. Aside from a fairly good-sized cattail marsh near the western end of the site, littoral zone wetlands are lacking. The grassy berms that divide the ponds create a diversity of habitat types by providing upland habitat within an aquatic system. The site has a medium enhancement rating. The creation of additional wetlands, the planting of additional native trees and shrubs and the control of Russian olive trees would greatly improve the overall wildlife value of the site. The DOW notes that areas under their control will be revegetated in 1994. The site is functioning as part of the river corridor. However, a dirt road that provides access to the mining operation separates the site from the river and may discourage some wildlife interaction. Additionally, the ponds serve as a buffer to the river from future urban development.

SITE 18 - POND AND WETLAND S. OF CR 20

Site 18 contains a small open water area with a wide cattail fringe surrounded by scattered large trees. The site is surrounded by active agricultural lands. Runoff from these lands appears to enter the wetland. The large cattail fringe will contribute to water quality improvement of the runoff. Additional wetlands should be created where possible. The large trees provide good songbird habitat and perches for raptors that likely hunt the adjacent fields. The sheltered nature of the pond provides attractive waterfowl habitat and the cattail fringe provides nesting habitat for many species. Adjacent uplands appear somewhat weedy. The weeds should be controlled using methods that will not harm the aquatic system. Additionally, any Russian olive trees should be removed from the area and replaced with native trees and shrubs. Dead snags and trees should be allowed to remain on the site to provide habitat for raptors and cavity nesting songbirds.

SITE 19 - BIG THOMPSON RIVER W. OF CR 9E

Site 19, although narrow, has a fairly good tree canopy and generally dense ground cover. The most outstanding aspect of this section of the river is the large amount of cattail marsh present along the river banks. These areas are important to waterfowl and create a diversity of habitats for aquatic insects and fish. Adjacent ponds buffer this narrow stretch from other land uses. In areas where ponds are lacking, the riparian zone should be expanded where possible by planting

additional trees and shrubs. Russian olive trees should be eradicated and their reintroduction prohibited.

SITE 20 - STOCK POND E. OF CR 9E

Site 20 consists of a stock pond. It was included in the study because of its location near the river. The shoreline lacks vegetation and adjacent areas appear to be impacted by grazing. Surface feeding ducks will use the pond occasionally, but otherwise, the site is of minimal value to wildlife. The enhancement rating is medium. The creation of a wetland littoral zone and the addition of shrubs and native grasses on adjacent uplands would greatly increase the overall wildlife value of the site. With the creation of a vegetated connection to the river, the pond has potential to enhance the corridor value of the river by adding to the diversity of open water habitats.

SITE 21 - WEEDY FIELD ADJ. TO BIG THOMPSON RIVER

Site 21 is a weedy field supporting a large diversity of herbaceous plant species. Unfortunately, the tree canopy is dominated by Russian olive trees. Regardless, the thick understory and small trees provide good songbird habitat, cover, nesting and feeding habitat for small mammals and cover for larger mammals. Its location near the river increases the site's overall rating and enhancement rating. Enhancement suggestions include removing the Russian olives and establishing a diversity of native trees and shrubs. Weedy herbaceous species such as thistle should also be controlled. Trash and abandoned structures could be removed. The wetlands on the site consist of drainage swales supporting a fair diversity of wetland plant species. No specific enhancement suggestions are offered other than maintaining the supporting hydrology.

SITE 22 - GRAVEL PONDS N. OF 18TH ST.

Site 22 contains four open water areas divided by vegetated berms. A few large trees are scattered throughout the site. Several Russian olive trees surround the small pond at the western end of the site. Emergent wetlands exist along some parts of the pond shorelines. A small island is located in the largest lake. The ponds have high potential for additional wetland creation. Emergent wetland vegetation should be established wherever possible. Adjacent uplands should be planted with native grasses and forbs. Russian olive trees should be eradicated and replaced with native trees and shrubs. The island should be planted with native shrubs and herbaceous species to encourage duck nesting but discourage goose nesting. Weedy species such as thistle should be carefully controlled in the upland areas that project into the open water. The site functions as part of the Big Thompson corridor and provides a buffer to the river, which is narrow in this location.

SITE 23 - BIG THOMPSON RIVER E. OF BOISE

Site 23 is a fairly narrow section of the Big Thompson River, east of Boise Ave., near the Loveland Wastewater Treatment Plant. The riparian area supports a diversity of tree and shrub species. Additionally, a cattail-dominated marsh is located near the treatment plant. The diversity of habitat types at this site is increased by the presence of an outflow channel from the treatment plant that supports wetland species. The river channel itself supports areas of emergent wetland vegetation as well as islands dominated by upland or mesic wetland vegetation. The diversity of trees and shrubs combined with open grass/forb areas provides very good songbird habitat. The presence of islands in the river channel creates suitable waterfowl habitat and creates a diversity of habitats for aquatic species. The enhancement rating of this site is medium. Additional wetlands should be created in the river channel where possible. Steep, unvegetated side slopes should be stabilized by planting native herbaceous and shrub species. Russian olive trees should be eradicated and their reintroduction prohibited. Where possible, the riparian area should be widened and buffered from future urban land uses.

SITE 24 - BIG THOMPSON RIVER W. OF BOISE AVE.
Site 24 is an unusual section of the Big Thompson River. It contains a large grassy/weedy disturbed field on the large inside bend of the river. This field formerly supported riparian vegetation. It currently contains several large trees and a small wetland drainage. A shrub canopy is lacking and new tree growth is not evident. However, the site is apparently used heavily by the public as a recreation area. Several informal motorcycle/4wd dirt trails are evident, some extending into the river itself. The area also appears to be used as a dumping ground for trash, old tires, appliances, etc. Upstream of the field, the riparian vegetation is much healthier, supporting a shrub canopy and a diversity of herbaceous understory vegetation. However, Russian olive trees are also present in this area. The river itself contains several large point bars that support both upland and wetland vegetation. These areas are important waterfowl resting habitat and potential breeding areas. Nearby open water in Site 27 adds to the habitat diversity of the river corridor, which benefits a wide variety of wildlife. Enhancement suggestions include removing the Russian olive trees and replacing them with native trees and shrubs. Further, their re-establishment should be control1ed. The greatest enhancement potential of the site lies in the large, impacted field. If restored, this site could be an important river riparian area, as large tracts of riparian vegetation are generally lacking in the river corridor. Public use should be restricted, trash should be removed, and trails revegetated with native upland vegetation. Riparian trees, shrubs and herbaceous vegetation should be re-established. Sections of impacted river bank should be stablilized and planted with wetland vegetation.

SITE 25 - DRAINAGE E. OF ST. LOUIS AVE.
Site 25 is a cattail and bulrush dominated drainage surrounded by agricultural lands. Small open water areas are present in the drainage. Although small, the site provides good waterfowl breeding habitat. The adjacent agricultural lands are 1ikely used by waterfowl as well. Although given a moderate rating as wildlife habitat, the wetland likely provides water quality improvement to a high or very high degree. The enhancement potential of this site is low. It is currently providing the functions and values expected of such a wetland. The DOW notes that this drainage is slow to freeze in the winter and, thus, is frequently used by ducks well into December.

SITE 26 - FIELD AT 14TH ST. SW AND LINCOLN AVE.
Site 26 interacts with the Big Thompson River, but does not contribute greatly to the corridor function of the river. The monoculture of smooth brome grass in the under story and the dominance of Russian olive trees detracts from the site's wildlife value. The small size of the site further limits its value to wildlife and lowers its enhancement potential.

SITE 27 - POND AND FIELD E. OF ST. LOUIS AVE.
Site 27 contains two open water areas, a large lake and a small pond. Scattered shrubs are adjacent to both areas. The lake has a small amount of emergent wetland vegetation. Adjacent to the lake is a weedy field that appears to have been historically (currently?) cultivated. Field bindweed is present as are other forbs and grasses. The site received a low overall rating and low component ratings because of the lack of vegetative and structural diversity. However, its proximity to the Big Thompson River makes it an important open water area. The addition of shrubs and trees as well as the creation of wetlands within the ponds would significantly increase wildlife habitat values. The site is currently contributing to a corridor function and adds to the overall diversity of the Big Thompson River. Over time, it may serve as a buffer to the river if urban development expands in the area. With enhancement, it could provide significant habitat values for both upland and wetland species.

SITE 28 - POND NEAR RIVER AND ST. LOUIS AVE.

Site 28 contains a large open water area surrounded by medium to large trees, mostly Russian olives. A moderately wide cattail fringe is present, as is a fairly large willow stand. In some areas, adjacent urban development has resulted in the shoreline being cleared to facilitate recreation. Additionally, in a few areas, wetland species have been cleared and landscape grasses planted to the water's edge. The dense tree and shrub cover provides very good songbird habitat and cover for small mammals. Additionally, the large amount of water and the wetland fringe are beneficial to waterfowl. The wetland fringe also provides water quality improvement to a limited degree. However, in addition to providing very few wildlife habitat values, the adjacent residential development likely contributes runoff containing fertilizer, pesticides and herbicides, especially from the landscaped areas that extend to the water's edge. This can overload the aquatic system over time and/or .have an immediate effect, depending on what chemicals are entering the system. The creation of additional wetlands would improve this situation. All Russian olive trees near the site should be removed. They should be replaced with native trees and shrubs. On-going monitoring of the site should occur to ensure that this species does not reoccur. This site can contribute to the corridor function of the river if a shrub canopy is created between the open water and the river's riparian vegetation.

SITE 29 - BIG THOMPSON RIVER AT LINCOLN AVE.

Site 29 is a moderately impacted stretch of the Big Thompson River. The riparian area supports a diversity of large trees with a dense understory of shrubs in most places. The riparian vegetation has been encroached upon by various disturbances including industrial development and old car storage. Although narrow, the riparian area functions as a wildlife movement corridor. This function would be greatly enhanced if the riparian zone was widened and human encroachment reduced. Nearby open water areas could be incorporated into the corridor to provide an additional diversity of habitat types. The river banks are generally steep and lack significant wetlands. Some small "islands" and point bars support mesic wetland vegetation. These vegetated areas can provide resting and nesting habitat for waterfowl.

SITE 30 - BIG THOMPSON RIVER NEAR FAIRGROUNDS

Site 30 is a very narrow section of the Big Thompson River. Adjacent non-residential land uses as well as dense tree and shrub canopies contribute to the moderate overall rating. This section of the river maintains a wildlife movement corridor function, primarily for songbirds and small mammals. However, the narrowness of the riparian vegetation makes it a poor corridor for larger mammals such as deer. Adjacent land uses limit the enhancement potential. In any location possible, the width of the riparian zone should be expanded and additional dense shrub buffers should be planted. Russian olive trees should be eliminated and replaced with native trees and shrubs. Marginal mesic wetland vegetation currently exists in the channel. The creation of additional littoral wetlands or wetland-dominated islands and point bars should be considered.

SITE 31 - WETLAND NEAR FAIRGROUNDS

Site 31 contains a wetland drainage supporting cattails and a diversity of grasses, sedges and rushes. The wetland swale is bordered primarily by Russian olive trees, although large willows are present. The east end of the swale contains a very small open water area. The site is rated high for songbirds because of the large number of closely-spaced trees and dense canopy cover. The moderate wetland rating reflects the site's small size and its resulting value to wildlife as cover, feeding and nesting habitat. Additionally, the site has good potential for water qua1ity improvement, flood attenuation and sediment trapping. Enhancement suggestions include removal and continued control of Russian olive trees. Once the olives are removed, native trees and shrubs should be planted.

SITE 32 - PONDS W. OF LINCOLN AVE., S. OF BIG THOMPSON RIVER
Site 32 consists of a large lake supporting a fringe of cattails, and a small adjacent pond lacking significant wetland vegetation. The adjacent uplands are mostly weedy. The value of this site is increased by its proximity to the Big Thompson River. Wildlife using the river will also use the nearby open water. The site provides a large open water body for waterfowl. The narrow fringe of cattails also provides breeding habitat for waterfowl and amphibians. The potential for the lake to provide water quality benefits is limited, however, because the cattail fringe is narrow. The enhancement potential for this site is medium. It is currently providing habitat values to a limited degree. However, the addition of native trees and shrubs along the shoreline, particularly between the lake and the river, would greatly improve songbird and small mammal habitat. Additionally, the shorelines could be reconfigured to provide greater surface area for wetland plants. The addition of a small, densely vegetated island would provide cover and nesting habitat for ducks and other waterbirds. Weedy upland vegetation should be controlled and bank erosion minimized by establishing a grass/forb ground cover.

SITE 33 - DRAINAGE E. OF RAILROAD, S. OF 14TH ST. SE
Site 33 is a mesic wetland drainage with a small pond. Grass/forb fields are immediately adjacent to the drainage and are also included in the site. The pond is bordered by small Russian olive trees that should be eliminated. Native trees and shrubs should be established along the drainage to create cover habitat for small mammals and songbirds. This site may be important to wetland-dependent wildlife, as wetlands are scarce in the immediate area. As urban development encroaches, the viability of this site as wildlife habitat will be enhanced if it is incorporated into a greenbelt.

SITE 34 - CATTAIL MARSH AT 16TH ST. SW
Site 34 contains a cattail drainage surrounded by a field of various grasses and forbs. The low enhancement rating reflects the site's small size and low overall potential benefit to wildlife if the site was enhanced. No specific enhancement suggestions are offered for this site other than weed control and perhaps thinning of the cattails. The cattail drainage on this site has moderate potential to provide water quality benefits by retaining runoff from adjacent developments and agricultural fields.

SITE 35 - MEADOW W. OF TAFT N. OF 16TH ST. SW
Site 35 consists of a mesic wetland meadow supporting a diversity of herbaceous plant species such as foxtail barley, cattails and common three square bulrush. The meadow makes a gradual transition to adjacent grassy areas and agricultural lands. A drainage channel appears to have been recently created through the site. The wetland is rated low in regard to wildlife habitat. However, depending upon the site's hydrology, the wetland has high potential for water quality improvement, as it appears to receive and retain runoff from adjacent fields. The wetland also provides a mesic wetland component that is generally missing in the nearby large lakes. Wildlife using the open water will also use this wetland.

SITE 36 - RYAN GULCH LAKE
Site 36 is Ryan Gulch Lake. It is a large water body with shallow slopes that generally lack significant wetland vegetation. Pasture grasses extend to the shoreline in most places. The inundated grasses and exposed mudflats provide good feeding habitat for shorebirds. The large amount of open water provides good waterfowl habitat, particularly for migrating species. Whereas it appears that runoff from adjacent agricultural lands enters the lake, emergent wetlands should be established to increase the water quality improvement potential of the lake. Additionally, Russian olive trees should be removed and replaced with native trees and shrubs. The establishment of trees next to the water would benefit many bird species. A number of

interesting wildlife species have been identified here by local residents. Some of the more unusual or rare species include the American white pelican, bald eagle, and ferruginous hawk.

SITE 37 - SWALE SW OF TAFT AVE. AND 14TH ST. SE

Site 37 consists of an open water/wetland drainage, adjacent pastures and a prairie dog colony. Large trees are scattered along the drainage. The wetland drainage is narrow but supports a fair diversity of herbaceous wetland plant species adjacent to the water. The presence of the drainage increases the habitat diversity of the general area. The narrow band of wetland species provides limited water quality improvement. It is likely, however, that active pastures adjacent to the drainage contribute nutrients in excess of what the wetland is capable of utilizing. Enhancement suggestions include increasing the amount of wetland area. The large trees on site provide very good hunting perches for raptors that likely utilize the prairie dog colony as a prey source. The trees also provide songbird habitat. Additional trees and shrubs would increase the wildlife value of the site. The DOW notes that foxes are actively denning in this area and that bald eagles and ferruginous hawks are frequently seen.

SITE 38 - GRASSY FIELD E. OF TAFT AVE.

Site 38 contains a large tract of rolling prairie, possibly supporting remnant short-grass prairie species. A wetland drainage traverses the site. Large open water areas of Site 40 lie immediately to the north. The site does not appear to be actively grazed, although it is likely that it was grazed in the past. This site contains a diversity of upland and wetland habitats that would be very valuable to wildlife if it were located away from urban development. Presently, the site has a high plant diversity and provides moderately valuable habitat for raptors, songbirds, mammals and reptiles and amphibians. If a buffered connection is maintained between this site and the open water and river riparian area to the north, its value to wildlife will be maintained when urban development encroaches. Particularly, the deep drainage channel provides a movement corridor through the site and adjacent areas. The DOW notes that foxes are actively denning in the area. Enhancement suggestions include controlling erosion in the drainage channel, re-establishing native grass and shrub species and controlling thistle and Russian olives.

SITE 39 - CATTAIL DRAINAGE W. OF TAFT AVE.

Site 39 consists of a cattail/bulrush drainage bordered by roadways on the east, west and north and pasture/prairie dog fields on the south. Plant diversity in the wetland area is fairly good. However, the overall value of the site to wildlife is low. This is due to the site's small size and adjacent roads and residential development. The low enhancement rating reflects the low potential benefit to wildlife that would be gained even if enhancement suggestions were implemented. Enhancement suggestions include establishing a shrub buffer between the natural area and adjacent development, and maintaining the hydrology necessary to sustain the wetland area. Although the wetland received a low rating in regard to its value to wildlife, it may be performing water quality improvement to a moderate or high degree. Runoff from the adjacent fields is likely detained sufficiently in the wetland to trap sediments and allow direct utilization of nutrients by wetland plants.

SITE 40 - PONDS BETWEEN RAILROAD AND TAFT AVE.

Site 40 contains seven ponds located between Wilson Ave. and the railroad. It is adjacent to the river and contributes to the river's corridor function. The lakes generally lack significant littoral zones. The high enhancement potential refers to the wetland creation potential of the lakes. The shorelines should be reconfigured to provide additional surface area for wetland creation and a diversity of herbaceous wetland plants and wetland shrubs should be established. If possible, small islands should be constructed in the western lakes, similar to those in the eastern lakes. These should be planted with dense herbaceous vegetation and/or shrubs to discourage goose

nesting. Native trees, shrubs and grasses should be planted on adjacent uplands. A dense cover of shrubs and/or trees should be created between the lakes and the river to facilitate wildlife movement.

SITE 41 - FIELD N. OF BIG THOMPSON RIVER, E. OF RAILROAD

Site 41 contains a diverse grass/forb understory and a scattered canopy of small trees and shrubs. An irrigation ditch traverses the site. The north side of the site supports a cattail drainage and the southern boundary of the site is adjacent to the Big Thompson River. The grasses and forbs provide good habitat for small mammals which serve as a food base for raptors. The irrigation ditch has steep banks that preclude significant wetland development. The ditch currently provides resting habitat for Canada geese and other waterfowl. Portions of the steep ditch banks are unvegetated, which results in added sediment to the aquatic system. The wetlands are dominated by cattails, which are situated on a gently sloping hillside on the north side of the site. As such, the potential for water quality improvement, flood attenuation and sediment trapping is low. The enhancement rating of the site is low due to its small size and close proximity to residential development. However, the site is adjacent to the river and probably serves as a buffer between the riparian area and adjacent development. This may be the most important function of the site, as the river riparian area is very narrow at this location.

SITE 42 - BIG THOMPSON RIVER W. OF RAILROAD

Site 42 is a fairly narrow section of the Big Thompson River immediately west of the railroad. It supports a fairly continuous tree canopy with shrub understory on the north river bank. A pedestrian path follows the south bank, which is generally lacking trees. Very narrow bands of mesic wetland vegetation are present in some areas. The continuous tree and shrub canopy of the north bank provides very good songbird habitat. This function would be enhanced with the addition of similar vegetation on the south bank. Large trees in this stretch of the river provide good raptor habitat. Additionally, steep side slopes should be stabilized with wetland shrubs to reduce erosion. Narrow areas of the corridor not buffered from adjacent development by other natural areas should be planted with a shrub and tree buffer to provide additional wildlife habitat and enhance the corridor function.

SITE 43 - BIG THOMPSON RIVER E. OF TAFT AVE.

Site 43 is a narrow stretch of the Big Thompson River. The riparian vegetation has been affected by nearby developments including active agriculture and urban park development. A pedestrian path lies immediately to the south of the river and landscape grasses encroach into former riparian areas. Large trees are present, however, and provide suitable songbird habitat and raptor nest sites and perches. Although the banks are steep in most places, small patches of wetland exist along the shoreline. These include both cattail and willow-dominated areas. The creation of additional wetland areas would further benefit the aquatic system as well as waterfowl and mammal habitat. Encroaching development has greatly reduced the potential of this stretch of the river as a wildlife movement corridor. Continuous, dense understory vegetation is generally lacking. In some areas, fences are placed at the top of the river banks, thereby hindering movement. Enhancement suggestions include establishing additional wetland areas and creating a shrub canopy throughout. Aside from improving songbird habitat, the shrubs may create a visual buffer to surrounding developments and provide cover habitat.

SITE 44 - BIG THOMPSON RIVER W. OF TAFT AVE.

Site 44 includes the Big Thompson River and a large upland area adjacent to the river with a pedestrian path that may be designated as open space. The high overall rating of the site reflects the habitat diversity created by the existence of undeveloped, nonagricultural lands adjacent to a diverse riparian corridor. This section of the river is buffered from adjacent urban development

by old gravel ponds and pastures located in adjacent areas. A greater amount of wetlands on this site would have increased the overall habitat rating further. Russian olive trees have become established in this corridor. They should be eradicated and replaced with native trees and shrubs. Their re-establishment should be prohibited. Also, weedy species in the adjacent uplands should be controlled by methods that will not affect the aquatic system. Unvegetated areas of uplands should be planted with native trees, shrubs and herbaceous groundcover. Similarly, areas of rip-rap and steep, unvegetated river banks should be stabilized with native shrubs such as willows.

SITE 45 - CATTAIL POND WILSON AVE./14TH ST. SW

Site 45 contains a large open water area and wide cattail fringe. A stand of coyote willow exists in the southeast corner. Residential development closely borders the eastern and northern shoreline and a roadway defines the southern and western boundary. Local residents have reported several bird species in this area. The more unusual species include bald eagle, Cooper's hawk, white-faced ibis, prairie falcon and pelican. Due to the large cattail fringe, the pond has moderate to high potential for water quality improvement. Runoff from the adjacent development, if allowed to enter the pond, may cause water quality problems over time. Enhancement suggestions include periodically thinning the cattails to prevent overgrowth that would create mosquito habitat.

SITE 46 - LAKE AT 16TH ST. SW AND 19TH ST. SW

Site 46 is located immediately south of Site 36, which is Ryan Gulch Lake. Site 46 is a large open water body surrounded by pastures. The shoreline supports scattered small trees, some with a shrub understory. Small patches of emergent wetland vegetation are also present along the shoreline. The large amount of open water is particularly important to waterfowl, especially migrating species. The creation of additional emergent wetlands would improve waterfowl habitat. Also, water quality improvements can be made by creating a shelf of wetland species around the shoreline and adjacent uplands. This shelf would intercept runoff from adjacent agricultural lands and, with sufficient detention time, trap sediments and provide direct utilization of some nutrients. The wetland vegetation would provide additional wildlife habitat as well for both upland and wetland species. Similarly, the creation of a diverse shrub and tree canopy would benefit songbirds and provide cover for small mammals. In time, the trees would provide perches for raptors. The DOW notes that this lake receives heavy waterfowl use, especially along the western shoreline. Bald and golden eagles are also seen in the area.

SITE 47 - LON HAGLER RESERVOIR

Site 47 is a very large reservoir located in the southwest corner of the study area. It lacks a littoral zone as well as appreciable upland vegetation either near or adjacent to the water. The site has value to waterfowl, as it is a large water body that provides resting habitat particularly for Canada geese and migrating diving ducks. The shallow slopes near the west end of the reservoir provide feeding habitat for shorebirds. The enhancement potential of the site is high, particularly in regard to improving upland habitat. The addition of trees and shrubs at the top of the reservoir berms, or along the side slopes, if possible, would significantly increase the site's value to wildlife by providing food, nesting, resting and cover niches currently missing. Assuming that water levels fluctuate greatly in the reservoir, the potential for wetland creation is low. Sufficiently stable wetland hydrology is typically lacking in large reservoirs. However, if water levels could be stabilized, the addition of a wetland littoral zone would greatly increase the site's value to both aquatic and wetland wildlife. Note: The low animal diversity rating for this site does not reflect the fisheries resource. The Colorado Division of Wildlife stocks the reservoir with a variety of fish species. These include walleye, largemouth bass, crappie, yellow perch, channel catfish, rainbow trout, tiger muskie, and bluegill. The DOW notes that this is a very important wintering area for bald eagles. Between 4 and 6 mature and immature eagles typically use the area. Groups

of trees to the east of the reservoir are used as roosts. Also, the DOW notes that mountain lions have been seen on the very west end of the property.

SITE 48 - DRAINAGE E. OF LON HAGLER RESERVOIR

Site 48 is the western end of the drainage defined by sites 51, 50 and 49. It contains a small pond surrounded by cattails. A cattail drainage leads into the pond and cattails and other wetland plants continue to the west of the pond. A portion of the site lies within the Lon Hagler State Wildlife Area. This drainage along with grasslands to the west provide a diverse ecosystem for a large number of both upland and wetland species. Due to the large wetland fringe, the water quality improvement potential of the pond is good. The wetland drainages upstream and downstream of the pond also have moderate to high water quality improvement potential. The pond's value to wildlife is affected by adjacent urban development and lack of structural plant diversity. However, the DOW notes that it is valuable for ducks and geese, and that pelicans use the west end. Large trees to the west of the site provide perches for raptors such as bald eagles, harriers and ferruginous hawks that are frequently seen in the area. The enhancement potential of the site is low. Few enhancement options would result in a significant gain in wildlife values. However, the cattails should be periodically thinned to prevent overgrowth, which would foster mosquito habitat. The addition of native shrubs and trees adjacent to the water would improve songbird and raptor habitat. The DOW notes that this is an active wildlife area. Foxes, coyotes, and pheasants are common. If subject to development pressures, the drainage should be buffered to preserve the corridor function, as the DOW notes that foxes and coyotes actively use the corridor.

SITE 49 - MEADOW NEAR W. 18TH ST. AND WILSON AVE.

Site 49 is a topographically low area surrounded by agricultural lands. It supports a diverse mixture of mesic wetland and upland grasses, forbs, sedges and rushes. It is part of a larger wetland and pasture complex represented by sites 51, 50 and 48. The wetland rating in regard to wildlife is low. However, this site has high water quality improvement potential as well as the potential to provide flood attenuation. The enhancement rating is low because the wetland area is adequately providing the functions and values expected of such an ecosystem. The wildlife rating would be increased if additional trees were established adjacent to the site to serve as raptor and songbird habitat. A row of shrubs along the nearby irrigation ditch would also provide cover for small mammals and would facilitate their movement through the area. Also, the creation of shallow open water or seasonally inundated areas would increase the waterfowl and herptile ratings.

SITE 50 - CATTAIL MARSH S. OF 14TH ST. SW

Site 50 is a large cattail-dominated drainage. Mesic wetland species border the cattails and add to the diversity of the site. A small open water area is present near the road. The wetland has a moderate rating for wildlife. However, the water quality improvement potential is high to very high. The addition of more open water areas would improve waterfowl habitat. However, no additional enhancement options are recommended; the site is currently performing the functions and values expected of such a system. The DOW notes that this is a high use area for raptors, especially harriers and bald eagles, which roost in the cottonwood trees near the cattails.

SITE 51 - LAKES NW OF WILSON AVE. AND14TH ST. SW

Site 51 is the upper portion of a large wetland drainage. The site contains two lakes with residential development to the east. Portions of the shorelines contain narrow fringes of cattails. The western lake appears turbid and has several patches of algae. The poor water quality in this lake may be due to runoff from adjacent agricultural lands. The narrow fringe of cattails will contribute to water quality improvement, however, it's likely that the amount of wetlands present

in the lakes is too small to make a significant difference. Areas of wetlands should be expanded where possible. Existing cattails should be thinned to prevent overgrowth, which would create mosquito habitat. Native trees and shrubs should be established along the shorelines to improve songbird habitat. Runoff from adjacent fields and residential areas should be monitored to determine long-term effects to the aquatic environment. The DOW notes that these lakes are frequently used by pelicans and a variety of ducks. Raptors also perch in the cottonwoods west of the site.

SITE 52 - DRAINAGE W. OF CR 21

Site 52 is a mesic drainage bordered by a small prairie dog colony. The wetland contains a high diversity of herbaceous plant species but lacks structural diversity. It has a moderate rating as wildlife habitat but is likely providing water quality improvement to a high degree. The addition of shrubs near the drainage would create small mammal cover and songbird habitat. The prairie dog colony and rodents in the mesic portions of the wetland provide an important raptor prey source. The DOW notes that bald eagles are common in this area in the winter. This site connects with Site 53 to the west. The entire drainage and adjacent uplands provide a diversity of habitats not found in adjacent agricultural lands and, as such, can be very important to some wildlife species.

SITE 53 - DRAINAGE S. OF BOEDECKER LAKE

Site 53 is a cattail-dominated drainage with scattered small trees, several large trees and an open water area. A small mesic meadow is located downstream of the pond. The presence of this amount of diversity of wetland habitats among agricultural lands can be very important to some species of wildlife. A variety of songbirds will use both the uplands and wetlands. Raptors will hunt the mesic meadow and use the large trees as perches. A number of mammalian species will use the undisturbed drainage as a movement corridor. The DOW notes that bald eagles and ferruginous hawks are frequently seen roosting on this site. Red-tailed, Swainson's and rough-legged hawks are also frequently seen. The DOW also notes that fox sightings are common and that a mountain lion was sighted to the southwest of this site in the fall of 1993. The existing wetland likely provides significant water quality benefits. This site connects to Site 52 on the east and the two should be considered together when making land use decisions.

SITE 54 - HILLSIDE SW OF BOEDECKER LAKE

Site 54 contains a heavily forested hillside, a shrub-dominated area, grass/forb fields, and a drainage ditch with steep side slopes and little wetland vegetation. The thick trees and shrub understory provide good songbird habitat. Raptors likely use the large trees for hunting perches. The adjacent grassy fields provide a raptor prey base. Mammals such as fox, skunk and raccoon are likely to use this area for feeding and denning. Larger mammals such as deer may use the site as a movement corridor as well. The DOW notes that several deer fawns are typically born in this area each year. The topographic relief and dense vegetation provide a good buffer to adjacent urban development. Enhancement suggestions include controlling Russian olives and stabilizing unvegetated portions of the drainage ditch to prevent erosion.

SITE 55 - BOEDECKER LAKE

Site 55 is Boedecker Lake. The large open water body is bordered by urban development on the south, open water on the north and grass/forb fields elsewhere. A few scattered large trees exist at-various locations. The lake lacks appreciable wetlands, probably because of fluctuating water levels. The value of this site lies in the large amount of open water that provides good waterfowl habitat, especially for migrating species. Areas of barren shoreline provide habitat for shorebirds. Waterfowl habitat would be improved with the creation of islands; if densely vegetated, these islands would provide duck nesting habitat but would discourage goose nesting. The DOW notes

that pelicans use the lake and bald eagles are seen in the large trees in winter. The DOW also notes that the lake is important as a walleye and crappie fishery. The addition of shrubs and trees around the lakeshore would greatly benefit many species of wildlife, especial1 y raptors. However, as urban development encroaches, raptor use of the area may decline. Similarly, if urban development eliminates habitat adjacent to the lake or interrupts movement corridors to and from the lake, wildlife values will decrease.

SITE 56 - PONDS NEAR WILSON AVE. AND CR 19E

Site 56 contains eight ponds located adjacent to Wilson Ave. The pond banks are typically steep, and the ponds generally lack significant wetland littoral zones. Russian olive trees are prevalent near the easternmost pond. These ponds have high enhancement potential. Their close proximity to the river make them particularly valuable potential wildlife habitat. Shorelines should be laid back and reconfigured to facilitate wetland development, and a variety of wetland species should be planted. Where this is not feasible, shorelines should be stabilized using biologically appropriate methods to discourage erosion. A shrub canopy should be created between the lakes and the river riparian area to enhance the corridor function of the river. Adjacent uplands should be restored to native herbaceous vegetation. Russian olive trees should be eradicated and replaced with native trees and shrubs. Trees and shrubs should also be planted between the ponds and adjacent urban development to provide a visual buffer and cover habitat.

SITE 57 - FIELD W. OF TAFT AVE., N. OF BIG THOMPSON RIVER

Site 57 contains a valuable diversity of habitat types including grass/pastures, open water in shallow ponds and an irrigation ditch, large trees, scattered small trees, shrubs and wetlands. It is an active pasture area but does not appear to be overgrazed. The large trees on-site provide valuable hunting perches for raptors that utilize the small mammal prey base of the grassy fields and pastures. The trees and shrubs provide very good songbird habitat as well. The site, in general, contributes to the corridor function of the river. The nearby open water and river riparian vegetation, in combination with the habitat types present on this site, provide an outstanding diversity of wildlife habitats. The herbaceous wetlands on-site contain open water areas that benefit waterfowl and amphibians. Willow-dominated wetlands also exist on the site and provide songbird habitat and small mammal cover and nesting opportunities. The wetlands also may provide water quality improvement to a moderate degree. The only enhancement suggestion for the wetland areas is to monitor the cattails and periodically thin them as necessary to prevent overgrowth which would create mosquito habitat. Additionally, Russian olive trees should be removed and their re-establishment controlled. Additional shrubs, particularly near the river, will improve the mammal habitat and corridor function of the site.

SITE 58 - PONDS NEAR BIG THOMPSON RIVER AND WILSON AVE.

Site 58 contains three gravel ponds adjacent to Wilson Ave, north of the Big Thompson River. One pond contains a wide band of cattails. The other ponds have steeper side slopes and contain only small cattail patches. Small patches of cottonwood trees are near two of the ponds. A patch of Russian olive trees is also present. The enhancement potential of these ponds is high. They are functioning as part of the Big Thompson corridor, providing open water habitat for waterfowl. Wetland wildlife habitat and water quality improvement functions would be increased if the shorelines were reconfigured and wetlands created. Additionally, the Russian olives should be removed and native trees and shrubs should be established around all of the lakes. If possible, the creation of a small island would improve waterfowl habitat and create additional surface area for wetland plants. The island should be planted with dense herbaceous vegetation and/or shrubs to discourage goose nesting. A dense cover of shrubs and trees should be established between the ponds and river to facilitate wildlife movement. Uplands around the ponds should be planted in native grasses and weedy species should be continually controlled.

SITE 59 - BIG THOMPSON RIVER W. OF WILSON AVE.
Site 59 is a very narrow and impacted section of the Big Thompson River. River banks are steep and wetland vegetation is mostly lacking. Large trees with smaller trees and shrubs in the understory are present in one section. The remaining riparian areas contain a variety of grasses and forbs, along with scattered small shrubs. In some areas, the banks are unvegetated, which causes erosion and sedimentation. It appears that mining operations have encroached closely on this stretch of the river, creating a sparsely vegetated, very narrow corridor. However, the large gravel ponds immediately adjacent to both banks of the river could act as a buffer to future urban development in the area. Additionally, the banks could be planted with a variety of native trees and shrubs that would form a continuous, dense cover to facilitate wildlife movement. Additionally, the steepness of the river banks could be reduced in some areas to allow wetland development.

SITE 60 - BIG THOMPSON RIVER AT CR 19E
Site 60 is a small section of the Big Thompson River adjacent to CR 19E north of CR 20. It is bordered by an urban park on the south and agricultural lands elsewhere. Active mining occurs at the southeast end. This is a braided section of the river containing many upland areas within the river channel. These areas support both upland and wetland vegetation. They can be very important waterfowl habitat. They also enhance the aquatic environment by creating backwater pools and, in some areas, riffles. The diversity provided by a combination of pools and riffles provides a greater number of habitat niches for aquatic invertebrates and fish. This section also supports several large trees and a scattering of shrubs and small trees in the understory. This structural diversity is of considerable value to wildlife, in contrast to adjacent sections of the river that have been impacted and are lacking significant riparian vegetation. Enhancement suggestions include increasing the shrub canopy, removing areas of rip-rap and replacing them with native willows or other suitable bank stabilization species, and, if possible in the future, increasing the width of the riparian zone.

SITE 61 - BIG THOMPSON RIVER W. OF CR 19E
Site 61 is similar to Site 11. It is a narrow section of river that has been heavily impacted by livestock. In some areas, the river banks lack vegetation and are eroding into the waterway. The herbaceous ground cover has been severely grazed. Large trees are present and a shrub understory occurs in uplands near the river that appear to have been protected from grazing. Also, a small wetland area exists on the north side of the site between the river riparian area and adjacent agricultural lands. The wetland may be a backwater slough from the river, although it appears that a dirt road runs through it. It contains a variety of herbaceous wetland plants and a thick stand of willows. This wetland would provide minor flood attenuation and has low to moderate potential to provide water quality improvements. The site can be greatly enhanced by restricting or eliminating livestock grazing near the water. Native riparian shrubs and herbaceous plants should be re-established and stream bank erosion should be minimized. Russian olives and weedy herbaceous species should be controlled.

SITE 62 - ORCHARD AT NAMAQUA ROAD AND W. 1ST ST.
Site 62 is an old orchard at Namaqua Road and West 1st Street. The site contains scattered small trees with a weedy understory of grasses and forbs. The weedy understory provides cover for small mammals and some songbirds. The old fruit trees provide nesting habitat for songbirds as well. Raptors also use the trees occasionally as perch sites. The weedy understory and adjacent prairie dog field provide a very good prey base. The enhancement rating for this site is low. It is currently providing the functions and values expected of such a site. Its value lies in its location adjacent to undeveloped prairie dog fields. If isolated by urban development, this site will be of

little value to wildlife. If a densely vegetated corridor was created between this site and nearby open water, the prairie dog fields were preserved, and the entire complex was buffered from adjacent development, the site would retain and may slightly increase its habitat value. Raptorial birds identified by local residents that have been observed using the orchard trees as perch sites include the bald eagle and ferruginous hawk. Both of these species prey heavily on prairie dogs, particularly during the winter.

SITE 63 - PRAIRIE DOG COLONY NEAR MARIANA BUTTE

Site 63 consists of a large expanse of active pasture area supporting a prairie dog colony. The site is adjacent to Mariana Butte, an area that likely provides important hunting perches for raptors feeding on the nearby prairie dogs. This site, including adjacent agricultural lands supporting prairie dogs, represents the largest prairie dog colony in the study area. It is a very important raptor area. Coyotes are likely to hunt the area as well. The enhancement rating of the site is low. Small mammal habitat can be improved by creating small clumps of native shrubs to create cover and nesting opportunities. The re-establishment of native grasses would also benefit wildlife.

SITE 64 - MARIANA BUTTE

Site 64 consists of the Mariana Butte. The butte is dominated by skunkbrush, pasture grasses and remnant short-grass prairie species such as blue grama grass. The site appears to have been grazed. The shrubs provide hunting perches for raptors that use the adjacent prairie dog colony as a prey source. The shrubs also provide cover for small mammals and nesting habitat for songbirds. The enhancement rating of the site is low because an appreciable gain in wildlife habitat values would not be expected. However, the site would be improved if cover by native grasses were increased. Also, as the site has high raptor use potential, surrounding prairie dog colonies should be carefully considered when site alterations to those areas are proposed.

SITE 65 - BUCKINGHAM LAKE

Site 65 consists of an open water area with limited shoreline vegetation. Wetland vegetation is mostly lacking and only a few small trees and shrubs exist in one location along the shoreline. The highest rated component of this site is waterfowl habitat. The large amount of open water provides important resting habitat for many migrating species. However, the lack of emergent wetland vegetation limits the site's value as a waterfowl breeding area. The lack of significant wetlands also affects the fisheries resource. Songbird habitat could be enhanced with the addition of native trees and shrubs. Over time, large trees would greatly improve raptor habitat values. The DOW notes that bald eagles hunt/scavenge this pond as well as Boedecker Lake.

SITE 66 - DRAINAGE DITCH NW OF BOEDECKER LAKE

Site 66 consists of an irrigation ditch lined with a diversity of trees and shrubs and bordered by grass/forb uplands. The large trees provide suitable perches and nest sites for raptors. The dense cover of trees and shrubs provides good nesting, feeding and cover habitat for songbirds. The ditch itself and the dense bank vegetation creates a wildlife movement corridor. Because of the steep banks, wetland vegetation is mostly lacking. Additionally, unvegetated banks can contribute sediment to the waterway. The enhancement rating of this site is low because implementation of enhancement suggestions would not result in appreciable gains in habitat values. Suggestions include preserving dead trees and snags and monitoring the site to ensure that Russian olives do not become established.

SITE 67 - PASTURE NEAR GOLF COURSE
Site 67 consists of pasture grasses and a small cottonwood grove. The trees provide good perches for raptors and the grassland likely provides a prey base of small rodents. The small size of the site and its close proximity to the golf course limit its value to wildlife.

SITE 68 - PONDS S. OF HWY 34 AND WEST RIDGE DR.
Site 68 consists of recently active gravel ponds. The open water areas contain grassy islands, and sparsely vegetated peninsulas extend into the water. Small trees and shrubs are scattered throughout adjacent uplands. Wetland vegetation is mostly lacking. The enhancement potential of this site is high. The location of these ponds adjacent to the river makes them particularly valuable open water/wetland corridor components. With little effort, wetlands could be established along the pond shorelines and around potential islands and peninsulas. Weedy species should be controlled and unvegetated uplands and pond banks should be stabilized to reduce or eliminate erosion. Also, additional trees and shrubs should be established, particularly between the ponds and the river.

SITE 69 - WESTERNMOST BIG THOMPSON RIVER SITE
Site 69 contains an exceptional diversity of habitat types. The grasslands have an open tree canopy and scattered shrubs that provide very valuable songbird habitat. The dense tree/shrub gallery adjacent to the river provides this function as well. All existing habitat types provide suitable mammal habitat, particularly dense cover, along the river corridor. The wetlands on-site are very diverse. Areas dominated by cattails, sedges, rushes, grasses and shrubs are present. Large trees and upland shrubs are typically adjacent to the wetlands, which provide very valuable songbird habitat, and raptor perches. The combination of wetlands and uplands provides valuable habitat for both reptiles and amphibians. The nearby open water of the Big Thompson River provides an important adjacent habitat type that is missing on the site. Enhancement suggestions include the removal and continued control of Russian olives. Also, the habitat values of the grassy fields would be increased if they were restored to native species.

SITE 70 - BIG THOMPSON RIVER NEAR GOLF COURSE
Site 70 is a narrow stretch of the Big Thompson River dominated primarily by coyote willow. A significant, uninterrupted tree canopy along the river is generally lacking. However, the eastern end of the site consists of a large field supporting several large scattered trees with an understory of smooth brome grass. Emergent wetlands are generally lacking along the river channel. The willows along the river and the large trees in the field provide very good songbird habitat. The trees provide suitable raptor habitat as well. Native grasses would be preferable to the smooth brome understory. The enhancement potential of this site is medium. The creation of additional wetlands within the channel would be beneficial. The creation of a shrub canopy in the field would improve the corridor function of the river.

SITE 71 - PASTURE/POND N. OF GOLF COURSE
Site 71 contains a pasture and small pond. The pond is surrounded by trees and shrubs and contains a willow-dominated wetland on the south side. The trees and shrubs provide good songbird habitat. However, they are separated from other trees and shrubs by pasture and thus fail to provide appreciable cover for small mammals. Regardless, small mammals such as squirrels and raccoons will likely use the site. The large trees are also potential hunting perches and nest sites for raptors. The proximity of the site to the Big Thompson River increases its overall rating. The site could be enhanced with the addition of native shrubs to form a buffer between the site and the nearby golf course. Also Russian olives should be controlled and native grasses restored. The site functions as part of the Big Thompson corridor.

SITE 72 - GRAVEL POND N. OF MARIANA BUTTE

Site 72 is a small gravel pond. It has an irregular shoreline but the steep side-slopes preclude wetland development. Several large willows and other trees surround the shoreline, creating good songbird habitat. Several Russian olive trees are present. These should be eradicated and replaced with native trees. The enhancement potential of the pond is low. Little increase in wildlife values would be gained by implementing enhancement suggestions. However, the aquatic system would benefit if additional wetlands were created along the pond shoreline. This pond interacts with the Big Thompson River and provides open water habitat that is otherwise lacking in the immediate area.

SITE 73 - POND W. OF CR 19E, S. OF HWY 34

Site 73 contains a small pond supporting a large littoral zone of cattails. Small to medium-sized willows line the shore. Smooth brome grass dominates adjacent uplands. The pond's small size limits its overall rating and its value to waterbirds, mammals and amphibians. The trees provide good songbird habitat and the large littoral zone provides nesting habitat for ducks. The littoral zone vegetation also provides high water quality improvement potential. This pond and the pond at Site 72 provide the only open water habitat in the immediate area. The surrounding scarcity of open water increases the site's value to wildlife. The low enhancement rating indicates that relatively little net gain in wildlife values would be achieved if enhancement suggestions were implemented. Dead trees and snags, however, should be preserved. The establishment of Russian olives should be prevented.

SITE 74 - HOGBACK (NAMAQUA RIDGE)

Site 74 is the hogback (Namaqua Ridge). It is dominated by shrubs, primarily skunkbrush. Scattered small trees are also present. The site appears to be currently grazed, and it is assumed that pasture grasses are dominant in the understory. The very high rating given to this site reflects the very large size of this shrub-dominated community. The rating also reflects the presence of important habitat for mule deer (winter and summer range), bobcat, coyote, red and gray fox, and potential habitat for mountain lion, black bear, and elk. Prairie falcons, golden eagles and other raptorial birds are likely to nest in the area. The shrubs provide very good raptor and mammal habitat. The site is lacking wetlands and thus received very low water-bird and wetland ratings. The lack of wetlands also affected the herptile rating, although rattlesnakes and lizards probably occur. The low enhancement rating of the site reflects the relatively small improvement in overall habitat values to be gained if enhancement suggestions were implemented. If grazing could be restricted, native short-grass prairie grasses would increase. Creating a short-grass prairie ecosystem of this size would be biologically and educationally valuable. This site was not identified as a movement corridor. However, deer likely move west to east across the hogback and will wander north and south, although not in a defined corridor. Future decisions regarding urban development should consider the cumulative impacts to deer and other wildlife of segmenting the hogback or affecting wildlife movement across it. If future development is allowed to closely encroach on adjacent lowlands, the hogback could become an important north/south corridor, as movement in adjacent areas would be restricted.

SITE 75 - SWALE/POND E. OF HOGBACK

Site 75 contains a low wetland swale and open water area surrounded by scattered trees. Pasture grasses border the pond, which is lacking a significant wetland area. The large trees provide raptor perches and songbird habitat. The lack of emergent wetland vegetation limits the pond's potential for water quality improvement. However, the wetland swale may have moderate to high water quality improvement potential if water is sufficiently detained. Whereas, runoff from adjacent agricultural areas appears to enter the pond, the creation of large wetland areas may improve water quality significantly. Additionally, Russian olive trees should be eliminated and

replaced with native trees. The mesic wetland and open water area provide very good small mammal, waterbird, and amphibian habitat. The swale and pond provide wetland habitat in an otherwise dry agricultural area.

SITE 76 - EPHEMERAL DRAINAGE W. OF TAFT AVE.

Site 76 is a long, shallow ephemeral drainage surrounded by active agriculture. It is of limited value to wildlife but provides a somewhat sheltered movement corridor from the hogback to other drainages to the east. The habitat will, however, support a large number of small mammals that provide a prey base for raptors, coyotes and foxes. The wetland received a low rating in regard to its value to wildlife. However, the drainage likely intercepts runoff from adjacent agricultural fields and likely traps sediments. Some direct uptake of nutrients by wetland plants may also occur.

SITE 77 - WETLAND NEAR TAFT AVE. AND W. 57TH ST.

Site 77 is a small cattail-dominated wetland containing an even-aged stand of cottonwood trees. It is located at the eastern end of Site 76. A small irrigation ditch with steep banks borders the north side of the wetland. The enhancement rating for this site is low because the site is currently providing the functions and values expected of such a system. A diversity of tree species and age classes would improve the long-term viability of the tree resource and increase songbird habitat values. Additionally, the cattails should be monitored to ensure they do not become overly dense. Although rated low for wildlife habitat values, the wetland likely receives runoff from adjacent agricultural fields and may be providing water quality improvement to a moderate or high degree. The site is also part of a larger wildlife movement corridor consisting of sites 76 and 79.

SITE 78 - ALFORD LAKES

Site 78 contains two ponds and an adjacent old field. One pond appears to hold water periodically and appears to be subject to livestock grazing. The other pond appears to hold water permanently and does not appear to be seriously impacted by livestock. Stands of large trees exist near both ponds. The pond with permanent water supports a large emergent wetland dominated by bulrush. The water quality improvement potential of this pond is high. The pond also provides very good waterfowl resting, feeding and breeding habitat. Numerous waterfowl were observed using this pond on the day of field review. This site may be particularly valuable to waterfowl since it is the only open water in the immediate agricultural area. The large trees provide suitable songbird habitat that would be enhanced by the addition of a shrub canopy. Dead snags and trees should be preserved on this site to provide better raptor perches, habitat for cavity nesting species and insects for songbirds. The adjacent old field provides suitable habitat for small mammals and amphibians that would also use the nearby open water and wetland.

SITE 79 - CATTAIL DRAINAGE ALONG RAILROAD

Site 79 contains one of the largest cattail marshes in the study area. Its value to wildlife is somewhat limited by the lack of vegetative and structural diversity. However, it likely provides water quality improvement to a high or very high degree. This is a critical function, as runoff from adjacent agricultural lands appears to enter the wetland. The dense cattails also provide cover for mammals using the site as a movement corridor. The addition of willows or other shrubs along the drainage would increase its value as a movement corridor while creating a visual buffer to the adjacent residential development. Additionally, the cattails should be periodically thinned to prevent overgrowth. The creation of open water areas within the cattails would greatly improve the waterfowl habitat as well. If urban development encroaches into the area, an upland buffer should be maintained around the wetland to allow for wetland expansion and to protect the wildlife corridor function.

SITE 80 - MESIC DRAINAGE E. OF TAFT AVE.
Site 80 is a mesic drainage situated at a topographically low point between agricultural fields. The thick grasses and forbs and scattered small trees and shrubs provide cover and nesting habitat for some wildlife. The wetland rating of 3 reflects the low wetland value to wildlife. However, this wetland may be providing water quality improvements to a high degree. It appears to receive drainage from agricultural fields. Provided detention time is sufficient, the wetland plants would trap sediments and utilize nutrient-rich runoff. Wildlife using sites 78 and 79 will also use this site. Enhancement suggestions include establishing additional shrubs and trees to provide more cover for small mammals and nesting habitat for songbirds.

SITE 81 - WETLAND SWALE, TAFT AVE. AND 43RD ST.
Site 81 consists of a drainage swale that originates within an agricultural area and continues east through an urban area. The swale is dominated by herbaceous wetland species. The agricultural portion of the wetland is impacted by grazing. The site would be improved by limiting grazing. The addition of shrubs and trees along both the pasture portion of the drainage and the urban section would increase songbird habitat. The urban portion of the wetland likely receives runoff from the adjacent development. Although wetland plants may be trapping sediments and utilizing nutrients directly, the system may be negatively affected over time by receiving excess amounts of fertilizers, pesticides and herbicides.

SITE 82 - DRAINAGE BETWEEN TAFT AVE. AND HWY 287
Site 82 is the eastern extension of Site 81. It is a wetland swale dominated by herbaceous wetland plants and contains a small area of open water. Residential development encroaches closely on this wetland. Runoff from lawns with fertilizer, herbicides and pesticides can negatively affect the functioning of the wetland. Although the wetland plants are likely utilizing the incoming nutrients, the system can become degraded by residential runoff over time. Additionally, the close proximity of development will affect wildlife use of the wetland. The addition of shrubs and trees along the drainage will improve habitat values. This site, along with Site 81, functions to a limited degree as a wildlife movement corridor, providing a topographically low, vegetated area with appreciable cover. Often, these drainages are important links to isolated wildlife habitats and provide some of the only significant wildlife habitat in an urban area.

SITE 83 - FIELD AT 37TH ST. AND HWY 287
Site 83 consists of a prairie dog colony and small pasture area. Large trees adjacent to the site provide hunting perches for raptors that likely use the prairie dogs as a prey base. Other small rodents are likely to be present as well. The site is located adjacent to Site 82, which connects to sites 79 and 81, forming a wildlife movement corridor. It is likely that wildlife using the corridor, such as foxes, also use the prairie dog colony as feeding habitat.

SITE 84 - FIELD NEAR 57TH ST. AND MONROE
Site 84 consists of a prairie dog colony, a wetland drainage swale and a small patch of coyote willow. The site is lacking large trees but cottonwoods exist adjacent to the site. The lack of hunting perches reduces the site's value to raptorial birds. Nonetheless, raptors likely hunt this site as they are hunting the adjacent agricultural lands to the north. The presence of residential development may discourage some raptors. The wetland on the site ranges from mesic to inundated. Its presence on the site creates a diversity of habitat types that benefits a variety of wildlife species. Additionally, the wetland appears to receive drainage from the adjacent hillside, and likely traps sediments. The enhancement value is low because few suggestions could be offered to significantly improve the habitat quality of the site. In other words, aside from facilitating raptors by adding large trees, and improving mammal habitat by adding shrubs, little

can be done to improve the functioning of the existing habitats; both the prairie dog colony and the wetland are providing habitat values expected from such habitat types. Local residents report seeing a burrowing owl in this location on more than one occasion. This species should be given careful consideration if alteration of the site is proposed.

SITE 85 - DISTURBED AREA NEAR DONATH LAKE

Site 85 appears to have been recently disturbed with the excavation of channels that currently contain standing water. The berms adjacent to these channels are mostly unvegetated. The eastern part of the site contains grassy fields and the west side contains a cattail drainage and a stand of medium-sized to large trees. The large trees provide perches for raptors that use the site and nearby Donath Lake. The enhancement rating of this site is moderate. Several options exist to improve the potential wetland habitat of the channels. The existing upland habitat can also be enhanced by using weed control efforts.

SITE 86 - DONATH LAKE

Site 86 is Donath Lake. It is a large water body surrounded by agricultural lands. The shoreline supports a significant canopy of large trees which provides very good raptor and songbird habitat. However, this is a narrow riparian area that can be affected by adjacent residential development. The large amount of open water provides good waterfowl habitat especially for migrating species. Littoral zones with emergent wetlands are generally lacking, except for a few coyote willow areas. A small amount of cattails is also present. The creation of a densely vegetated island in the lake would improve duck nesting habitat while discouraging goose nesting. A shrub-dominated island would also provide songbird habitat. The creation of a diverse shrub canopy would further buffer adjacent development and improve songbird habitat. The establishment of Russian olive trees should be prohibited.

SITE 87 - MESIC PASTURE W. OF CR 11C

Site 87 is a pasture with a low swale that appears to seasonally support wetland plant species. The nearby cottonwood trees provide perches for raptors that likely feed on small rodents in the pasture. The low enhancement rating reflects the site's small size and low overall benefit to wildlife that would occur if enhancement suggestions were implemented. However, enhancement suggestions include reducing grazing pressure, re-establishing native grasses and establishing additional cottonwood or other large trees near the site.

SITE 88 - SMALL LAKE N. OF HORSESHOE LAKE

Site 88 is the upper portion of Horseshoe Lake. It receives heavy use by a variety of waterbirds, including pelicans and gulls. Shallow, inundated shoreline areas provide resting habitat and shorebird feeding habitat. The emergent wetland vegetation provides some water quality improvement, however, it appears that runoff from adjacent active agricultural lands enters this lake, and may contribute excess nutrients over time. Runoff from the adjacent roadway should also be monitored to determine what effects it has on the aquatic system. The small patch of shrubs and small trees provides limited songbird habitat. Additional trees would improve this function as well as providing perches for many bird species.

SITE 90 - WESTERDOLL LAKE

Site 90 contains a large open water area surrounded by agricultural lands. A mesic and inundated herbaceous wetland occurs to the north of the lake. A large stand of cottonwood trees lines the south shore of the lake. A moderate grass/forb area buffers the lake from urban development to the south. However, a few single residences exist near the cottonwood gallery. The wetlands on site likely provide water quality improvement to a high degree. This may be a critical function, as it appears that runoff from the adjacent agricultural fields enters the system. The large trees

provide good songbird habitat and perches for raptors. Typically, .it would be preferable to preserve dead trees and snags that provide better raptor perches, habitat for cavity-nesting species and insects for songbirds. However, the presence of residences among the trees may make this impractical. Where possible, additional wetlands should be created within the lake. This would provide better waterfowl habitat and improve the aquatic environment. Russian olives should be controlled and additional trees and shrubs should be planted along the shoreline, especially near the existing tree stand to increase diversity in age and structure. The DOW notes that foxes hunt this area and uplands to the northwest. Also, pelicans use the lake in the summer and great blue herons nest along the shoreline.

SITE 91 - HEINRICY LAKE

Site 91 contains a large open waterbody surrounded by a diversity of trees and shrubs. Areas supporting grasses, forbs and shrubs border the lake. The high overall rating of the site reflects the diversity of habitat types present on the site and in nearby natural areas. The large lake is surrounded by large trees and provides very good raptor habitat as well as perches and nest sites for songbirds and herons. Waterfowl are also attracted to the large amount of open water. The DOW notes that the lake is used by pelicans. Adjacent grass/forb areas provide suitable nesting and feeding habitat for other species as well. The DOW also notes that this lake contains an important fishery supporting crappie, yellow perch and bluegill, among others. The tree and shrub canopies provide excellent cover for mammals. Shrubs and grass/forb meadows are particularly important in creating nesting and cover habitat for small mammals, which in turn are important prey species for raptors, foxes, and other predators. Dead trees and snags should be preserved on this site to protect raptor perching habitat, and habitat for cavity-nesting songbirds. Downed wood and brush should be preserved as well. Areas of eroding lakeshore should be stabilized with native shrubs and groundcover. Although narrow fringes of wetland exist around the lake, and stands of willows and cattails are nearby, additional wetlands should be created in the littoral zone by reducing steep side slopes and planting inundated shelves with emergent wetland plants and shrubs. The site should be carefully monitored for the occurrence of Russian olive trees. This species should not be allowed to become established on the site.

SITE 92 - UPPER/LOWER HOFFMAN LAKES

Site 92 consists of Upper and Lower Hoffman Lakes. These lakes are bordered by residential development on the south and a developed park on the north. An undeveloped grass/forb field lies to the east. Large open water is nearby in Boyd Lake and sites 90 and 91. The enhancement potential of these lakes is medium. Their potential is limited by the adjacent residential development. In some cases, formal landscaping of the development extends to the water's edge. In other areas, shoreline vegetation has been cleared to facilitate recreation. Additionally, runoff from the residential lawns, etc. likely enters the lakes. This runoff likely contains fertilizer, pesticides and herbicides that can, over time, damage the lake ecosystem. The presence of large amounts of emergent wetland vegetation will provide some water quality improvement, however, wetlands should be created in areas where homeowners are not likely to clear them. Native trees and shrubs should be planted along the shoreline to improve songbird habitat. The adjacent old field should be monitored to ensure that weedy species are controlled. Similarly, Russian olive trees should be controlled near the water and in the adjacent development. The DOW notes that pelicans use these lakes during summer months. As such, careful consideration should be given to controlling residential runoff, to prevent concentrations of chemicals in the fish population that may harm the pelicans.

SITE 93 - BOYD LAKE

Site 93 is Boyd Lake. It is the largest water body in the Loveland area. It is bordered primarily by agricultural lands. Disturbed areas and urban development also encroach around the

perimeter. A small number of large trees and shrubs are located near the lake, which provide suitable songbird habitat and perches for raptors. The shoreline is varied. Many shoreline areas have shallow gradients with habitat suitable for shorebirds, especially during periods of drawdown. The large amount of open water provides the greatest benefit to wildlife, especially migrating waterfowl. Waterfowl habitat would be improved if the lake supported densely vegetated small islands. The islands would also provide additional surface area for wetland creation. The DOW notes that the lake is an important fishery for walleye, bass, crappie, bluegill, catfish and trout. Future planning considerations should consider the cumulative impacts of nearby urban development. Encroaching on uplands around the lake and/or eliminating movement corridors to and from the lake will reduce overall habitat values. Particularly, local residents and the DOW have noted bald eagles using the lake in winter. An increase in land use intensity near the lake may affect the eagles.

SITE 94 - MUD LAKE

Site 94 is a large open water area supporting a very large fringe of cattails. The large wetland likely provides water quality improvement to a high degree. This may be the most important function of this site, as it appears that runoff from adjacent agricultural lands enters the wetland and lake. The large amount of open water surrounded by agricultural lands provides very good waterfowl habitat. The DOW notes that this lake receives heavy waterfowl use. Mammals such as raccoon, fox and coyote frequent the area, and songbirds will also use the site. Cattails should be periodically thinned to prevent overgrowth.

SITE 95 - WETLAND E. OF CR 11C, N. OF CR 30

Site 95 contains a small stock pond, adjacent wetlands and a drainage channel with cattails. Horses currently graze the wetlands around the stock pond. The value of this site lies in its location. The presence of wetlands and open water within agricultural areas can be very beneficial to wildlife. The pond shoreline is poorly defined, as standing water extends into adjacent grassy areas. The flooded grassy areas provide good waterbird and amphibian habitat. The wet area also appears to receive runoff from adjacent agricultural areas. The emergent wetland vegetation likely provides water quality improvement to a moderate or high degree. This function may also be performed by the wetlands within the drainage channel in the south part of the site. The enhancement rating for this site is medium. Some benefit to wildlife would be achieved by the addition of shrubs near the open water, which would provide songbird and small mammal habitat features currently absent from the site.

1996 COMMENTS (SITES 96-138*)

SITE 96 - DEEP DRAW

This site was reviewed from the air and needs to be reviewed from the ground. This is one of the larger sites evaluated and the largest remaining natural area in the northwestern portion of the inventory area. This site is formed by a drainage in a relatively steep draw. The drainage is a tributary of the Poudre River. The bottom of the draw appears to support wetlands dominated by cattails and rushes. The side slopes and bordering area is dominated by grasslands. Small scattered areas of open water, shrubs and trees also occur in the bottom of the draw. This site likely provides wildlife habitat for medium size mammals and as a refuge for other wildlife seeking the protection of the draw. Because of its nearby linkage to the Poudre River, this site also serves as a corridor and can also link sites 97 and 98.

SITE 97 - WETLAND DRAW
This site was reviewed from the air only. This site appears to support wetlands in the bottom of the channel. The wetlands provide wildlife habitat and the retention of sediment and nutrients. This site provides a linkage to sites 98 and 96.

SITE 98 - INTERMITTANT DRAINAGE
This site was reviewed solely from the air. The site appears to support wetlands in the bottom channel. The wetlands likely provide wildlife habitat and the retention of sediment and nutrients. This site also extends the corridor provided by sites 96 and 97.

SITE 99 - WETLAND DRAINAGE AND POND
This site is a long, relatively narrow unit with a core of cattail marsh supported by irrigation runoff and seepage from the adjacent irrigation ditch. The site forms an interesting complex of vegetation types, including scattered large mature plains cottonwoods, extensive understory of snowberry and large stands of cattails. Other shrub stands also provide habitat for wildlife. The northern portion of the site supports a large shallow pond with wetland margins. This site potentially could be considered part of a corridor associated with the irrigation ditch. Potential improvements for this site could include use of the irrigation water to further enhance or expand wetlands and maintenance of the pond. If development occurred adjacent to the site, the site could provide an excellent open space and buffer area, but should be planted with riparian shrubs and native trees to further protect and buffer the area. The wetlands here provide water quality benefits, including sediment and nutrient retention, and provide important wildlife habitat. Portions of the site appear to receive heavy applications of herbicide most likely associated with irrigation ditch maintenance.

SITE 100 - WETLAND SWALE
Small drainage that supports a diversity of wetland types within a depression bordered both on the east and west by rangeland. Wetland types include stands of rush, cattail and sedges. Wetland functions include sediment and nutrient trapping and wildlife habitat. This area could serve as a potential corridor or linkage to the Big Thompson River corridor to the south. The site also supports scattered cottonwoods and a small bluff area that supports dense shrub land. Potential enhancements would include control of Russian olives and if the surrounding lands were developed, the site could be enhanced with plantings of native trees and shrubs to serve as a buffer between the developed areas. The clean up of trash along the railroad right-of-way to the south would also be an enhancement to the area. The site appears to be void of noxious weeds such as Canada thistle that are commonly observed on similar sites in the study area.

SITE 101 - BIG THOMPSON RIVER E. OF I-25
A cottonwood gallery forest along the Big Thompson River that is composed of a relatively mature, even-aged stand of plains cottonwood with an understory of Russian olive. The many large snags provide perching and nesting cavities for birds and other wildlife and should be preserved. The herbaceous understory is primarily smooth brome and weedy annuals along the south bank. The north bank appears to have a much wider gallery woodland. Wetland areas appear to be limited to the banks of the river and function primarily for bank stabilization. Potential enhancements could include removal of Russian olives, establishment of additional cottonwood trees to add age and structural diversity, and establishment of riparian shrubs.

SITE 102 - BIG THOMPSON RIVER AND FLOODPLAIN
This site was reviewed from the air. This site provides an important link within the Big Thompson River corridor, with sites 101 and 103 upstream and downstream of the site,

respectively. Much of the site supports a narrow band of mature cottonwood trees, however, the cottonwood woodland does not provide a continuous ribbon along both banks. Wetlands occur on bars and along the banks and provide channel stability and wildlife habitat. Russian olives have become established at the site and should be controlled.

SITE 103 - BIG TOMPSON RIVER AND FLOODPLAIN

This site is located along the Big Thompson River in eastern Larimer County. It is part of a corridor along the river linking sites 102 and 104. This site is a riparian floodplain corridor, containing cottonwood trees and grassland meadows. Cottonwood trees are scattered along the river at a fairly low density. The grassland communities appear to he heavily grazed. Cattle were present during the site visit. This site is likely to support a variety of waterbirds, raptors and songbirds. There is little wetland development. During periods of high flow in the spring, flooding creates pond areas in portions of the broad floodplain. Great blue herons were observed foraging in these areas during the site visit. At lower flows, waterbirds are likely to feed at sandbars and stream banks along the river. The scattered wetland areas provide protection of water quality and valuable wildlife habitat. The enhancement potential is moderate. The area would benefit from shrub plantings to increase the diversity of the vegetation. Restoration of native grasslands would also improve the quality of the site. Natural cottonwood regeneration appears inadequate to maintain the current density of trees. The site would benefit from additional tree planting. Dead snags should be maintained for wildlife habitat. There are scattered patches of Canada thistle and other weeds in the heavily grazed meadow area that should be treated. This site was observed from the bridge at the east end of the site. The western end was not directly observed, although the condition from the aerial photograph appears to be similar to the east side.

SITE 104 - BIG THOMPSON RIVER

This site, located along the Big Thompson River in eastern Larimer County, provides valuable riparian habitat. The site contains a cottonwood overstory in the river floodplain with a mixed grass understory. There are also areas of open meadows previously used for agriculture or livestock. There is minimal wetland development except along the river shoreline. These wetlands serve to stabilize the bank and provide wildlife habitat functions. The site provides good habitat for raptor and songbird nesting and roosting. Waterfowl and shorebirds are likely to use the aquatic habitat when stream flows are low. Deer, raccoons, coyotes, rabbits, squirrels and other small mammals are probably common at this site. Enhancement possibilities are low. Restoration of native grassland habitat would be beneficial to wildlife. Removal of Russian olives and herbaceous weed control in the open meadow is necessary. Shrub plantings within the floodplain would be beneficial to a variety of wildlife. Dead cottonwood snags should be preserved for use by raptors.

SITE 105 - GRASSY FIELDS AND WETLAND SWALE

Relatively small site that is isolated, but could be connected to the Big Thompson River corridor. The site supports a variety of wetland types within a wide draw. Wetland types include cattails, sedges and arctic rush. The rolling topography of the site and surrounding rangeland with scattered mature cottonwoods adds to the site's value. A residence does occur on the site, however, the rolling topography provides some buffering from the residence. The wetlands provide wildlife habitat for nesting redwing blackbirds and potentially breeding amphibians, reptiles and small mammals. Wetlands may also provide some water quality functions due to their low topographic positions, and nearby cultivated areas likely accumulate nutrients, sediments and chemicals applied to the neighboring agricultural lands.

SITE 106 - BIG THOMPSON RIVER AT WELD CO. LINE
This site is bisected by the Big Thompson River near the eastern Larimer-Weld county line. It includes a riparian corridor vegetated primarily by weedy grasses and forb fields. The site has probably been used for livestock grazing. Patches of cottonwoods are scattered along the river. Stands of willows are found along the river bank and on sand bars. Observations from County Road 402 indicate there is limited wetland development on the east end of the property. There may be additional wetlands farther to the west. The majority of riparian and wetland development appears to be found along the margin of the Big Thompson River. Periodic flooding likely inundates a portion of this site. The site provides good wildlife habitat including fairly valuable songbird habitat due to the number of trees and proximity to water. This site has medium enhancement potential. Enhancement opportunities include establishment of native grasses and control of weedy vegetation to improve wildlife forage and cover. The establishment of additional understory shrub species would improve the plant diversity of the site. Cottonwood plantings would help ensure future stands and would also be beneficial to wildlife. There may be potential for creation of wetlands along this reach of the Big Thompson River. There appears to be very little wetland development. Wetland functions are primarily stream bank stabilization and water quality improvement. This entire site serves as a buffer for protecting water quality from agricultural runoff on adjacent lands.

SITE 107 - OLD GRAVEL PONDS
This site is composed of a complex of permanent shallow ponds interspersed with wetland habitat and medium-aged cottonwoods. The ponds support a warm water fishery that is used both recreationally and occasionally by white pelicans. A well-developed bulrush marsh occurs to the south of the ponds and another bulrush marsh extends as a peninsula into the ponds. The ponds support a well-established littoral zone as well as cattail and bulrush margins. Enhancement potential is minimal as the ponds and wetlands are well established, apparently dating back to the 1930s when the area was mined for aggregate. Some potential expansion exists to the east where active aggregate mining is currently taking place, and the pond wetland complex could be expanded. Additionally management could include removal of Russian olives and Lombardi poplars. Wetland habitats at this site function primarily as wildlife habitat for nesting redwing blackbirds and waterfowl.

SITE 109 - WETLAND SWALE
This site was difficult to review from the air. Wetlands in the channel likely provide sediment and nutrient retention functions, as well as providing wildlife habitat.

SITE 111 - STOCK POND
Small site surrounded on three sides by development, on the south side by Highway 402, to the east is a residence and to the west is an active dairy farm with feed lots that border the site. The pond appears to be shallow, is probably seasonally inundated and appears to be capturing run-off from the feed lots. The pond is thus providing some water quality benefits, providing sediment and nutrient retention seasonally, and potentially some habitat for breeding amphibians. The wetland margin around the pond is disturbed and the area south of the pond supports Canada thistle. Potential enhancement could include expansion of the pond or excavation of the pond to make it last longer throughout the season, control of thistle and potentially nesting boxes or other suitable habitat for songbirds. This site could be considered part of the corridor associated with the Hillsboro Ditch.

SITE 112 - IRRIGATION DITCH
Composed of a stand of mature cottonwood trees with some snags, which provide habitat for songbirds, potentially raptors, and cavity nesters. Site is relatively small and bordered on all sides

by cultivated fields. Small wetland areas supported by the leaking irrigation ditch are scattered throughout the site. Herbaceous vegetation occurs along the irrigation ditch and some Russian olives occur in the understory of the cottonwood stand. Enhancement could include removal of Russian olives, planting of additional cottonwoods or establishment of native riparian shrubs, particularly along the northern portion of the irrigation ditch.

SITE 113 - WETLAND SWALE

This site is located along an intermittent drainage that empties into the Hillsboro Ditch. The site provides a narrow corridor which connects to Site 115 and Interstate Highway 25 to the south and the Hillsboro Ditch to the north. A narrow riparian corridor with limited willow and wetland development is found throughout the length of this site. There are several cottonwood trees that provide roosting for raptors or nesting for songbirds. Open grassland and farm land is available for raptor hunting on adjacent lands. There is limited habitat for supporting wetland species, amphibians, songbirds and reptiles. The site has medium enhancement potential. Planting cottonwoods, willows and shrubs along the drainage and improving cover and forage for wildlife would improve the quality of the site. There are several Russian olive trees that need to be controlled. Also, there is a large number of weedy herbaceous species throughout the surrounding lands which limit the value of the site. Canada thistle is scattered throughout the site and needs to be controlled. Wetlands function primarily in improving water quality by filtering sediments and providing nutrient uptake. The channel is densely vegetated, which helps to slow runoff.

SITE 114 - CATTAIL MARSH AND POND

It was difficult to tell much about this site from the air. It appears to support a cattail marsh and a small pond. The wetlands likely retain sediment and nutrients and also serve as wildlife habitat.

SITE 115 - LARGE WETLAND SWALE

This site is a large wetland area composed primarily of stands of reed canary grass and cattails. The wetlands provide wildlife habitat and water quality benefits, primarily sediment and nutrient retention. The site is relatively open with a few scattered stands of cottonwoods and peach-leaf willow. The site is bordered on three sides by cultivated fields and bordered by the I-25 Frontage Road to the west. Potential enhancements could include creation of open water areas and the planting of additional tree and shrubs.

SITE 116 - CATTAIL SWALE

This site is a large cattail wetland that provides water quality benefits as it traps sediment and provides nutrient retention. The site also provides wildlife habitat, primarily red-winged blackbird nesting habitat. Potential for enhancement includes creation of interspersed open water areas for wildlife, and planting of trees and shrubs.

SITE 119 - CHAPMAN RESERVOIR

Chapman Reservoir is likely used for storage of irrigation water. The reservoir is surrounded by agricultural lands with minimal natural vegetation around the perimeter. The wetland development along the margin of the reservoir is mostly cattails. There are small cottonwoods around the perimeter of the pond in scattered patches, as well as some Russian olives. The site provides fairly good habitat for songbirds, raptors and herptiles. Red-winged blackbirds are likely to nest in the cattails and other songbirds would use the woody habitat. The site provides excellent resting habitat for waterfowl. It is uncertain if the reservoir provides shallow areas for waterfowl feeding. Muskrats, raccoons and other small mammals are likely found on the site. The enhancement potential for this site is high. Enhancement possibilities include improving the riparian zone around the margin of the reservoir by planting cottonwoods and other trees and

shrubs. Enlarging the buffer area around the reservoir by planting grassland woody species would also improve the value of the area for wildlife. Eradication of Russian olives is recommended. The wetlands surrounding the reservoir provide wildlife habitat and water quality benefits by filtering sediment and the uptake of nutrients from adjacent agricultural land runoff.

SITE 120 - POND
This site was reviewed from the air. The pond likely provides loafing and feeding habitat for waterfowl and shorebirds. The cattail margin of the pond provides some wildlife habitat and likely helps to stabilize the shoreline and filter runoff as it enters the pond. Because the pond is isolated (surrounded by agricultural land) its importance to the region is limited.

SITE 121 - SHALLOW LAKE
This site consists of a small shallow pond surrounded by agricultural lands. This pond provides a good habitat for waterfowl. Ducks were observed on the pond during the site visit. The pond supports a perimeter of wetlands that provide wildlife habitat and nutrient uptake. There are no trees or shrub cover on the site. The grassland surrounding the pond appears to be heavily grazed. Except for waterfowl and possibly some amphibians, the site has limited habitat for other wildlife. The habitat enhancement potential for the site is low. Tree and shrub plantings around the pond would provide roost and nest sites for birds and cover for small mammals. Additional cover would also improve conditions for waterfowl nesting. Removal of livestock would improve the quality of the grassland and provide better habitat for ground nesting birds and other wildlife. Establishment of native grasses could also improve the quality of the site.

SITE 123 - WETLAND SWALE
This site is located along an intermittent stream northeast of Campion. The drainage on this site supports a mixed riparian wetland corridor and adjacent grasslands. Portions of the site are bordered by agricultural fields. Drainage from a small upstream pond helps support a narrow wetland drainage vegetated with cattails and bulrush. Wildlife habitat and use of the site is limited. The site has potential for use as a corridor when linked with sites 124, 125, and 126 and would facilitate wildlife movements. This site has limited potential for enhancement. Shrub and tree planting along the drainage and establishment of native wetland species would improve the quality of wildlife habitat. Canada thistle is common throughout the upland sites along this parcel and needs to be treated. The establishment of native grasslands on upland portions of the site would also be beneficial to wildlife. Portions of the site appear to have been disturbed by excavation and revegetation of these areas would enhance the site. Wetlands on the site have a beneficial effect on water quality. Wetlands help to capture sediments, uptake nutrients and control runoff.

SITE 124 - WETLAND COMPLEX
This site was difficult to review from the air. Site 124 forms a complex and serves as a corridor that links sites 123, 125, and 126. The site is located north of Campion along an intermittent drainage. Wetlands and ponds provide wildlife habitat and likely trap and retain sediment and nutrients.

SITE 125 - SMALL PONDS AND WETLAND SWALE
This site is located north of Campion along an intermittent drainage. Included on this site are two small ponds and riparian habitat along the drainage. The site could provide potential corridor linkage with sites 124, 125, and 126. Vegetation diversity is limited and numerous weedy species are present. The pond provides foraging habitat for waterfowl. A great-blue heron was noted using the site. The enhancement potential of the site is low. Habitat improvement around the larger pond to the south includes planting trees and shrubs and removal of Russian olives. This

would increase the amount of cover and forage for songbirds and other wildlife. Canada thistle in the pond area and on several disturbed areas needs to be controlled. The ponds provide sediment retention and attenuation of stormflows. Cattail wetlands provide water quality benefits and wildlife habitat.

SITE 126 - LARGE CATTAIL SWALE

This site is located along an intermittent drainage north of Campion. The drainage supports a riparian plant community and provides a corridor for wildlife movement. Vegetation includes cattails along the drainageway, with grassland and weedy forbs along side slopes. The only woody vegetation on the site is a few Russian olives. The cattails provide habitat for red-winged blackbirds and swallows nest in the boxed concrete culvert under the road. Habitat for raptors, herptiles and mammals is limited. The site has low enhancement potential. Enhancement options might include tree planting along the drainage. There appears to be sufficient moisture to support shrub planting along the margins of the wetlands. Creation of an in-stream pond would provide additional habitat diversity and detention of storm water flows. There are a few Russian olives that should be cleared out. Weed control is also recommended for the upland side slopes. The site provides a small corridor for wildlife movement with possible linkage to a longer corridor consisting of sites 123, 124, and 125 or through agricultural areas. Wetland functions include water quality improvements, sediment trapping, nutrient removal and storm water detention.

SITE 127 - CATTAIL POND

This site contains a large pond located just to the northwest of Campion. The pond has mostly filled in with cattails and does not appear to currently support large areas of open water. The site has a small fringe of open water on the northeast side with some evidence of duck use. There are some grasslands surrounding the pond, but limited woody vegetation. The cattails provide habitat for red-winged blackbirds and ducks. Waterfowl and shorebirds are likely to use the open water portions of the pond. Raptors may hunt in the area, although the site lacks good perch trees. An American kestrel was noted in the area. There is high potential for enhancement if an adequate water supply is available to maintain a portion of the pond as open water and marsh habitats for waterfowl. The planting of cottonwoods and other trees and shrubs would improve the habitat potential of the site for songbirds, raptors and small mammals. Noxious herbaceous weeds were not observed, although Russian olives should be removed. Wetland functions are primarily related to water quality and wildlife habitat. The pond provides a sink for nutrients and sediment.

SITE 128 - WETLAND SWALE

This site is located south of Ryan Gulch Reservoir. The site is bordered by irrigation ditches with a broad drainage swale running through the center of the property. Vegetation cover is dominated by open grasslands. There are scattered cottonwoods and Russian olive trees on the south end of the property. The drainage swale includes bulrush and patches of cattail. There is no open water apparent in the channel. This site provides fair habitat for a variety of wildlife, and likely facilitates wildlife movement to Site 35 and Ryan Gulch Reservoir. The site has moderate enhancement potential. There is a possibility of creating small ponds along the drainage to provide habitat for waterfowl, amphibians and reptiles. Tree and shrub plantings around the pond and throughout the corridor for songbirds would be beneficial. Canada thistle patches should be controlled and Russian olives at the upper end of the drainage should also be removed. Establishment of native grasses and shrubs would improve the plant diversity of the site and value for wildlife. The wetlands likely provide nutrient retention and some habitat for wildlife.

SITE 129 - LARGE WETLAND SWALE

This linear tract of land is located south of Ryan Gulch Reservoir. This site is a mesic meadow dominated by grassland with scattered wetland areas. The wetland areas are located along a

broad swale. Open water was not observed on the site. There are a few cottonwood trees on the south end of the site. A small prairie dog town is located on the site. Raptors are likely to roost in the large cottonwood trees and hunt prairie dogs and other small mammals. Wildlife movement through the site to Ryan Gulch Reservoir and other lands is possible. The enhancement potential for this site is low. It does not appear there is sufficient surface water available for development of water features. Maintenance of the existing grassland species and introduction of native plants would increase the vegetation diversity of the site. Small areas of Canada thistle should be treated. There is potential for plantings of trees and shrubs along the ditch where the existing cottonwood trees are located.

SITE 132 - CATTAIL DRAINAGE AND PONDS

This site is located just north of Lone Tree Reservoir along the South Side Ditch. This site includes a small pond complex with a swale below it. Riparian wetlands are dominated by cattails and rush. The area also supports grasslands and a few small cottonwood trees. Agricultural lands surround most of the site. The pond is currently used by ducks and other waterfowl. Trees around the pond and grass meadows support songbirds. A prairie dog colony is located on the site and may provide forage for raptors or other predators. The site has high potential for enhancement. The area could serve as a corridor connecting this site to sites 130 and 135 to the north and Lone Tree Reservoir to the south. Habitat enhancement options include removal of the Russian olive trees that surround the ponds, the planting of cottonwoods and other trees and shrubs to provide improved habitat for songbirds and other wildlife. Improvements to the wetland habitat around the ponds could include littoral zone development to enhance wetland vegetation along the shorelines. Improving the diversity of wetland vegetation below the ponds would also increase the quality of the site. Planting native forbs and grasses in the upland portions of the site would be beneficial. Wetlands adjacent to the ponds and along the drainage provide wildlife habitat and serve to improve water quality.

SITE 133 - SMALL LAKE AT BONNELL DR.

This site is located along an intermittent drainage east of Bonnell Drive. The site includes a pond with a perimeter of cattails, as well as upland grasslands. Cottonwood trees are found along a ditch and the east side of the pond. Russian olives and scattered shrubs occupy a portion of the shoreline. The site provides habitat for waterfowl such as ducks and great blue heron. Wetlands around the pond provide wildlife habitat, shoreline stability and sediment filtering. The lake appears to be shallow and eutrophic, with algae mats across the surface. Runoff from a horse corral to the west may be one of the sources of nutrients. The upstream watershed includes agricultural and residential development. The pond likely detains sediments and nutrients from reaching downstream lakes and other waters. Enhancement potential could include shrub plantings, such as chokecherries along the pond edge, to provide additional cover for songbirds. Additional cottonwood plantings to replace some of the older trees would also be valuable. The pond appears to be shallow and may require dredging to maintain its level of function. Russian olives should be removed.

SITE 135 - UPPER RYAN GULCH RESERVOIR

This site was reviewed by air and should be reviewed on the ground. At the time of review the site was drained. When filled, the site provides loafing and feeding habitat for waterfowl. When drained, the site likely provides habitat for shorebirds. Wetlands at the upper end provide wildlife habitat and filter sediment from runoff prior to it entering the reservoir. This site provides a linkage with sites 46, 136 and 132, therefore serving as a corridor.

SITE 136 - WETLAND SWALE

This site is located along a tributary that enters the small reservoir below Ryan Gulch Reservoir. The majority of the site is dominated by wetland vegetation. The downstream portion of the site is primarily vegetated with cattails. The upstream portion contains a small defined channel with a mixture of grasslands and open water habitat for amphibians, reptiles, and waterbird use. Important wetland functions include sediment and nutrient uptake, which helps benefit water quality in the reservoir below. The site provides wildlife habitat and a movement route along the corridor to the reservoir. Red-winged blackbirds are common in the cattail vegetation. Ground-nesting birds such as meadow larks were observed in the upland grasslands. The enhancement potential for this site is moderate. Enhancement opportunities are primarily in the upper part of the drainage, above the cattails, where tree and shrub plantings would be beneficial. Maintenance of this site would provide songbird, waterbird and fertile habitat. There are some scattered patches of thistle and several clumps of Russian olives that should be controlled.

SITE 137 - BIG THOMPSON RIVER AT HWY 34

This site along the Big Thompson River provides a valuable diverse mixture of vegetation and habitats. The site includes river-aquatic habitat, wooded floodplains, wetlands and upland grassland and shrubs. The site includes a small wetland area dominated by cattails with an unknown source of hydrology on the west side of the property. In addition there may be other wetlands along this reach of the Big Thompson River. The diverse habitat provides excellent conditions for a variety of wildlife. Cottonwoods provide nesting and roosting habitat for raptors and songbirds. Shrubs and grasslands also provide excellent foraging and cover habitat for deer, rabbits, skunks, coyotes and other mammals. Enhancement opportunities are low due to the general good condition of the area. Limited weed control and removal of Russian olives could be conducted. There is potential for improving upland habitats with native grassland restoration or additional planting of a more diverse mix of shrubs. Dead cottonwood snags should be preserved for cavity-dwelling birds and wildlife, and raptor perches. Wetlands at this site likely provide streambank stabilization, wildlife habitat and some flood attenuation.

SITE 138 - RIST BENSON LAKE

This site is a large reservoir located in the urban area of the City of Loveland. This reservoir is developed throughout most of the perimeter with single family homes and apartments. The south side includes an embankment, dam and roadway. There are several perimeter wetland areas scattered along the shoreline. Wetland development is marginal because of the steep rocky shoreline. Wetland functions include shore protection, and sediment retention and nutrient uptake from surrounding lands, which provide benefits to lake water quality. Songbirds benefit from cottonwood trees and the ornamental shrubs and trees in the residential areas. Waterfowl such as grebes, geese and ducks use the site for resting. There is limited waterfowl habitat for foraging or nesting. Very little habitat is available to support mammals. The cottonwood stand on the southeast corner of the lake provides nesting and roosting habitat for black-crowned night-heron, according to a local resident. The east side of the lake near the apartments provides an area of open non-native grassland and represents one of the few areas that have not been developed. There is low potential for enhancement of the area. Shoreline planting of trees and shrubs would be beneficial to wildlife. Preservation of existing habitats and minimizing the amount of additional disturbance would help maintain the value of the site. New encroachments on the reservoir from additional housing or development could result in less wildlife use in the area. There could be a number of water quality impacts associated with the surrounding urban development. The use of fertilizers and the nutrients and/or pesticides associated with them on lawns could add contaminants to the lake. Nutrients can increase the potential for eutrophication, or nutrient enrichment, of the lake. Bluegrass lawns may provide somewhat favorable habitat for geese, but they may be a nuisance to home owners, and compete with other waterfowl.

2007 COMMENTS (SITES 139-153*)

SITE 139 – GRAVEL PIT PONDS

This site consists of two empty sand and gravel pits (east and middle) that will be used for water storage to meet Loveland Ready-Mix's needs for mining operations and a third reclaimed gravel pit (west) that supports a small lake. At the time of the field evaluation, the east and middle pits were dry except for small pockets of surface water accumulation in the pit bottoms. Typical of most gravel pits, the pit banks are relatively steep, reducing the potential for development of any extensive wetland littoral zones around the pond edges. The upper perimeters of the two dry (middle and east) pits are dominated primarily with alfalfa and kochia with little woody plant development. The pit bottoms currently support scattered, small stands of sapling Russian olives and plains cottonwoods. Plant growth within the pits will be lost once the east and middle pits are filled with water. The west pit/pond supports a more diverse, but narrow, shoreline vegetation community comprised of coyote willow, plains cottonwood, peach-leaf willow, Russian olive, common cattail, and reed canarygrass, as well as weedy species such as prickly lettuce, curly dock, and Canada thistle. Most of the trees species are young except for a few relatively large plains cottonwoods. The west pond supports bass and crappie (Brad Fancher, pers. comm.) and a number of ducks and Canada geese were noted on the pond during the field survey. The west pond received a relative high wildlife ranking (especially for songbirds, waterbirds, aquatic species), but the current overall wildlife ranking for the entire area is restricted by the lack of water in the middle and east pits.

The west lake and the two empty gravel pits, when filled, have a relatively high enhancement potential because of their proximity to the Big Thompson River riparian corridor. However, the enhancement potential of the middle and east pits will be dependent upon the stability of water levels in the pits once they are filled. Plantings of native, upland tree, shrub, and herbaceous species around the perimeters of the ponds would enhance habitat diversity and create vegetation cover between the ponds and the Big Thompson River riparian corridor. Existing Russian olive trees should be eradicated to assist the establishment of native vegetation.

SITE 140 – RECLAIMED GRAVEL PITS AND ACTIVE MINING

The western two-thirds of this site consist primarily of active sand and gravel extraction activities with no natural habitat features. These areas will eventually be reclaimed to upland grassland with some natural areas potential. The southeast corner of this area has been mined and reclaimed to upland grassland dominated primarily by smooth brome and kochia.

The eastern third of this site consists of an excavated pit (south two-thirds) that will be backfilled and reclaimed as upland grassland and a backfilled pit (north one-third) reclaimed primarily to upland grassland. Dominant vegetation species recorded in the reclaimed pit were wheat, alfalfa, intermediate wheatgrass, yellow sweetclover, inland saltgrass, and kochia. A narrow band of wetlands is developing within a small ditch that collects moisture around the perimeter of this reclaimed pit. Stands of common cattail and switchgrass have developed in this wetland ditch. Wildlife use of reclaimed portions of this area is limited to small mammal and songbird species associated with upland, open-country grassland habitats.

The enhancement potential of this site is low because of the lack of surface water features and the reclamation focus on re-vegetating reclaimed areas to upland, non-native grasslands lacking woody species.

SITE 141 – COMMERCIAL TREE NURSERY
This site consists almost entirely of an active commercial tree nursery adjacent to the Big Thompson River riparian corridor. The site boundaries do contain a few minor inclusions of the Big Thompson River riparian corridor as well. Other than these inclusions the site contains no natural area features due to ongoing tree nursery operations. Wildlife use of the tree nursery portions of the site is limited to urban adapted songbirds and mammals such as house finch, house sparrow, common grackle, raccoon, and striped skunk.

Small inclusions of riparian habitat in conjunction with the Big Thompson River corridor provide an important wildlife habitat for a variety of wildlife species that would not be found, otherwise, in areas of urban development. Trees and snags in riparian habitats provide important foraging and/or nesting habitat for hawks, great blue heron, owls, woodpeckers, and a variety of songbirds. Mammals such as mule deer, raccoon, red fox, striped skunk, and coyote also use riparian habitats. Trees of appropriate size and configuration may support raptor nesting activity.

Although this site is adjacent to the Big Thomson River corridor, the enhancement potential was rated as only moderate because of the nearly total lack of native habitats and rooted wooded species within the tree nursery areas. Removal of tree nursery facilities and plantings of native shrub, tree, and herbaceous riparian species would be necessary to enhance this property.

SITE 143 – UPLAND GRASSLAND AND TREES
This site consists primarily of what appears to be cultivated ground that has been left fallow. It is currently mowed either for weed control or hay production. Because of past cultivation, the site is dominated by non-native and weedy species. Dominant herbaceous species supported on the property include smooth brome, wheat, prickly lettuce, crested wheatgrass, kochia, and Russian thistle. Woody species are limited primarily to pockets of large, mature plains cottonwoods at the southeast and northeast property corners. The primary wildlife value of the site is for grassland-associated small mammal and songbird species. The site may be grazed by Canada geese as well. Because of the presence of large cottonwood trees the site may also be hunted by open-country, urban-adapted raptors such as red-tailed hawk, American kestrel, and great horned owl. A raptor nest (likely red-tailed hawk) is located in one of the larger cottonwood trees at the southeast property corner. The proximity of heavily traveled roadways (Taft Avenue and 1st Street) and residential developments reduces the overall suitability of the site for use by raptors.

Enhancement potential for this site was rated as low because of its past conversion to agricultural use, relative small size, and proximity to roadways and developed properties.

SITE 144 – GRAVEL PIT POND AND GRASSLAND
This site is comprised of two distinct land use types: reclaimed gravel pit pond in the northwest corner and upland grassland in the northeast corner and the remainder of the site.

The wetland shoreline zone around the perimeter of the gravel pit pond is relatively narrow, and wetland vegetation is generally not well developed. In most areas the top of the gravel pit bank creates a sharp demarcation between the shoreline wetland zone and topographically elevated areas supporting primarily upland vegetation species. Wetlands are present in the relatively narrow shoreline zone where wetland associated vegetation has established between the bank side slope and open water. Wetland vegetation supported around the perimeter of the gravel pit pond consists primarily of small, scattered pockets of coyote willow, reed canarygrass, young plains cottonwoods, Russian olive, Baltic rush, and common cattail. Waterbird use of the pond is limited primarily to loafing and resting. The general lack of emergent vegetation and shallow water areas limits the suitability of this pond for foraging use by waterfowl and other waterbirds.

Upland grassland appears to have been reseeded to grassland over formerly disturbed sites. This area is dominated by a virtual monoculture of a single, non-native grass species, intermediate wheatgrass. The small area between cultivated grassland and the pond north of Site 144 is a developed recreational area for the use of Agilent employees. Grasslands present on the property have been cultivated, and as a result, support limited vegetation species diversity and very little shrub cover. As a result, wildlife species utilizing these areas are represented primarily by small mammals and songbirds that prefer open grassland habitats. Because of the presence of large trees along the Big Thompson River and around reclaimed gravel pit ponds to the north, the grassland areas may be hunted by open-country raptors such as red-tailed hawk, Swainson's hawk, and great horned owl.

Overall, Site 144 has relatively low enhancement potential. The majority of the site has been cultivated to non-native grassland. The pond at the northwest corner has a slightly higher enhancement potential over the remainder of the site, but the pond shoreline configuration would require considerable regrading and supplementary planting to create a more diverse combination of wetland and aquatic habitat.

SITE 145 - GRAVEL PIT PONDS, GRASSLAND, AND DISTURBED

This site is comprised of three distinct land use types: reclaimed gravel pit ponds at the west end and northeast corner, upland grassland in the northeast portion, and disturbed in the center.

The northeast portion of property appears to have been mined for sand and gravel extraction in the past and reclaimed to a small pond and upland grassland. The embankments of the pond are relatively steep-sided with little opportunity for development of extensive wetland littoral zones around the pond edges. It is likely the grassland portion of this area is dominated by non-native smooth brome and intermediate wheatgrass. The pond at the west end of the site is much larger and has been more recently reclaimed. It has more gently sloping embankments with greater potential for wetland shoreline development than most reclaimed gravel pit ponds. Surrounding grassland habitat at the west pond is dominated by smooth brome intermixed with alfalfa, kochia, crested wheatgrass, and blue grama. The upland grasslands are mowed, either for hay production or weed control. Waterbird use of the ponds is limited primarily to loafing and resting. The general lack of emergent vegetation and shallow water areas limits the suitability of these ponds for foraging use by waterfowl and other waterbirds. The lack of woody vegetation cover in the grassland areas restricts use of these habitats to small mammals and songbirds that prefer open grassland habitats. Because of the presence of large trees along nearby portions of the Big Thompson River, the grassland habitats may be hunted by open-country raptors such as red-tailed hawk, Swainson's hawk, and great horned owl.

The disturbed portion of the site appears to have been used as a materials lay down or facilities area for sand and gravel extraction operations. The facilities have been removed, but no other reclamation appears to have been attempted at this location. As a consequence, the area exhibits highly compacted soils dominated primarily by weedy, invasive species including cheatgrass, kochia, western ragweed, curly dock, musk thistle, and Siberian elm.

The disturbed area, reclaimed grasslands, and gravel pit pond areas have a moderate enhancement potential, due primarily to their proximity to the Big Thompson River riparian corridor. Both grassland areas and pond perimeters would benefit from the plantings of native shrubs and trees to expand woody riparian cover from the river to the pond margins. Stands of Russian olive in the northeast portion should be eradicated. The disturbed area should be cleared of weedy

species, ripped to relieve soil compaction and planted to an upland mixture of native herbaceous and woody species.

SITE 146 – GRAVEL PIT POND, WETLANDS, AND UPLAND GRASSLANDS

The site appears to have been mined for sand and gravel extraction in the past and reclaimed to a small pond and upland grassland. Emergent wetlands are developing around the pond perimeter as well as along small ditches and depressions located throughout the property. The embankments of the reclaimed pond are less steep than most gravel pit ponds, and as a result, a more diverse and extensive wetland littoral zone has developed around the pond perimeter. Both herbaceous and woody wetland species, including plains cottonwood, coyote willow, and common cattail are present. The cottonwood trees are mostly sapling size at present, but they should mature to larger specimens over the years. Habitat diversity in the upland grassland area is increased by linear wetlands along the ditches and wetlands developing in low-lying areas around the site perimeter. Songbird, mammal, and reptile/amphibian ratings were high for this site because of the diverse mix of herbaceous and woody vegetation as well as the presence of a small pond with a diverse wetland shoreline zone.

Habitat enhancement potential was rated as high for this site because of the developing stands of woody vegetation, existing pond with extensive shoreline wetlands, and adjacency of the western site boundary to the Simpson Ponds State Wildlife Area. Plantings of upland woody species in the grassland habitat areas would create additional habitat diversity in the upland areas.

SITE 147 – PONDS, PASTURE/WETLAND MEADOW, HAYFIELD, AND MINING

This site is composed of three distinct land use types: hayfield, pasture, and mining. The area east of County Road 9E supports primarily non-native grass species that are mowed for hay production. A small wetland pond is also present adjacent to the east side of County Road 9E. The pond appears to be spring fed and supports dense stands of common cattail and Nebraska sedge with only small pockets of open water. Russian olives grow around the perimeter of the pond. Grassland-associated small mammals and songbirds are the principal species groups that would use this portion of the site. The small pond has limited value for most waterbirds due to its small size and a lack of open water, but wetland-associated songbirds like red-winged blackbird and song sparrow may use the pond's herbaceous vegetation for nesting.

The center portion of the site west of County Road 9E is comprised primarily of a mosaic of upland and wetland meadow grassland habitats that are used for livestock grazing. This grassland is dissected by a number of small drainages that support relatively narrow wetlands along their lengths, but broader herbaceous wetlands are present in areas where the drainages intersect and at other low-lying sites within upland grassland. The upland grasslands support primarily non-native species such as intermediate wheatgrass, smooth brome, and tall fescue. However, the wetland areas support a mix of native species including inland saltgrass, Baltic rush, foxtail barley, three-square, and Nebraska sedge. Watercress (a non-native) is present where flowing water was observed.

Two small ponds are also present at the north end of the portion of the site adjacent to the Big Thompson River riparian corridor. The larger, western pond consists of open water with a steep-sided shoreline with very little wetland development in the littoral zone. Livestock trampling and grazing probably also restricts wetland development. The smaller and shallower pond to the east consists of shallow pockets of surface water intermixed with emergent wetlands. This pond has the potential to support a relatively diverse wetland community if protected from livestock grazing. The far west end of the center portion of the site contains a residence and a small pocket of upland riparian habitat. Grassland-associated small mammals and songbirds, as well as a

number of wetland-associated reptiles and amphibians, are the principal species groups that would use upland and wetland meadow habitats.

The west portion of the site is comprised entirely of an abandoned gravel mine pit. The pit has not been filled with water, although small, shallow pockets of surface water in the bottom of the pit are supporting some wetland development. It is unknown if there are any plans to reclaim this gravel pit or use it for water storage. In its current condition, it has little value as wildlife habitat. Side slope vegetation is dominated by kochia while tamarisk is the dominant woody species developing in the pit bottom. Reclamation of this area as uplands or a pond would improve its natural areas potential.

Enhancement potential for the entire site except for the abandoned gravel mine pit was rated as high. Because of the proximity of the upland grassland, wetland grassland, and hayfield habitats to the Big Thompson River corridor, there is a relatively high potential for creating a diversity of open wetland and upland grassland habitats intermixed with riparian habitat along the Big Thompson River. The overall diversity and structure of herbaceous upland and wetland vegetation should improve considerably over time with the removal of livestock grazing. Plantings of upland and wetland woody species in the open grassland areas would further enhance habitat diversity.

SITE 149 – GRAVEL PIT POND AND HAYFIELDS

This site consists of two distinct land use types: gravel pit pond and hayfield. The gravel pit pond at the far west end of the site appears to have been recently reclaimed. The pond has a typical gravel pit configuration with relatively steep side slopes, limited potential for wetland development in the littoral zone, and adjacent upland areas reclaimed to non-native grassland lacking woody species. Lack of woody vegetation and shoreline habitat diversity limits wildlife habitat value of these ponds. Loafing and resting by waterbirds is the primary wildlife value of this pond.

The remainder of the site is comprised entirely of irrigated hayfield dominated by a monoculture of smooth brome intermixed with occasional pockets of weedy species including kochia, cheatgrass, dandelion, and field bindweed. This area is primarily used for hay production, but is also occasionally grazed by cattle and horses. A small prairie dog town is located at the northwest corner of the hayfield area. A small, flowing water, below grade, wetland area is also present at the west end. This wetland appears to be receiving overflow water from the adjacent gravel pit pond via a culvert under the roadway that separates these two areas. Because of the past conversion of this area to non-native grassland that is mowed for hay production, wildlife use is limited to a few open-country grassland species such as western meadowlark, northern pocket gopher, black-tailed prairie dog, and thirteen-lined ground squirrel. Open country raptors such as red-tailed hawk and great horned owl may occasionally hunt hayfield habitat, and deer will wander out of the nearby Big Thompson River riparian corridor to forage in the hayfields.

The enhancement potential for Site 149 was rated as low due to the conversion of the area to non-native grassland hayfield and gravel pit pond. Habitat diversity is further limited by the total lack of woody vegetation.

SITE 150 – PASTURE AND MINING

This site is comprised almost entirely of irrigated livestock pasture except for the north portion of the west end, which is currently being mined for sand and gravel extraction. Eventual reclamation of the mined areas will improve their natural areas potential. Pasture areas are dominated by non-native grass and weedy species. Smooth brome, intermediate wheatgrass, tall

fescue, crested wheatgrass, lambsquarters, mullein, kochia, Canada thistle, musk thistle, and flixweed are the dominant vegetation species. Woody species are represented primarily by linear stands of Russian olive growing along the irrigation ditches that criss-cross the property. Wildlife use is limited to a few open-country grassland species such as western meadowlark, northern pocket gopher, black-tailed prairie dog, and thirteen-lined ground squirrel. Open country raptors such as red-tailed hawk and great horned owl may occasionally hunt hayfield habitat, and deer will wander out of the nearby Big Thompson River riparian corridor to forage in hayfield. A small prairie dog town is located near the center of the property just east of the livestock corrals.

Although portions of this site are adjacent to the Big Thompson River riparian corridor and the Big Thompson Ponds State Wildlife Area, the enhancement potential for this site was rated as only moderate because active mining is occurring adjacent to the Big Thompson River. In addition, portions of the site adjacent to the Big Thompson Ponds State Wildlife Area are dominated by non-native grasslands degraded by extensive livestock grazing. Site enhancement would require conversion to native grassland, removal of Russian olives, reduction or exclusion of livestock grazing, and plantings of native woody species.

SITE 151 - CROPLAND, WETLAND DRAINAGES, AND WEEDY FIELD

This site is comprised of two distinct land use types: weedy field and cropland. Weedy field is the portion to the west of County Road 17. This area has been disturbed in the past and is now vegetated by annual weeds and non-native grasses. A small wetland drainage also bisects this area. Kochia, prickly lettuce, Russian thistle, smooth brome, crested wheatgrass, cheatgrass and field bindweed dominate this portion of the site. The wetland drainage supports small pockets of Baltic rush and clustered field sedge. The only woody species supported in this area are three partially decadent peach-leaf willows at the southwest corner. A prairie dog town located at the north end of this parcel extends to the north into similar habitat. Wildlife use is limited to a few open-country grassland species such as western meadowlark, northern pocket gopher, black-tailed prairie dog, and thirteen-lined ground squirrel. Open country raptors such as red-tailed hawk and great horned owl may occasionally hunt this area since suitable perch sites are located in larger cottonwood trees to the north of the site.

The remainder of the site is east of County Road 17 and consists primarily of row cropland. The cropland areas were included in this evaluation since they contain two wetland drainages. One enters the property at the northwest corner, the other at the southwest corner. The confluence of these two drainages is at the southeast corner of the property where the wetlands become more extensive. A pond and more extensive wetland development are also present near the upper end of the northwest drainage where it has been dammed. In row cropland all natural vegetation has been cleared. Wheat and corn are the principal crops that are planted. With seasonal cultivation, vegetation cover is absent or sparse during winter and early spring and then increases during the growing season until harvest. After harvest, remaining crop residue is plowed into the soil. In general, the most significant value of croplands is that of providing a seasonal source of food and cover to migratory waterbirds and to wildlife inhabiting adjacent communities. Game species such as ring-necked pheasant, mourning dove, cottontail, and deer frequently forage in agricultural areas if adequate cover and natural habitats are present nearby. Few wildlife species establish resident populations in croplands because food and cover are present only temporarily. Woody vegetation is restricted to the abandoned farmstead site and consists primarily of large cottonwoods and a mix of small and large Siberian elms. These trees provide nest sites for urban adapted songbirds and may be used as perch sites by raptors hunting cropland habitat.

The wetland drainages support dense stands of herbaceous and woody wetland vegetation dominated by common cattail, reed canarygrass, Emory sedge, three-square, Nebraska sedge, and

coyote willow. A large irrigation ditch also bisects the property. The portions of the ditch not lined by concrete support some wetland vegetation (reed canarygrass and coyote willow) development along its lower side slopes. A few large and partially decadent plains cottonwoods also grow aside this ditch at the eastern property boundary. The primary wildlife value of the wetland drainages and ditch are for breeding songbirds and amphibians. A few waterbird species such as mallard and Canada goose may also nest in the wetland drainage. These features also provide sufficient cover to be used as travel corridors by larger mammals such as coyote, red fox, striped skunk, raccoon, and deer.

The enhancement potential of Site 151 was rated as low because of past conversion of the majority of the site to cropland and the lack of any natural areas at surrounding properties (primarily cropland). Enhancement of this site would require conversion of cropland to native grassland and plantings of native woody species along the edges of the wetland drainages.

SITE 152 – PONDS AND PASTURE

This site consists of two ponds, wetland drainage, and pasture. The two ponds are spring fed and water in the north pond also appears to be augmented by a cattail-dominated wetland drainage that enters the site near the southwest corner. Excess water from the ponds leaves the property at the northwest corner in a wetland drainage dominated by cattails and Russian olives. The two ponds were constructed in the early 1990s according to the landowner and water from the southern pond is used for sprinkler irrigation of the south livestock pasture. The landowner also indicated the ponds are used for recreational fishing and waterfowl hunting. Bass, trout, catfish, and crappie have been stocked in the ponds.

The ponds are relatively steep-sided and herbaceous wetland vegetation is restricted to a thin band except in the area where the wetland drainage enters the north pond. Trees consisting primarily of Rocky Mountain juniper and Russian olive also line the perimeter of the north pond. A few white poplars, Siberian elms, and peach-leaf willows are also present. Other species growing in the wetland zone around the north pond are Wood's rose, common cattail, showy milkweed, and coyote willow. Wetland and tree development around the south pond is more limited due to very steep pond embankments and recent pond maintenance/excavation activities. A small riparian stand of trees is supported at the southeast corner of this pond where spring water enters the pond. Trees supported in this area include Russian olive, peach-leaf willow, plains cottonwood, Rocky Mountain juniper, and peach-leaf willow. The diversity of trees and other woody and herbaceous cover (primarily around the north pond), in conjunction with pond aquatic habitat, create a relatively diverse habitat area for songbirds, waterbirds, and amphibians. The ponds also provide a water source for terrestrial wildlife using adjacent upland habitats.

The south pasture area has been heavily grazed, and in many areas weedy forbs such as filaree, curly-cup gumweed, and lambsquarters are more dominant than non-native pasture grass species. A small area of prairie dog burrows is also present in this pasture, but no prairie dog activity was observed. This area has limited wildlife habitat value because of the lack of any woody species and minimal herbaceous cover resulting from heavy livestock grazing. The north pasture area differs in that it did not appear to receive as much grazing pressure and wetland meadow areas are intermixed with the upland pasture. The wetland areas were saturated to the surface and may be the result of a spring or seepage from the north pond. Dominant vegetation species in the upland portions of the north pasture are intermediate wheatgrass, tall fescue, and smooth brome. Wetland portions of this pasture support a mixture of Baltic rush, swamp milkweed, three-square, and western lined aster. Woody cover is lacking except for a few plains cottonwoods growing along an irrigation ditch. Wildlife use of the pasture areas is limited to open-country grassland species such as western meadowlark, northern pocket gopher, black-tailed prairie dog, and

thirteen-lined ground squirrel. Open country raptors such as red-tailed hawk and great horned owl may occasionally hunt this area since suitable perch sites are located in larger trees surrounding the ponds and along an irrigation ditch. The wetland meadow within the north pasture may also support potential habitat for the threatened Ute ladies'-tresses orchid.

Enhancement potential was rated as moderate for this site primarily because of the presence of ponds with well-established woody perimeters and the fact that this site has wetland drainage connection to other natural areas both upstream and downstream. Enhancement of the site would require removal of livestock grazing pressure, conversion of non-native pasture to native grassland, and plantings of native upland woody vegetation in the pasture areas.

SITE 153 – SMALL LAKE

This site consists almost entirely of a small lake used for agricultural irrigation purposes. Wetland and upland native vegetation development around the perimeter of the lake has been severely restricted by row cropland activities up to the edge of the lake on the west and south sides, and a dam and embankments on the north and east sides that have been rip-rapped to limit the erosive forces of wind and water. The north end of the lake also has developed recreational facilities that have precluded any native vegetation development. Wetland communities at the lake are restricted to a narrow line (less than 10 feet wide in most areas) of vegetation between the lake shoreline and row cropland along the west side of the lake. Common cattail, reed canarygrass, and coyote willow are the dominant plants in this narrow wetland shoreline zone. The primary wildlife habitat value for this lake is for waterbird loafing, resting, and migratory stopover. The general lack of an emergent wetland zone around the lake's perimeter limits its value as a waterbird nesting or feeding area.

Enhancement potential for the lake was rated as low because of the near complete lack of wetland or native vegetation development around the lake perimeter and surrounding land uses. Enhancement would require the conversion of row cropland to native upland vegetation communities and supplemental plantings of native trees and shrubs around the pond perimeter.

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* Sites 108, 110, 117, 118, 122, 130, 131, 134, 142 and 148 were eliminated after field review indicated they did not have characteristics associated with natural areas.