

City of Fort Collins Natural Areas Department **CORE NATURAL AREAS**

Management Plan

October 2015



naturally yours

City of Fort Collins Core Natural Areas Management Plan

October 2015

Natural Areas Included in this Plan:

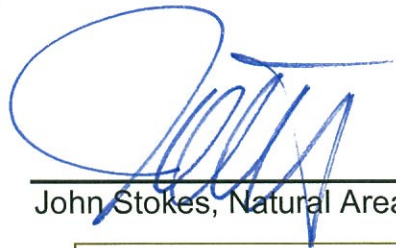
Red Fox Meadows	The Coterie
Fischer	Redwing Marsh
Ross	Evergreen West Pond (Future Natural Area)
Mallard's Nest	Site #13IS1 (Future Natural Area)

Core Natural Areas Management Plan Team:

Karen Mancini, Natural Areas Senior Environmental Planner and Project Manager
Mark Sears, Natural Areas Manager
Rick Bachand, Natural Areas Environmental Program Manager
Zoë Shark, Natural Areas Community Relations Manager
Daniel Evans, Stormwater Civil Engineer III
John Klingaman, Parks Crew Chief
Jennifer Roberts, Natural Areas Environmental Planner
Bridget Clark, Natural Areas Ranger
Anastasia Patterson, Natural Areas Public Improvements Technician
Mary Boyts, Natural Areas Administrative Clerk I

Memorandum of Adoption

The City of Fort Collins Core Natural Areas Management Plan was administratively adopted by the Natural Areas Director on October 5, 2015.



John Stokes, Natural Areas Director

10-5-15

Date

Natural Areas Department
P.O. Box 580
Fort Collins, CO 80522
Phone: 970.416.2815
www.fcgov.com/naturalareas



Table of Contents

INTRODUCTION.....	1
Scope	1
Purpose	3
Public Input	3
CORE OVERVIEW.....	4
Value	4
Management Zoning System.....	5
Landscape and Vegetation.....	7
Wildlife.....	8
Recreation and Public Improvements.....	8
Ranger Visitor Services.....	10
Education and Volunteers.....	10
Goals	11
RED FOX MEADOWS NATURAL AREA	12
Site History.....	14
Site Management.....	15
Ten-year Site Management Objectives.....	16
FISCHER NATURAL AREA.....	18
Site History.....	20
Site Management.....	20
Ten-year Site Management Objectives.....	22
ROSS NATURAL AREA	24
Site History.....	26
Site Management.....	27
Ten-year Site Management Objectives.....	29

MALLARD’S NEST NATURAL AREA.....	31
Site History.....	33
Site Management.....	33
Ten-year Site Management Objectives.....	35
THE COTERIE NATURAL AREA.....	37
Site History.....	39
Site Management.....	40
Ten-year Site Management Objectives.....	41
REDWING MARSH NATURAL AREA	43
Site History.....	45
Site Management.....	46
Ten-year Site Management Objectives.....	47
EVERGREEN WEST POND (FUTURE NATURAL AREA).....	48
Site History.....	50
Site Management.....	50
Ten-year Site Management Objectives.....	52
SITE #13IS1 (FUTURE NATURAL AREA)	54
Site History.....	56
Site Management.....	56
Ten-year Site Management Objectives.....	57
SUMMARY	59
REFERENCES	61

APPENDICES

- A. Research and Educational Studies on Core Natural Areas
- B. Plants Documented on Core Natural Areas
- C. Animals Observed on Core Natural Areas

MAPS

Map 1. Core Natural Areas in Relation to Other City Local Natural Areas	2
Map 2. Red Fox Meadows Natural Area	13
Map 3. Fischer Natural Area	19
Map 4. Ross Natural Area	25
Map 5. Mallard’s Nest Natural Area	32
Map 6. The Coterie Natural Area	38
Map 7. Redwing Marsh Natural Area	44
Map 8. Evergreen West Pond (Future Natural Area)	49
Map 9. Site #13IS1 (Future Natural Area)	55



Neighborhood access at Fischer Natural Area

Photographic Note: All images were supplied by City of Fort Collins Natural Areas Department staff unless otherwise noted. Additional images were supplied by individual photographers, whom we thank for their generosity and support of the Natural Areas Department.

INTRODUCTION

The City of Fort Collins Natural Areas Department currently manages 43 natural areas ranging in size from the 1-acre Williams Natural Area to the 22,258-acre Soapstone Prairie Natural Area. The Department groups natural areas into one of three main focus areas: Local, Community Separators, or Regional (Natural Areas Master Plan; City of Fort Collins 2014). Local natural areas conserved by the City of Fort Collins Natural Areas Department consist of sites within one of four geographic locations: Cache la Poudre River Corridor, Fossil Creek Corridor, Foothills Corridor, or the Core Natural Areas (Map 1). Core Natural Areas are small urban sites, ranging in size from 4 to 41 acres that fall outside the three major corridors of conserved lands.

Although management plans have been written for local natural areas within the Poudre River, Fossil Creek, and Foothills corridors, this is the first management plan written for the Core Natural Areas. The City of Fort Collins has conserved lands within the Core Area for natural areas values since 1977 when the first site, Fischer, was acquired by Parks for management as an open space.

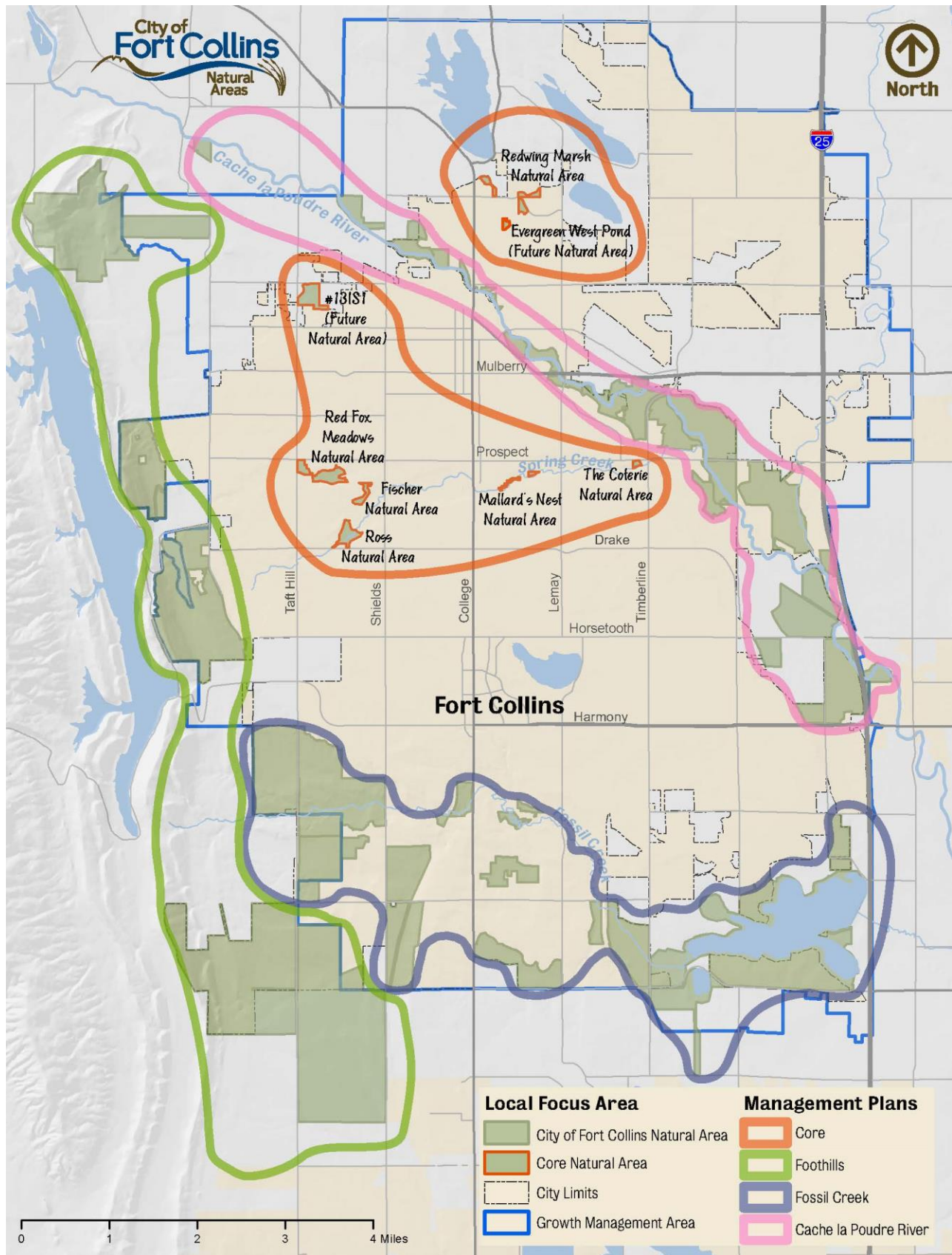
Scope

The Core Natural Areas group currently includes six sites managed by the Natural Areas Department and open to the public: two in the Utility's Canal Importation Stormwater Basin (Red Fox Meadows and Fischer), three in the Spring Creek Basin (Ross, Mallard's Nest, and The Coterie), and one within the Dry Creek Basin (Redwing Marsh).

Two additional sites will be opened to the public within the next 10 years (the scope of this management plan). Evergreen West Pond, in the Dry Creek Basin, will be leased and/or owned by the Natural Areas Department and opened to the public in 2016. Site #13IS1 (a future Stormwater Utility pond) in the West Vine Stormwater Basin could possibly be open to the public and managed as a natural area in the next 5-10 years.



City of Fort Collins Parks Department has management responsibility for the Spring Creek Trail system, which is on four of the of Core sites. Five Core sites are adjacent to or very near City parks. Stormwater Utility jointly owns five of the Core Natural Areas with the Natural Areas Department and has management responsibility for stormwater conveyance on all eight sites.



Map 1. Core Natural Areas in Relation to Other City Local Natural Areas

Purpose

The purpose of the Core Natural Areas Management Plan is to:

1. Develop overarching goals for managing Core natural areas.
2. Document the site history and current management of eight core sites.
3. Solicit input from the public on future management of the City's Core natural areas.
4. Provide a tool to help coordinate site management among City departments.
5. State site management objectives for the next ten years and describe any strategies or actions necessary to achieve those objectives.

The mission of the Natural Areas Department is to conserve and enhance lands with natural resource, agricultural, and scenic values, while providing meaningful education and appropriate recreation opportunities.

Because Core Natural Areas are small and most have been well established in the City system for a decade or more, major changes to site management were not expected during the planning process.

Public Input

An open house was held on August 13, 2015 at the Nix Farm Natural Areas Facility to provide the public an opportunity to review site plans and proposed actions of the Core Natural Areas Management Plan. The open house was announced to the public through a press release, information on the City's website, natural area kiosk posters, social media posts, e-mails to stakeholders, Natural Areas electronic newsletter, and direct mailings to 2,166 households in proximity to the Core Natural Areas.



Interpretive kiosk at Red Fox Meadows Natural Area

The draft plan and an online comment form were also available on the City website through September 15th. During August and September, the draft plan was presented to three City of Fort Collins citizen boards: Parks and Recreation Board, Water Board, and Land Conservation & Stewardship Board.

Overall, the plan received favorable comments with only minor editorial or management suggestions, most of which has been incorporated into this final document.

CORE OVERVIEW

The eight Core Natural Areas under consideration in this management plan are small sites located in the northern half of Fort Collins (Map 1). These properties have an earlier history of active farming and grazing prior to becoming small refuges for wildlife and people in the urban residential framework of our city. To date, no known pre-settlement cultural artifacts have been found on any of these natural areas and little remains of any historic structures, with the exception of major water conveyance ditches that are still operational on four of the sites. All the sites serve a stormwater function in the urbanized Fort Collins landscape.

Due to their central, urban location, each Core Natural Area typically has more than one utility easement and road right-of-way (ROW) associated with the site. Most of these easements and ROWs were in place at the time of acquisition. For new utility easements (granted since 2012), best resource protection practices are applied to protect existing resources and mitigate impacts caused by utility work on a Core Natural Area per the City of Fort Collins Natural Areas Easement Policy (City of Fort Collins 2012) and the General Resource Protection Standards for Natural Areas (City of Fort Collins 2013a).

Value

Because of their smaller size, central location, and separation from each other, the Core sites provide a feel of the “Neighborhood” natural area more so than the larger tracts of connected protected lands found within the Foothills, Fossil Creek, and Poudre River corridors. Conservation of these islands of habitat in the urban environment has many benefits, including a natural setting in the urban landscape, nearby recreation, local pockets of biodiversity, and provision of a home for wildlife species that otherwise might not be able to co-exist in the urban environment.



Wild plum in bloom on Ross Natural Area

Core Natural Areas provide access to nature close to homes and work places in our community, a goal of the Nature in the City Program (City of Fort Collins 2015a). Time, location, and cost were the three greatest barriers to increasing access to nature identified in the “Plug in to Nature Study,” conducted in Larimer County (Design Workshop 2012). Five of the eight Core Natural Areas are located adjacent to, or very near, a City park, providing opportunities for added nature exploration, for example, after a family picnic in the park. Three of the sites (Red Fox Meadows, Fischer, and Ross) serve as key amenities for the West Central Neighborhood (City of Fort Collins 2015b).

Partly due to their convenient location, Core Natural Areas have supported numerous research and educational studies through the years. Since 1999, when the natural areas permit process was set in place, over 35 studies have taken place on Core Natural Areas (Appendix A). While Colorado State University faculty and students have conducted the greatest number of these studies, researchers from four other universities, the USDA National Wildlife

Research Center, US Forest Service, and US Bureau of Land Management have also used Core Natural Areas as project field sites.

Management Zoning System

In 2011, the Natural Areas Department developed a new system of management zoning to more effectively manage natural resource protection and human use within natural areas along the Poudre River (City of Fort Collins 2011). This system will be applied to other natural areas as new management plans are developed or updated (City of Fort Collins 2014).

The Management Zoning System, described on the next page, consists of five zones (designated 0 to 4) ranging from areas closed to public use to “focal areas” prescribed for intensive public use. A modifier is added to the zoning designation to describe whether on-trail only or off-trail use will be permitted.

In this plan, each Core Natural Area has been assigned applicable management zones and trail modifiers, which are included in the Site-Specific Plans section of the document. The predominant management zoning for Core Natural Areas is Zone 3B, Natural Experience; off-trail use allowed.



Master Naturalists investigating an ant hill

Trail Modifiers (Regulatory Zoning):

- A – On-trail only
- B – Off-trail use allowed
- C – Closed, no trails available (Zone 1)

Management Zones:

Zone 0 – Closed Natural Area: The entire natural area is not open for public access. The natural area is either not intended for public use or is not yet open due to lack of public amenities (e.g., trails, parking lots), which require construction prior to opening.

Zone 1 – Closed Zones: Portions of a natural area that are not open to the public due to one or more reasons specified below. In closed zones, trails and other public amenities either do not exist or are intended for maintenance purposes only. All Zone 1 – Closed Zones are modified as “C – no trails available.” Reasons for closures may include:

- Areas closed for *conservation* or wildlife refuge
- Areas where no *formal access* is provided
- Areas closed due to *public safety concerns*
- Areas under *long-term restoration* (typically 10 years or more)
- Areas closed due to the presence of *cultural artifacts*
- Areas closed on *leased land* because public access is not allowed by the terms of the lease

Zone 2 – Resource Protection Zones: Portions of a natural area where conservation and resource protection are the highest priorities. Visitor access is generally limited to on-trail or trailside activities. Public amenities are limited or nonexistent. Temporary or seasonal closures may be enacted for resource protection, restoration, or other reasons.

Zone 3 – Natural Experience Zones: Portions of a natural area intended to provide visitors with a place to connect with nature and enjoy site appropriate recreation. Off-trail use is generally allowed and public amenities may exist, though, not to the scale or frequency of a focal area. Temporary or seasonal closures may be enacted for resource protection, restoration, or other reasons.

Zone 4 – Focal Recreation Zones: Portions of a natural area that provide intense and directed recreation. These are developed areas intended to provide defined recreation or access to recreation. Focal areas generally include parking lots, picnic areas, boating or fishing access points, designated rock climbing areas, etc. Temporary or seasonal closures may be enacted for resource protection, restoration, or other reasons.

Landscape and Vegetation

Core Natural Areas are generally rather flat sites, as one would expect given their location on the Plains and their past agricultural use. Sites are devoid of rock outcrops but all have at least one water feature—either man-made or natural. Although no endangered or threatened plant species have yet to be found on Core Natural Areas, to date 275 plant species have been identified from the eight sites with 63% of these species native to Colorado (Appendix B).



Red Fox Meadows Natural Area

The Natural Areas Department engages in routine noxious weed control on all sites that they manage. Weed management actions are based on the integrated pest Management (IPM) philosophy: a combination of chemical, mechanical, cultural, and biological treatments. Herbicides are selected for use based on lowest environmental toxicity, selectivity to the target species, and effectiveness. Fire and grazing are less likely to be used as a tool in weed management on these small, urban sites surrounded by dense residential areas.

In addition to significant efforts at managing weeds, the City is taking a proactive approach to restoring degraded lands back to native plant communities. While the focus has primarily been on larger parcels within the Cache la Poudre River, Foothills, and Fossil Creek corridors, the Core Natural Area's Red Fox Meadows has seen extensive wetland and upland restoration as part of the Canal Importation and Ponds Outfall Project (CIPO). This project provided flood protection and water quality improvements and was funded primarily by the Stormwater Utility Department.

Wildlife

Although most of the Core Natural Areas have not been intensively surveyed for wildlife, observations over the last few decades indicate that these sites provide habitat for over 100 species of birds, mammals, herptiles, and fishes (Appendix C). The presence of open water on each of the sites brings waterfowl and herons. Even the small open grasslands help attract some hawks and other raptors. Trees and fruit-bearing shrubs provide habitat for a variety of songbirds. Although prairie dogs only occur on one site, The Coterie Natural Area, mid-size mammals can be found on all Core sites and mule deer are known to frequent at least four of the Core sites.



A family of common mergansers (Photo by Norm Keally)



Red fox (Photo by Norm Keally)

While no endangered or threatened animal species have been reported from the Core Natural Areas, 10 unusual or uncommon species have been reported. Perhaps the oddest occurrence to be reported to staff was a young black bear on Red Fox Meadows Natural Area in June of 2008. The bear was surrounded by no less than a dozen feisty red foxes who managed to herd the bear out of their territory with their charging and ear-deafening yipping.

West Nile Virus, carried by some species of mosquitoes, affects both wildlife (particularly birds) and human populations and can be fatal to some humans if not treated in time. Therefore, the City of Fort Collins contracts with a private firm to conduct a

comprehensive larviciding program to kill mosquito larvae that could potentially carry the virus before they emerge from breeding areas. Colorado Mosquito Control (CMC) is the current contractor. CMC sets out traps for adult mosquitoes to monitor the disease. The company samples stagnant water and applies a larvicide to breeding sites within a one-mile radius of the city limits, which includes Core Natural Areas. The larvicide is a natural non-toxic biological product that affects only mosquitoes and is not harmful to fish or other wildlife.

Recreation and Public Improvements

The Core Natural Areas along the popular Spring Creek Trail are some of the most frequented natural areas in the entire natural areas system (Corona Research, Inc. 2006), while more isolated core sites, such as Redwing Marsh, are among the least visited.

A variety of recreation occurs in Core Natural Areas with biking, walking/hiking, jogging, and dog-walking topping the most commonly observed activities. The core sites also provide important family connections to nature in terms of providing a neighborhood place to explore, observe wildlife, or simply relax together and enjoy nature. Fishing is limited on most core natural areas due to lack of adequate sport fish habitat.

The Natural Areas Department maintains all trails on the Core Natural Areas with the exception of the Spring Creek Trail and most of its neighborhood connectors, which are maintained by the Parks Department.

One neighborhood connector on Mallard's Nest Natural Area is maintained by a Homeowners Association, per a recent development agreement with the City. Only one Core Natural Area has an established parking lot and vault toilet maintained by the Natural Areas Department, but all other Core Natural Areas open to the public have parking and restrooms available at adjacent or nearby city parks.



Spring Creek Trail through Mallard's Nest Natural Area

All Core Natural Areas currently open to the public have paved trails or sidewalks that are easily accessible. Some of the natural surface trails on these sites are also flat and wide enough for wheelchair accessibility. All vault toilets and formal parking lots on natural areas and in parks are handicapped-accessible.

As with all other local natural areas open to the public, Core Natural Areas are open from the hours of 5 a.m.-11 p.m. Mini-kiosks mark the entrances to natural areas on designated trails managed by City Natural Areas or Parks staff, as well as a few of the more heavily used social (unmaintained) trails that are used for access to sites. Mini-kiosks provide a summary of key regulations that affect the site. Boundary markers are sometimes used to mark natural area boundaries at locations other than access points, depending on need. All Core Natural Areas have a site sign, or will have one once opened to the public.

The standard natural areas fencing is a single-rail wood fence; Parks typically uses a two- or three-rail wood fence, when necessary, along the paved trail system. All Core Natural Areas open to the public have one or more benches along trails. The Natural Areas Department no longer has a memorial bench Program, as requested by the Land Conservation and Stewardship Board in 2010. However, memorial benches can still be placed along Spring Creek Trail by Parks in areas where benches are needed.



Memorial bench at Red Fox Meadows Natural Area

Core Natural Areas that have been in the City system for a long time, such as Fischer and Ross, have more mismatched styles of public improvements compared to some of the newer sites, such as Red Fox Meadows and Redwing Marsh. This is particularly evident with such improvements as wooden fences and benches whose styles have changed over the decades. However, the City’s intent is to not change the old style until these early improvements become damaged beyond repair.

Ranger Visitor Services



Natural Areas and Trails Ranger with visitors

Natural Areas Rangers are charged with providing a safe, peaceful, and enjoyable environment for all Core Natural Area visitors and trail users while ensuring the protection of natural resources and public improvements. Natural Areas Rangers patrol all Core Natural Areas, including Spring Creek Trail on Fischer, Ross, Mallard’s Nest, and The Coterie natural areas. Park Rangers patrol all adjacent City parks to the Core sites as well as the Spring Creek Trail.

Ongoing challenges to patrol activities in Core Natural Areas are primarily related to illegal camping and alcohol possession. Timely graffiti removal can be challenging for both ranger and maintenance staff on some natural areas, but overall is not a huge issue on the Core Natural Areas. Likewise, dogs off-leash are less likely to be encountered on these small, urban natural areas.

Education and Volunteers

The Education Staff of the Natural Areas Department has a goal to increase recognition, awareness, and support of natural areas through a number of means, including community and school programs, special events, and volunteer opportunities. One of their more popular events in the Core Area has been Stroller Stroll, which has occurred on both Red Fox Meadows and Ross natural areas. The City’s Stormwater Utility has used Red Fox Meadows extensively for their Watershed Education Programs. Red Fox Meadows has the addition of an “Outdoor Classroom Boardwalk” and interpretive signs to complement education programming and for the



Cub scouts help clean up Red Fox Meadows Natural Area

general public as well. Several nearby schools have also used other Core sites for education.

Volunteer Master Naturalists and their volunteer assistants help the City reach out to the community and are trained to provide programs, as needed, for the Core Natural Areas, or any other City natural area. Volunteer Ranger Assistants monitor natural areas and work with ranger staff to ensure visitors remain safe and enjoy their natural area experience. Adopt-a-natural area volunteers assist staff by conducting at least monthly litter pick up on a site. Through the years, groups or individual volunteers have also assisted staff in various plantings, trail building, and maintenance activities, particularly on Red Fox Meadows, Ross, and Redwing Marsh.

Goals

The following overarching goals were established by the interdepartmental Core Natural Areas Management Team as the foundation upon which management decisions for natural areas in the Core Area are to be established:

- ❖ Conserve and enhance the ecological values and functions of each Core Natural Area.
- ❖ Maintain flood protection and stormwater conveyance functions.
- ❖ Conserve and improve wildlife habitat.
- ❖ Maintain and enhance natural aesthetics.
- ❖ Provide recreational opportunities.
- ❖ Improve site accessibility.
- ❖ Maintain a safe visitor experience.
- ❖ Provide educational and interpretive opportunities.
- ❖ Promote recreational and educational use by diverse groups.
- ❖ Encourage nature exploration and discovery.
- ❖ Maintain good relations with neighbors.
- ❖ Manage sites to provide an escape from the urban environment and a “wilderness in the city” experience.



Redwing Marsh Natural Area

RED FOX MEADOWS NATURAL AREA



Red Fox Meadows site sign

Red Fox Meadows, at the southeast corner of Prospect and Taft Hill Road (Map 2), is an ideal neighborhood natural area. This 41-acre natural area serves multiple functions, including stormwater detention and water quality improvement in the Canal Importation Drainage Basin. Bridges help provide access for neighbors from all sides of the natural area. A trailhead off Longworth Road provides onsite parking, site information, and a vault toilet. An outdoor classroom boardwalk and

interpretive signs help facilitate educational functions. These educational amenities are also found just across Taft Hill Road on Stormwater Utility's Fairbrooke Detention Pond.

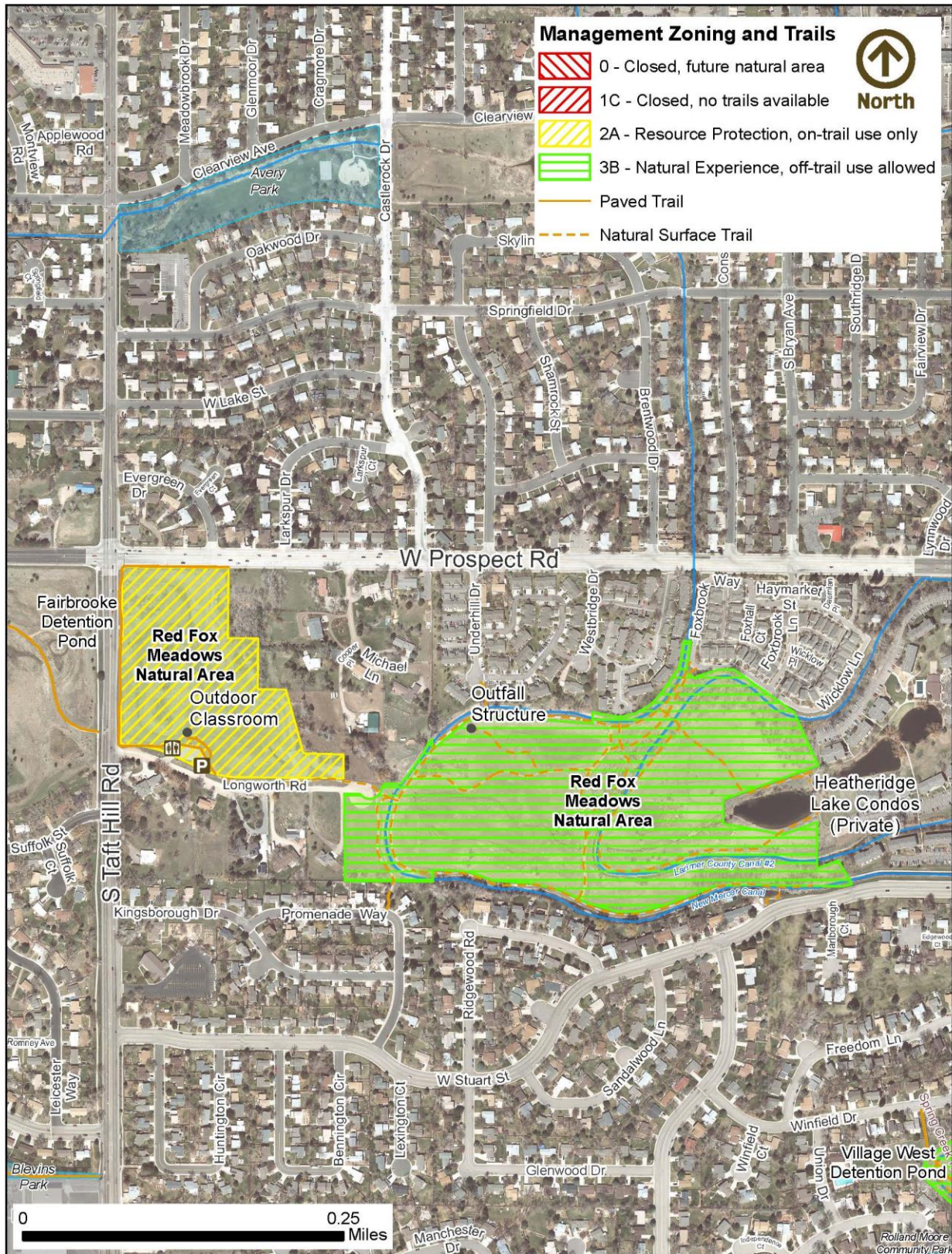
As the name implies, the site supports red fox dens in addition to habitat for mule deer, songbirds, and urban waterbirds. Over 90 wildlife species have been observed on Red Fox Meadows (Appendix C) since the early 1990's, making it the most diverse of the eight Core Natural Areas. Through various restoration projects from the Blevins Junior High Plantings in 1995 to the 5-year Canal Importation and Ponds Outfall (CIPO) Project that was completed in 2012, numerous species of native grasses, wildflowers, wetland plants, trees, and shrubs have been planted to enhance the habitat. The site now supports 168 species of plants; 58% of which are native to Colorado (Appendix B).

Water to Red Fox Meadows comes from groundwater, stormwater flow (Canal Importation Basin), precipitation, and a small amount from seepage from two ditches (New Mercer and Larimer County No. 2). Although the Heatheridge Lake Condos Association Pond on the east side of Red Fox Meadows always has standing water, other ponds, ditches, and drainages on Red Fox Meadows can go almost completely dry during periods of low precipitation and low irrigation within the upper basin.



Showy milkweed (Photo by Zoë Shark)

Red Fox Meadows has become a haven for wildlife and people over the last 25 years through the enormous efforts of City staff from Stormwater, Natural Areas, Forestry, and Parks and the dedication of numerous volunteers, researchers, and education staff. The 1.8-mile network of soft surface trails and 0.4 miles of paved trail provides easy access for families and other recreators.



Map 2. Red Fox Meadows Natural Area

Site History



Morning Mist on Red Fox Meadows (Photo by Lin Wilder)

Prior to City ownership, portions of Red Fox Meadows Natural Area were hayed, used as horse pasture, and/or were awaiting development. Many nearby residents were dealing with frequent flooding since their neighborhoods were built in the 1950s and 60s, prior to stormwater planning. With the establishment of the Stormwater Utility in 1980 out of concern for flooding in the Fort Collins Community, fees were established to develop basin master plans and to design criteria and construction standards for new housing. Basin master plans defined and mapped flood hazards within existing development and recommended solutions.

The first parcel of Red Fox Meadows was acquired by the City's Stormwater Utility in 1991 to help alleviate neighborhood flooding. This 10.8-acre parcel was known as the Underhill Detention Pond and had been used for stormwater detention since the mid-1980s. In 1992, when the Natural Areas Policy Plan was adopted by City Council, Natural Areas and Stormwater Utility partnered and purchased another 6.6 acres slated for partial development. The site was named Red Fox Meadows Natural Area in 1995 through a public process. Another three joint acquisitions, from 1995-2000, expanded the site to its current 41 acres. In all, 49 residential units had been approved for development on this site prior to protection as a stormwater detention area and a natural area.

Site improvements to Red Fox Meadows Natural Area included:

- 1992: Maintenance of natural surface trails and bridges and weed control (initially a Parks Maintenance Crew who transferred to Natural Areas in 1998).
- 1994: Construction of a service/maintenance road on the south bank of the New Mercer Canal by Stormwater Utility, which also served as a trail for visitors.
- 1995-2005: School groups, particularly Blevins Junior High and Bauder Elementary, worked with City staff to enhance the site as an outdoor classroom, establishing learning stations, a simple trail system, inventorying and surveying plants and animals, and planting native shrubs and wildflowers.
- 1997: Stormwater constructed the Underhill Detention Pond concrete spillway and flood control structure (later removed as part of CIPO).
- 1997-2004: Removal and control of exotic, pest shrubs (Russian olives and smaller Siberian elms) by Forestry and later Natural Areas staff.
- 1998: An Eagle Scout volunteer built a foot bridge over the small wetland for school group use.
- 2000-2001: Removal of hazardous barbed wire fencing from new acquisitions.
- 2001: Natural Areas staff took over sidewalk snow removal on the site.

- 2001-2004: Regular removal of graffiti from Stormwater spillway structure.
- 2004: Control of mosquito larvae for West Nile Virus began.
- 2004: First mini-kiosks with posted site regulations.
- 2005: First trash cans and pet waste pickup bag dispensers installed.
- 2007: Design of the Canal Importation and Ponds Outfall (CIPO) Project began; Natural Areas Department staff on the design and construction team.
- 2009: Two memorial benches (Linnea Dick; Diane Butler) installed on the site.
- 2009-2011: CIPO transformation of the Red Fox Meadow Natural Areas; fox dens and mature cottonwoods were preserved while a great diversity of native grasses, wetland plants, wildflowers, shrubs, and trees were planted to enhance the site.
- 2010: Artist Barb McKee' "CIPO Ripples" softened and disguised the look of the concrete culverts and the outfall structure.
- 2011: New parking lot and vault toilet off Longworth Road opened as a visitor amenity.
- 2011: Two new trail/bridge accesses were created to provide easier access for neighbors from the west and south.
- 2011: The CIPO project was awarded the American Public Works Association Colorado Chapter annual award as the top Drainage and Flood Control Project in a Large Community.



"CIPO Ripples" by Artist Barb McKee

Site Management

Red Fox Meadows Natural Area has been designed and managed to:

- ✓ Increase local flood protection;
- ✓ Decrease stormwater pollution;
- ✓ Improve water quality in streams and groundwater;
- ✓ Enhance wildlife habitat; and
- ✓ Provide recreational and educational opportunities.

Ownership and management of the site is shared with Natural Areas owning 55% and Stormwater Utility 45%. Stormwater maintains all flood protection and stormwater conveyance structures on the site. Stormwater has completed all proposed flood control and detention facilities at Red Fox Meadows. No additional stream rehabilitation or regional Best Management Practices (BMP) projects are planned



View from Outdoor Classroom at Red Fox Meadows Natural Area

at this site for the foreseeable future. The ditches are maintained by private ditch companies (Larimer County Canal No. 2 Irrigating Company and New Mercer Ditch Company) and not the City of Fort Collins.

Prescriptive easements for the ditches on Red Fox Meadows Natural Area were established before City ownership. By easement, the ditch companies are not required to remove debris from the site after they clean out the ditches. The companies conduct annual inspections and maintenance mostly with little impact to the site, but every 10 years or so, a ditch company may need to conduct a major cleanout or repair a ditch bank. A lot of material is pulled out of the ditch at this time and gets set off to the side. Removal of debris from the canal channel ensures continued water delivery and stormwater conveyance functions. Stormwater and Natural Areas typically work together to remove the material that the ditch companies pull out of the canal and set to the side of the maintenance road/trail.

Natural Areas staff is responsible for weed control, trail maintenance, parking lot features, signage, fencing, interpretive features, and all other recreational amenities. Red Fox Meadows is a popular site for walking, dog walking, jogging, and viewing wildlife. Several benches provide convenient resting spots along the paths. Dog waste bags are provided at all trash cans on the site to help keep the site clean for all users. While the most western section of the natural area is zoned “On-trail only” to protect sensitive wildlife species and ongoing restoration efforts, off-trail use of the rest of the site is allowed. However, recreators are still encouraged to stay on the trail in order to protect wetland vegetation and to limit wildlife disturbance (Map 2).

Red Fox Meadows is regularly patrolled by Natural Areas Rangers. Overall, infractions have been relatively few with dogs of leash, fireworks, graffiti, and an occasional illegal camping topping the list. Hitting golf balls into the mid-section of Red Fox Meadows from the condos on the north seems to be another common illegal activity on the site.

Volunteers supplement City staff time in numerous ways from the volunteer ranger assistants that help patrol the site, to the adopt-a-natural area volunteers who do litter pickups, to Boy Scouts that help build small improvements, to community groups that help with plantings or weeding, to Master Naturalists who lead program such as “Stroller Strolls” on the site.

Ten-year Site Management Objectives

Red Fox Meadows appears to be providing an ideal respite from urban life for neighbors and the community. Due to CIPO, the site is in good condition with a variety of native plants that support local animals. The site has truly evolved to provide diverse habitat for wildlife. Staff has identified very few new site needs for the next ten years. Both Natural Areas and Stormwater Utility staff will continue to maintain the site at current levels:

- ❖ **Natural Areas will continue to maintain the vegetation, trails, and public amenities at current levels.**
- ❖ **Stormwater Utility will continue to maintain the stormwater structures at current levels.**
- ❖ **Natural Areas and Stormwater Education Staff will continue to look for opportunities to use Red Fox Meadows for programming.**
- ❖ **The City will continue to implement existing policy and use a private contractor to monitor the site for presence of mosquito larvae that potentially could carry West Nile Virus and to apply biological larvicide to stagnant water for control of these mosquito larvae.**
- ❖ **Natural Areas will remove chicken wire protection from planted cottonwoods once trees are well established.**



*Natural surface trail at Red Fox Meadows
Natural Area*

FISCHER NATURAL AREA



Fischer Natural Area site sign

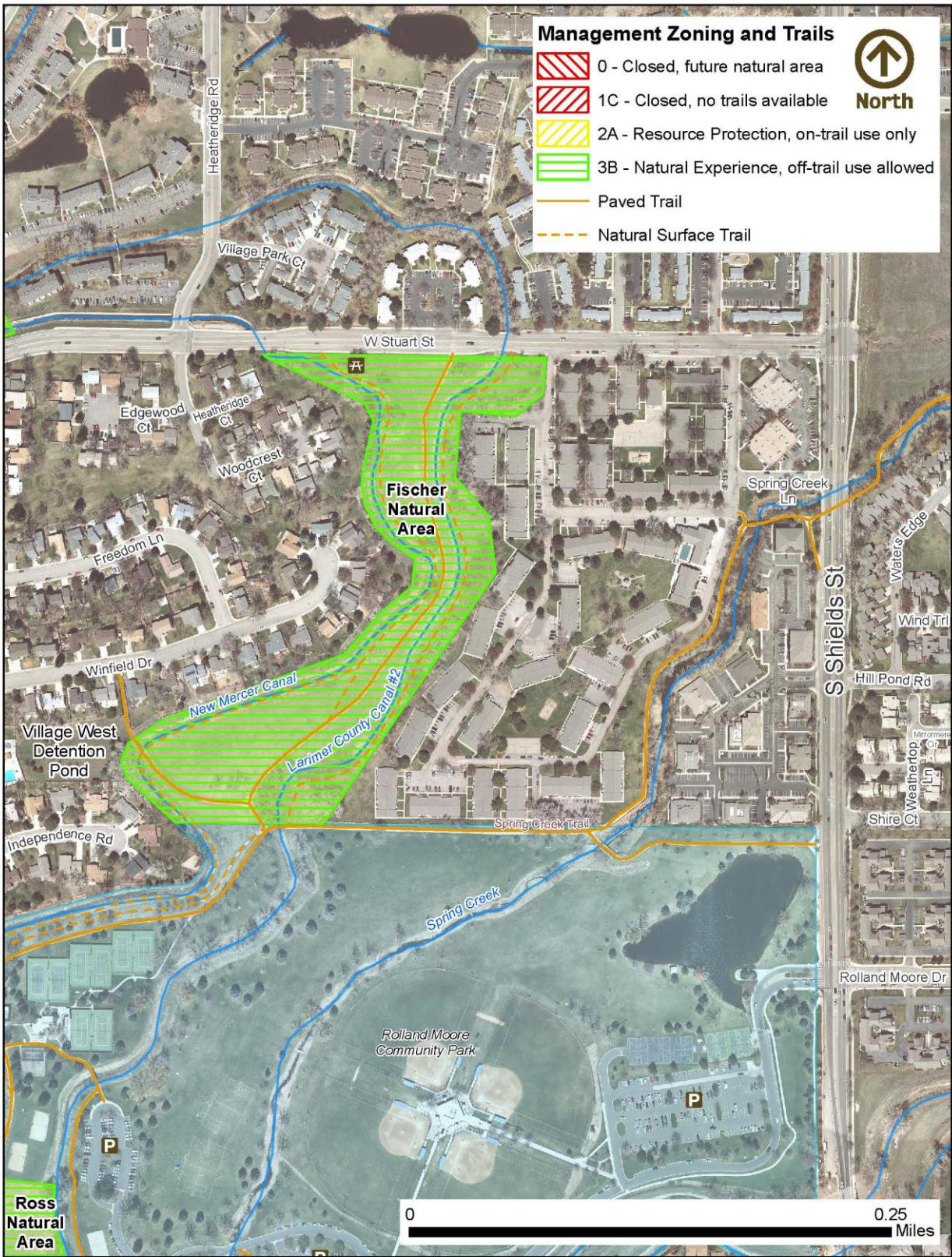
Fischer Natural Area, at the northwest corner of Rolland Moore Community Park (Map 3), is the oldest of the Core Natural Areas. This narrow 12-acre site serves as an urban wildlife movement corridor along two canals and provides a paved trail connection from the north and the west to the Spring Creek Trail. Fischer is in the Canal Importation Basin; stormwater is conveyed through the New Mercer Ditch and Larimer County Canal No. 2 on this site. Parking is allowed along Stuart, but ample parking with restroom facilities is also available at Rolland Moore Park.

Only 37 species of wildlife have been observed on Fischer Natural Area (Appendix C); however, wildlife use has not been well documented for this site. Plant diversity is also not very high on Fischer, with only 92 documented species and less than 50% of these native (Appendix B). The site does contain some stately old plains cottonwoods along both ditches, which are the only source of open water on this natural area. The aggressive, non-native smooth brome grass dominates the meadow areas of Fischer Natural Area. Smooth brome, a native of Eastern Europe, has been extensively seeded throughout the U.S. for the last 100 years for pastures and hayfields. It is extremely difficult to eradicate once well-established on a site.



Fischer Natural Area (Photo by Zoë Shark)

While Fischer Natural Area is mainly a “pass-through” site for commuters and recreators, off-trail exploration is allowed and encouraged (Management Zone 3B; Map 3). Walking, running, dog walking, biking, bird watching, or simply relaxing and enjoying the outdoors seem to be favorite activities for this site. Two informal trails have developed along each of the ditches. Fischer is the only Core natural area with a picnic table, located next to Stuart at the north entrance. Several brick benches on the site also provide seating for visitors.



Map 3. Fischer Natural Area

Site History

Fischer Natural Area gets its name from the original owners of the property, Gene E. and Marylynn A. Fischer, who sold the property to the City Parks Department in 1977 for \$44,000. The property was hayed by the Fischers and the City in the early years of ownership and management as an Open Space. Spring Creek Trail was constructed in the early 1980s. The adjacent Rolland Moore Community Park was developed in 1983. In 1992, a request to locate a model car racing track on Fischer Natural Area was denied by Park Planning and Development partially because this was an “open space area to be set aside for urban wildlife and more passive uses.”

Site improvements to Fischer Natural Area included:

- 1977: Parks established a soft surface trail and began controlling weeds.
- Early 1980s: Soft surface trail improved to asphalt; snow plowing of the trail began.
- 1993: Name and management changed to “natural area” (initially a Parks Maintenance Crew who transferred to Natural Areas in 1998).
- 1995: First site sign installed (City Logo).
- 1997: Major debris cleanup by Stormwater Utility after July Spring Creek Flood.
- 2000: Major branch clean-up after a September snow storm.
- 2001: Debris cleanup by City staff after a major ditch cleanout.
- 2003: Asphalt trail replaced with colored concrete by Park Planning & Development.
- 2005: Mini-kiosks installed to post regulations.
- 2006: Updated site sign (City/Natural Areas Logo).
- 2013: Trail signage installed by Parks.
- 2014: Second updated site sign (newest City/Natural Areas Logo).
- 2014: Natural Areas staff began maintaining the social trails that had formed over the years along the New Mercer Ditch and Larimer County Canal No. 2.
- 2015: Natural Areas removed material deposited on the site after a major ditch cleanout of the Larimer County No. 2 Canal.

Site Management

Fischer Natural Area continues to serve the original intent of the property and is managed to:

- ✓ Maintain trail connections from neighborhoods to Spring Creek Trail and Rolland Moore Community Park;
- ✓ Convey stormwater through the canals in flood events;
- ✓ Facilitate easy access to ditches by ditch companies for cleanout to improve conveyance;
- ✓ Provide habitat for urban wildlife; and
- ✓ Provide opportunities for passive recreation, including off-trail exploration.

The City of Fort Collins Parks Department originally purchased and managed Fischer as an Open Space. When the site became a natural area in 1993, site ownership and management responsibilities transferred over to Natural Areas with the exception of the Spring Creek Trail Connectors. Parks retained management of the hard surface trails and this continues today. Natural Areas mows along Stuart Street and snow plows the sidewalk, but Parks mows along the paved trail and its connectors and is responsible for snow plowing on the paved trail system. Parks staff is responsible for maintenance of all



Trail connection on Fischer Natural Area

bridges, fencing, benches, trash cans, recycling cans, and dog waste bag dispensers located along the paved trail system. Natural Areas is responsible for maintenance of recreational structures beyond the trail (e.g., the picnic table) and most of the signage (e.g., site and mini-kiosk).

Both Natural Areas and Parks Rangers regularly patrol Fischer Natural Area. Transient camping has not been a serious issue on this site, perhaps due to the site's location, heavier trail use, and/or narrow configuration. Some theft of signs has occurred, but vandalism and graffiti are generally not serious issues on this site.



Adopt-A-Natural Area volunteers

The Adopt-a-Natural Area and Adopt-a-Trail volunteers help staff keep up with routine litter pick up on Fischer Natural Area. Along with the volunteer Ranger Assistants, the “Adopt” volunteers also let City staff know of any recently damaged structures in need of repair (e.g., a broken fence, a stolen sign) or any other newly-discovered maintenance need (e.g., a large fallen limb over a soft surface trail in need of removal).

Stormwater Utility owns and manages the 1-acre Village West Detention Pond (also called Winfield Pond) adjacent to the southwest corner of Fisher (Map 3), but does not have any existing or proposed flood control or detention facilities on Fischer. They also have no proposed future stream rehabilitation or regional BMP projects planned for this site. The ditches are maintained by private ditch companies (Larimer County Canal No. 2 Irrigating Company and New Mercer Ditch Company) and not the City of Fort Collins; however, in a large flood event, Stormwater Utility will step in and help clean-up of the resulting debris and ditches to ensure that the ditches continue to function well for stormwater conveyance.

Prescriptive easements for the ditches on Fischer Natural Area were established before City ownership. By easement, the companies are not required to remove debris from the site after they clean out the ditches. Ditch companies conduct annual inspections and maintenance mostly with little impact to the site, but every 10 years or so, the company may need to conduct a major cleanout and repair the ditch banks. A lot of material is pulled out of the ditch at this time and gets set off to the side. Removal of debris from the canal channel ensures continued water delivery and stormwater conveyance functions. One of these major cleanups of the Larimer County Canal No. 2 occurred on Fischer Natural Area in early 2015. Because ditch companies periodically use the natural surface trails for access and to temporarily store debris cleaned out of the canals, improvement of those trails with crusher fines or road base is generally not practical. Trail material would be scooped up along with the ditch debris during the process and need to be re-applied each time.

Ten-year Site Management Objectives

Fischer Natural Area is functioning well as a commuter and wildlife corridor for the Community, but also provides a natural areas exploration area for adjacent Rolland Moore Park visitors. Although wildlife diversity is lower than the nearby Red Fox Meadows Natural area, the large, old canopy cottonwoods and ditches support abundant insectivorous food sources for migratory songbirds, as well as cavities for resident birds of Fischer Natural Area. With restricted amount of land not occupied by a canal or a trail, and well-established smooth brome grass fields, opportunities for habitat enhancement on this site will likely be limited. However, Natural Areas has identified some enhancement needs and opportunities for Fischer Natural Area:



Downy Woodpecker (Photo by Aran Meyer)

- ❖ **Natural Areas will continue to maintain the soft surface trails and public amenities not associated with the paved trail at current levels.**
- ❖ **Parks will continue to maintain the Spring Creek paved trail connectors, including associated bridges and other amenities.**
- ❖ **Natural Areas will mow the picnic table area and maintain the sidewalk on Ross along Stuart.**
- ❖ **Natural Areas will continue to be responsible for controlling weeds and managing vegetation outside of the paved trail and ditch corridors.**

- ❖ **Natural Areas will evaluate the southwest brome field for the opportunity to add fruit bearing native shrubs and a few more trees to increase the wildlife diversity of the site.**
- ❖ **Natural Areas will also look for opportunities to engage neighborhood groups and other volunteers in helping to enhance habitat.**
- ❖ **Natural Areas will look for opportunities to use volunteers to conduct wildlife surveys to help guide future management of the site.**
- ❖ **Natural Areas, Parks, and Stormwater Management Staff will continue to seek ways to cooperate with the two ditch companies during their major debris removal projects so that material can be taken off-site to limit the damage to the natural area.**



Natural Areas Technician inspecting a limb overhanging the trail at Fischer Natural Area

ROSS NATURAL AREA



Ross Natural Area site sign

Dunbar off Drake. The City has an agreement with the owner of the parking lot south of the Ross Natural Area to use a part of the lot for trail user parking (City of Fort Collins 2013b).

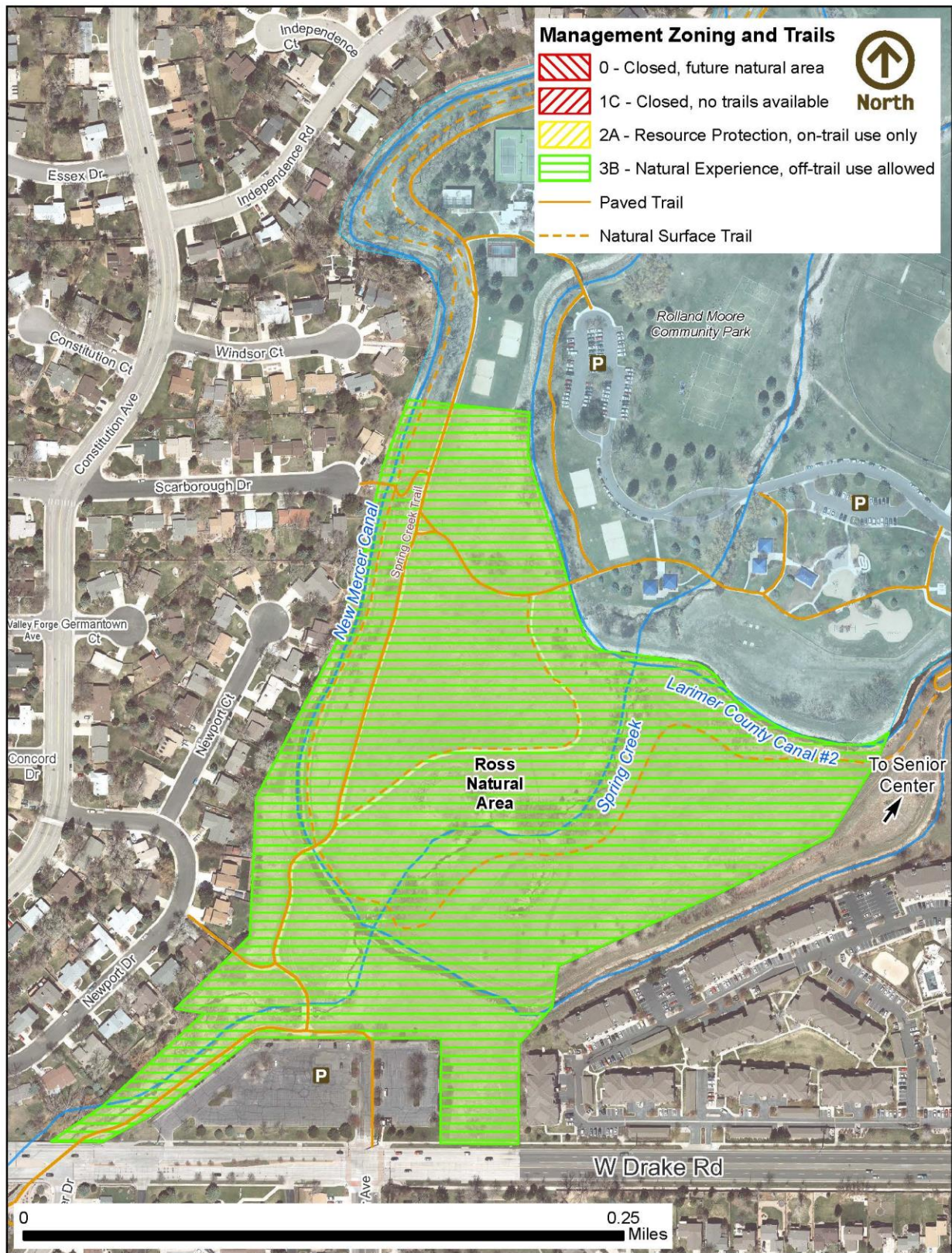
A perfect site for a family nature walk following a picnic at Rolland Moore Park, Ross Natural Area has also been used for City outdoor education events. Master Naturalists have led nature walks including “Stroller Strolls” and Stormwater Utility education staff have taught watershed classes to students at the site. Ross is mostly in the Spring Creek Basin, but about 3.4 acres in the northwest corner is in the Canal Importation Basin.

Just over 50 species of wildlife have been documented on Ross Natural Area (Appendix C) thus far. Plant species diversity is higher than at Fischer with 114 total species, of which 60% are native (Appendix B). Spring Creek adds to the plant and wildlife diversity of this site compared to nearby Fischer Natural Area, but Ross is still a site that receives a lot of visitor use, which likely negatively impacts more sensitive wildlife species. One plant species, sweetflag (*Acorus calamus*), only occurs in one other population in the entire State of Colorado. Some botanists suggest that it might not be a native plant, but was instead introduced from India, central Asia, or Eastern Europe. This remnant population of sweetflag along Spring Creek has been declining over the past decade, perhaps due to lack of water in the creek and/or competition from cattail.



Sweetflag (Photo by Crystal Strouse)

Ross Natural Area can be a busy site, particularly on a good weather weekend, with high recreational trail use by cyclists, runners, and walkers. But it can also be an intriguing site for exploration via the soft surface trails. Off-trail use is allowed and Spring Creek can be a source of discovery for visitors of any age. Ross is classified as Management Zone 3B (see Map 4).



Map 4. Ross Natural Area

Site History

Ross Natural Area was acquired by Parks and Stormwater Utility in 1978 from the Frederick R. Ross Investment Company. A total of 31 acres was originally purchased for \$58,344 (\$2,200/acre) for Open Space and Park Land. Five acres were later developed as part of Rolland Moore Park. Similar to Fischer, the property was hayed prior to City ownership and early on during management by Parks as an Open Space. Spring Creek Trail was constructed in the early 1980s. Adjacent Rolland Moore Community Park was developed in 1983. Currently, Ross Natural Area is 26.5 acres. Stormwater Utility is 49.3% owner; Natural Areas is 50.7% owner.

Site improvements to Ross Natural Area included:

- Early 1980s: Soft surface trail improved to asphalt; snow plowing of the trail began.
- 1993: Name and management changed to “natural area” (initially a Parks Maintenance Crew who transferred to Natural Areas in 1998).
- 1995: First site sign installed (City Logo).
- 1997: Major debris cleanup by Stormwater Utility after July Spring Creek Flood.
- 1998: Minor improvements to Stormwater on-site detention following the flood; very little impact to the natural area.
- 1998: High Water Mark sign placed north of Drake along the Spring Creek Trail to document the water level of the July 28, 1997, flood.
- 1998-2002: Initial Russian olive removal and control by Forestry Department (2011-2015 removal and control done by Natural Areas).
- 2002: Glenn and Maxine Schoening memorial bench installed along Spring Creek Trail by Parks.
- 2001: Debris cleanup by City staff after a major ditch clean-out.
- 2001: Removal of illegal bike ramps.
- 2003: Asphalt trail replaced with colored concrete by Park Planning & Development, included a trail realignment.
- 2004: Mini-kiosks installed to post regulations.
- 2004: Updated site sign (City/Natural Areas Logo).
- 2008: Rolland Moore West Neighborhood Network (working with CSU Unity Volunteers) cleaned up debris along New Mercer Canal and seeded native grasses and wildflowers along the ditch.
- 2012: Rolland Moore West Neighborhood Network (working with CSU Unity Volunteers) enhanced a 0.4-acre wetland with native shrubs, grasses, and wildflowers.
- 2013: Natural Areas cleaned up some old encroachments (e.g., neighbors expanding backyards on to City property).



Spring Creek Flood high water marker on Ross Natural Area

- 2013: Robert and Janet Stears memorial benches installed along Spring Creek Trail by Parks.
- 2013: Trail signage installed by Parks.
- 2014: Second updated site sign (newest City/Natural Areas Logo).
- 2014: Rolland Moore West Neighborhood Network (working with CSU Unity Volunteers) planted native shrubs, grasses, and wildflowers at the neighborhood trail connection to Scarborough.
- 2014: Natural Areas started maintaining the social trail along the New Mercer Ditch.
- 2015: Natural Areas removed material deposited on the site after a major ditch cleanout of the Larimer County Canal No. 2.
- 2015: Natural Areas began maintaining the social trail that provides access over Spring Creek and on to the Senior Center trail.

Site Management

Ross Natural Area continues to serve the original intent of the property and much more. Today, Ross is managed to:

- ✓ Provide a natural area recreational and commuter corridor for the Spring Creek Trail;
- ✓ Maintain trail connections from neighborhoods to Spring Creek Trail and Rolland Moore Community Park;
- ✓ Convey stormwater through the canals, Spring Creek, and onsite detention in flood events;
- ✓ Facilitate easy access to ditches by ditch companies for cleanup to improve conveyance;
- ✓ Provide habitat for urban wildlife species;
- ✓ Provide opportunities for passive recreation, including off-trail exploration; and
- ✓ Serve as an ideal site for natural areas, flood protection, and watershed education.

Parks and Stormwater Utility originally purchased and managed Ross as an Open Space and for flood protection. When the site became a natural area in 1993, site ownership and management responsibilities of the Parks portion (51%) transferred to Natural Areas with the exception of the Spring Creek Trail and its paved neighborhood and park connectors. Parks retained management of the hard surface trails. Natural Areas mows along Drake Road on Ross and snow plows the sidewalk, but Parks mows along the paved trail and its connectors and is responsible for snow plowing the paved trail system. Parks staff is responsible for maintenance of bridges, fencing, benches, trail signs, trash cans, recycling cans, and dog waste bag dispensers, located along the paved trail system. Natural



Trail directional sign on Ross Natural Area

Areas is responsible for maintenance of recreational structures beyond the trail (e.g., bench along natural surface trail) and most of the signage (e.g., site and mini-kiosks).

Both Natural Areas and Parks Rangers regularly patrol Ross Natural Area. Transient camping has not been a serious issue on this site, perhaps due to the site's location and high Spring Creek trail use. Some theft of signs has occurred and graffiti is more common at Ross than at Fischer.



Rolland Moore West Neighborhood Network and CSU Unity Volunteers (Photo courtesy of Lloyd Walker)

Adopt-a-Natural Area and Adopt-a-Trail volunteers help with site clean-up on Ross Natural Area. The Volunteer Ranger Assistants help with patrol and positive visitor contacts for both Natural Areas and Parks rangers. The Rolland Moore West Neighborhood Network and CSU Unity volunteers have been involved in three enhancement projects over the last 7 years on Ross.

Stormwater Utility does not have any existing or proposed flood control or detention facilities on Ross. They also have no proposed stream rehabilitation or regional BMP projects planned for this site for at least the next 10 years. The ditches are maintained by private ditch companies (Larimer County Canal No. 2 Irrigating Company and New Mercer Ditch Company) and not the City of Fort Collins; however, in a large flood event, Stormwater Utility will step in and help clean-up the resulting debris and ditches to ensure that they continue to function well for stormwater conveyance.

Ditch companies are not required to remove debris from the site after cleaning out the ditches. Ditch companies conduct annual inspections and maintenance mostly with little impact to the site, but every 10 years or so, the company may need to conduct a major cleanout and repair the ditch banks. A lot of material is pulled out of the ditch during major cleanups. Removal of debris from the canal channel ensures continued water delivery and stormwater conveyance functions. One of these major cleanups of the Larimer County Canal No. 2 occurred on Fischer and Ross natural areas in early 2015. Because ditch companies periodically use the natural surface trails for access and to temporarily store debris cleaned out of the canals, improvement of those trails with crusher fines or road base is generally not practical. Trail material would be scooped up along with the ditch debris during the process and need to be re-applied each time.



Spring Creek Trail on Ross Natural Area

Ten-year Site Management Objectives

Ross Natural Area continues to provide multiple functions for the Fort Collins Community. Its proximity to Rolland Moore Park and critical location for flood control contribute to its use for recreation, relaxation, and outdoor education. Spring Creek Trail not only functions for recreation, but also as a major commuting trail. Spring Creek not only functions for flood protection and watershed studies, but also for wildlife viewing and as an animal movement corridor.

Although plant and animal diversity is not quite as high as Red Fox Meadows Natural Areas, no major site restoration, stream rehabilitation, or stormwater detention projects are anticipated for the next 10 years. No Spring Creek trail improvements are needed at this time (City of Fort Collins 2013b). Multiple departmental management of the site will continue and Natural Areas has identified some informational needs to help guide future management of Ross Natural Area:

- ❖ **Parks will continue to maintain the paved Spring Creek Trail and connectors, including the associated bridges, wood fencing, trail signage, and trash cans/pet waste bag dispensers.**
- ❖ **Natural Areas will continue to maintain the soft surface trails and public amenities not associated with Spring Creek trail and connectors.**
- ❖ **Natural Areas will continue snow removal on the sidewalk along Drake; Parks will continue to remove snow from the Spring Creek Trail and connectors.**
- ❖ **Natural Areas will continue to be responsible for controlling weeds and managing vegetation outside of the paved trail and ditch corridors.**
- ❖ **Stormwater Utility will continue to be responsible for maintenance of stormwater structures on the site.**
- ❖ **Natural Areas will further evaluate the population of sweetflag to determine if the plant is native to the site and, if so, develop a management strategy to help prevent further decline in numbers and look for opportunities to engage neighborhood groups and other volunteers in helping to enhance sweetflag habitat.**
- ❖ **Natural Areas will look for opportunities to use volunteers to conduct wildlife surveys to help guide future management of the site.**

- ❖ **Natural Areas will pursue possibility of removing an old street lamp that is no longer working.**
- ❖ **Natural Areas will engage volunteers to conduct a site cleanup to include cleaning trash and removing wooden stakes from the 2012 enhancement wetland.**
- ❖ **Natural Areas, Parks, and Stormwater Management Staff will continue to seek ways to cooperate with the two ditch companies during their major debris removal projects so that material can be taken off-site and limit the damage to the natural area.**



New Mercer Ditch, Ross Natural Area

MALLARD'S NEST NATURAL AREA



Site sign, Mallard's Nest Natural Area

The 6.6-acre linear Mallard's Nest Natural Area is essentially in four sections separated by major roads or private property (Map 5). Spring Creek and its associated trail runs through all sections. Ample parking for this site is available at Spring Park on the southwest corner of the natural area. Mallard's Nest is in the Spring Creek Basin and serves a vital role in stormwater conveyance and flood protection. The site's adjacency to Spring Park helps provide additional natural area

experience for park users. Its central location within Fort Collins offers an easy natural area experience for neighbors and the community at large.

With nearly 50 wildlife species documented on Mallard's Nest Natural Area thus far (Appendix C), wildlife diversity is similar to Ross Natural Area. However, plant species diversity is lower, at only 79 species with 52% of these native (Appendix B). In the mid-1990's the section of Spring Creek immediately downstream of Spring Park was improved for flood protection. Some larger patches of native grasses (e.g., big bluestem, yellow Indiangrass, and switchgrass) planted along Spring Creek still remain. Further downstream, native buffalograss and blue grama still thrive on an upland area that was a restored 10 years ago. However, much of the rest of the understory of the site is dominated by the exotic smooth brome grass.

The busy Spring Creek Trail glides along the creek as it passes through parcels that make up Mallard's Nest Natural Area. Although the trail dominates the narrow site, little nooks of special spaces within the natural area can be found for contemplation and enjoyment of the stream habitat. Off-trail exploration is allowed and encouraged (Management Zone 3B; Map 5). Boulders placed along the creek provide seating areas. Mallard's Nest also provides a great local spot to hone one's fly-fishing skills before heading to the mountain streams.



Rock seating areas along Spring Creek Trail on Mallard's Nest Natural Area



Map 5. Mallard's Nest Natural Area

Site History

Mallard's Nest Natural Area is comprised of a series of eight acquisitions by Parks, Stormwater Utility, and Natural Areas from 1985 to 2002. The first parcel was 1.8 acres adjacent to Spring Park, donated by David and Sharon Neenan to Parks and called Spring Park Open Space. From 1990-92, Stormwater Utility and Streets purchased the next six eastern small parcels as part of a flood protection project (constructed in 1993-94) and Stuart/Stover bridge improvements. Total land cost to the City was \$325,500 (\$141,304/acre). Natural Areas purchased the eighth (and most eastern) parcel, 2.5 acres, from Brookhaven HOA for \$10,000 (\$4,032/acre) in 2002. Two years later, all eight parcels were combined into one natural area and named "Mallard's Nest" through a public process. Natural Areas owns 2/3 of Mallard's Nest; Stormwater Utility owns the other 1/3.

Recently, an issue with the boundary between Brookhaven Condos and Mallard's Nest has come up. In 2002, a portion of a fence enclosed yard of one of the condos was inadvertently included in the parcel sold to the City. Adjustments are currently being made, which includes swapping a sliver of natural areas habitat in the HOA open space with the same of amount of land in turf/backyard fenced area. Once the land transaction is completed, Parks will move the Spring Creek Trail fence slightly to the south to designate the new boundary.

Site improvements to Mallard's Nest Natural Area included:

- Early 1980s: Asphalt-surface Spring Creek Trail established; maintenance by Parks including snow plowing in winter and mowing along the edges in summer.
- 1993-1994: Flood control measures installed in Spring Creek from Spring Park to Alpert Court by Stormwater Utility; boulders added for seating areas along the creek.
- 1997: Major stream clean-up after July Spring Creek Flood by Stormwater Utility.
- 1998: High Water Mark sign placed south of Stuart Street Bridge along the Spring Creek Trail to document the water level of the July 28, 1997, flood.
- 1998: Replacement of asphalt trail with concrete.
- 2005: Removal of the old Brookhaven tennis court by Streets; site reseeded by Natural Areas.
- 2005: First site sign installed.
- 2013: Trail signage installed by Parks.
- 2014: Updated site sign (newest City/Natural Areas Logo).

Site Management

Mallard's Nest Natural Area serves as a natural buffer area for Spring Creek and is managed to:

- ✓ Provide a recreational and commuter corridor for the Spring Creek Trail;
- ✓ Maintain neighborhood and street trail connections;

- ✓ Convey stormwater through Spring Creek and reduce impacts of flood events on downstream neighborhoods;
- ✓ Provide habitat for urban wildlife; and
- ✓ Provide opportunities for recreation, including off-trail exploration and fishing.

Natural Areas owns 2/3 of Mallard’s Nest; Stormwater Utility owns the other 1/3. Stormwater Utility manages stormwater conveyance and flood protection on the site. Parks manages the Spring Creek Trail and paved connectors with the exception of a paved



Fly fishing in Spring Creek, Mallard’s Nest Natural Area

trail connection to Shadowbrook Development at Sprocket Drive. By easement granted in 2013, Shadowbrook is responsible for maintaining this trail connector, including plowing in winter, but the public can use the trail for access to Prospect Road. Natural Areas manages the off-trail portions of the site, including weed control. Natural Areas is also responsible for the site sign and regulatory mini-kiosk signs. Parks is responsible for trail signage and City-installed wood fencing along the trail.

Beavers within the Spring Creek corridor area on Mallard’s Nest, as well as other stream sites, are managed by Stormwater Utility. Stormwater is responsible for ensuring that the creek is relatively free of debris to prevent flooding of adjacent private property. This includes, from time to time, removal of beaver dams on Mallard’s Nest.

Stormwater Utility does have a proposed stream rehabilitation project (Reach 4, Subreach 1 of Spring Creek) at Mallard’s Nest. However, it will likely be more than 15 years before this project would be funded. It is priority #26 in Stormwater Utility’s Stream Rehabilitation Program. The work could include some grading and realignment of Spring Creek, construction of riffle drops and vegetation to stabilize the creek banks and bed, and



Spring Creek, Mallard’s Nest Natural Area

improvements to wildlife habitat, including upstream fish passage. No new flood control or detention projects are proposed for Mallard’s Nest Natural Area.

As with all natural areas that support the Spring Creek Trail, both Natural Areas and Parks Rangers regularly patrol Mallard’s Nest. Vandalism and graffiti have not been serious issues at this site, nor has transient camping. Like Fischer and Ross natural areas, the high level of use on Spring Creek Trail and narrowness of the site have likely contributed to the low transient use of Mallard’s Nest.

Litter is also not usually a large issue on Mallard’s Nest. Adopt-a-Natural Area and Adopt-a-Trail volunteers keep the site cleaned up. After flood events, excessive trash does end up on in the creek, but neighbors often clean-up the creek, which really helps to keep the amount of trash at a minimum.

Although the site is not used as extensively for outdoor education as Red Fox Meadows or Ross natural areas, neighborhood elementary, middle, and pre-schoolers occasionally use Mallard’s Nest Natural Area and Spring Park for outings. The Natural Areas Department has also held a few public programs on the site through the years.

Ten-year Site Management Objectives

While most parcels of Mallard’s Nest Natural Area were acquired to serve flood protection needs, the site’s linear configuration along Spring Creek enhances the trail user experience and provides pockets of habitat for wildlife and people. No managed soft surface trail occurs on the narrow Mallard’s Nest site, although a few very short social spur trails can be found.



Spring Creek, Mallard’s Nest Natural Area

Although plant diversity is lower than at some of the other Core Natural Areas, Natural Areas and Stormwater Utility does not anticipate any major site restoration or stream rehabilitation projects for at least the next 10 years. However, Parks has identified a need for some improvements in the Spring Creek Trail from East Alpert Court to Lemay that could occur within the next 10 years (City of Fort Collins 2013b). Multiple departmental management of Mallard’s Nest Natural Area will continue and some informational needs to help guide future management of Ross Natural Area have been identified:

- ❖ **Natural Areas will continue to maintain the vegetation and public improvements not associated with the Spring Creek trail at current levels.**

- ❖ Parks will continue to maintain the paved Spring Creek Trail, connectors, pedestrian bridges, and associated amenities, including City-owned wood fencing, trail signage, and trash cans/pet waste bag dispensers.
- ❖ Park Planning and Development will widen the Spring Creek Trail from East Alpert Court to Lemay from 8 feet to 10 feet and possibly locate the trail entirely on the north side of the creek for better site distance. Timing is dependent on budget availability and relative need among all paved trail improvements and construction.
- ❖ Parks and Natural Areas will continue to work with Brookhaven Condo Association to resolve some minor boundary issues.
- ❖ Parks will continue to remove snow from the Spring Creek Trail and connectors, with the exception of the connector to Sprocket Drive and Prospect, to be maintained by Shadowbrook HOA per an existing easement.
- ❖ Stormwater Utility will continue to be responsible for maintenance of any stormwater structures on the site and maintain Spring Creek for flood protection.
- ❖ Stormwater and Natural Areas will explore ways to possibly improve fish passage upstream prior to future Stormwater Utility stream improvements that are at least 15 years away.
- ❖ Natural Areas will look for opportunities to use volunteers to conduct wildlife surveys to help guide future management of the site.
- ❖ Natural Areas and Stormwater Utility will continue to work together to evaluate beaver issues associated with Spring Creek.
- ❖ Natural Areas will look for opportunities to work with Lesher Middle School, Mountain Gymnastics, and other schools in the area to encourage use of the site for school groups.



Beaver

THE COTERIE NATURAL AREA

The Coterie Natural Area is the most unique of the eight Core Natural Areas. At only 3.7 acres, this site downstream from Edora Community Park is home to an urban population of prairie dogs. Within prairie dog towns, smaller groups live in neighborhoods called “coteries”; thus, the name for this natural area. The parcel is bounded on the south by Spring Creek; 0.1 miles of the Spring Creek Trail runs along the site (Map 6). A paved trail provides access to the main trail from Prospect Road. Ample parking is available at Edora Park on the west side of Riverside Drive.



Site sign, The Coterie Natural Area

Along with the prairie dog, 59 other species of wildlife have been observed on The Coterie (Appendix C). More fish species have been recorded from this small stretch of Spring Creek than at Ross or Mallard’s Nest natural areas, as indicated by Colorado Parks and Wildlife sampling. Although the Coterie appears to be fairly weedy and overgrazed by prairie dogs, surprisingly, the site is fairly diverse in plant life, ranking second highest among the eight Core sites with 57% of the plant species native (Appendix B). In the past, a lot of effort went into trying to establish native vegetation on the site with an active prairie dog colony. Most of these attempts failed, with the exception that skunkbrush (*Rhus trilobata*) is still thriving within the shrub barrier planting. Apparently, prairie dogs completely avoid pruning this shrub, perhaps because of its offensive odor and taste.



Skunkbrush shrub barrier at The Coterie Natural Area



Map 6. The Coterie Natural Area

Site History

City of Fort Collins Light and Power originally owned The Coterie site as part of Substation 300. In 1993, prairie dogs began colonizing the site. Working with Natural Areas and Parks staff, Kellen Duncan, a Line Worker II with a Wildlife Management degree, started developing a prairie dog management plan for the site. The project was seen as an “opportunity for Light and Power to demonstrate its concern for resource conservation and extend community involvement in education and aesthetics.”

The plan was completed in 1994 with goals to:

1. Contain the prairie dog colony to the site;
2. Reduce Utility expenses of management;
3. Improve site appearance;
4. Provide useful info on managing small prairie dog colonies;
5. Establish a prairie type viewing area on the Spring Creek Trail; and
6. Demonstrate Light and Power’s environmental sensitivity.

An Interdepartmental Team (Light and Power, Natural Areas, and Parks), led by Kellen Duncan, continued to manage the site until 2000 when Natural Areas purchased the 3.7 acres from Light and Power for \$173,400 (\$46,865/acre).

Site improvements to The Coterie included:

- 1987: Asphalt-surface Spring Creek Trail established; maintenance by Parks including snow plowing in winter and mowing along the edges in summer.
- 1997: Replacement of asphalt trail with concrete.
- 1994: Interdepartmental Team installed vinyl barrier fence, planted native barrier shrubs, reseeded site with native grasses and forbs, and established an earthen berm along Prospect sidewalk, all to try to contain the colony to the site.
- 1994: Site interpretive sign installed along trail by Team.
- 1997: Team replanted barrier shrubs and reseeded site.
- 1997: Cleanup of Spring Creek by Stormwater Utility after July flood.
- 2001: Earthen berms reseeded by Natural Areas.
- 2004: Vinyl barrier removed by Natural Areas; ineffective at containing prairie dogs.
- 2005: Stormwater Utility removed exotic Russian olives and Siberian elms to construct pedestrian underpass/stormwater box culverts to provide additional safety for Spring Creek Trail and increase flood protection.
- 2006: Stormwater planted cottonwoods to replace the exotic shrubs and trees removed during the 2005 project.
- 2008: Updated site sign (City/Natural Areas Logo); old interpretive sign removed.
- 2013: Trail signage installed by Parks.
- 2013: Frisbee/Disc Golf at Edora expanded in 2013 and now includes an area directly south of the prairie dog colony.

Site Management

Today, The Coterie Natural Area is managed to:

- ✓ Provide a central urban site to observe prairie dogs;
- ✓ Provide a research and education site for the study of prairie dogs;
- ✓ Support the recreational and commuter corridor for the Spring Creek Trail;
- ✓ Maintain a Prospect Road trail connection; and
- ✓ Convey stormwater through Spring Creek and reduce impacts of flood events on downstream businesses and roads.

The Coterie is an exception to the guidelines established for prairie dog management (City of Fort Collins 2008). The guidelines state that suitable sites for prairie dogs are those that consist of 50 acres or more contiguous acres of prairie dog habitat. Recognizing that The Coterie does not, and will never, meet that criteria, Natural Areas considers this site as an exception to the guidelines. Prairie dogs are allowed to remain on the site due to its unique value for urban prairie dog research and education.



Spring Creek, The Coterie Natural Area

The site provides a viewing area for prairie dogs close to the Fort Collins urban center. Parks has installed a bench near the site sign along the Spring Creek Trail. The only weeds treated on the site are those classified as Colorado Noxious Weeds (e.g., Canada thistle) so that the prairie dogs have at least some forage on this degraded site. Efforts to establish native grasses and forbs on the site have continually failed over the years. Establishment of native species with an active colony is just not possible, as shown by numerous studies in Colorado and elsewhere.

Due to the presence of the prairie dogs, The Coterie is Zoned 2A (Map 6). Only on-trail (on paved trail) use is allowed. Access to the south side of Spring Creek is still allowed since The Coterie boundary is mostly on the north or through the center of the creek. Prairie dog colony sites in the Natural Areas System are usually classified as on-trail use only due to potential for plague in the colony at any time of the year, abundance of holes and burrows, and the need to limit disturbance to the animals.

Natural Areas is responsible for managing the prairie dog colony and its vegetation. Parks is responsible for managing the Spring Creek Trail, including snow removal and mowing along the edges. Stormwater Utility is responsible for ensuring that the creek is relatively free of debris to prevent flooding of the downstream businesses and roads. Light and Power no longer has any management responsibility of The Coterie. Platte River Power Authority owns and manages the large overhead power lines through an easement on the site.

The Coterie has been used for educational activities, including programs on prairie dogs given by City volunteer Master Naturalists. This natural area was one of the Colorado Prairie Dog Conference field trip sites in 2001 and a Colorado Open Space Alliance workshop field trip site in 2002.

Ten-year Site Management Objectives

The Coterie Natural Area has been a unique site for prairie dogs for over 20 years. Its isolation from other colonies may possibly contribute to its relative protection against plague outbreaks. At the same time, its isolation prevents mixing of genes from other colonies of prairie dogs. For now, plans are to continue to maintain the prairie dog colony. However, should the population die out from plague, Natural Areas will not reintroduce prairie dogs or allow them to re-establish on the site.



Prairie Dog (Photo by Norm Keally)

Stormwater Utility has a proposed stream rehabilitation project just upstream from The Coterie (Reach 1, Subreach 5 of Spring Creek) from the Union Pacific Railroad track west to Riverside Avenue. Stormwater Utility and the Engineering Department are currently working on the design of this reach, which includes a vehicle bridge replacement project. Construction of the project is expected to be in 2016 and 2017. It does not include the portion of Spring Creek on The Coterie, which is Reach 1, Subreach 4. Stream rehabilitation for that reach is priority #18 in the Stream Rehabilitation Program. The work could include some grading and realignment of Spring Creek, construction of riffle drops and vegetation to stabilize the creek banks and bed, and improvement of wildlife habitat. This project will likely not be designed for at least 10 years. No flood control or detention projects are proposed for The Coterie Natural Area.

No improvements to the Spring Creek Trail are needed or anticipated for the next 10 years. Multiple departmental management of The Coterie will continue:

- ❖ **Natural Areas will continue to maintain the prairie dog colony within its existing boundaries, control noxious weeds, and maintain regulatory signage.**
- ❖ **Natural Areas does not intend to reintroduce prairie dogs, or allow them to re-establish, should the colony have a die off from plague or another disease.**

- ❖ **Parks will continue to maintain the paved Spring Creek Trail, the connector to Prospect road, the pedestrian bridge, the underpass, and associated amenities, including trail signage, stone bench, and trash cans/pet waste bag dispenser.**
- ❖ **Stormwater Utility will continue to be responsible for maintenance of any stormwater structures on the site and maintain Spring Creek for flood protection.**
- ❖ **Stormwater Utility will improve Spring Creek immediately upstream of The Coterie for flood protection and habitat in 2016-2017.**
- ❖ **Natural Areas will seek out volunteers willing to adopt The Coterie for ongoing trash and litter pickup.**
- ❖ **Natural Areas will look for opportunities to work with Rivendell to encourage use of the site for school groups.**



Spring Creek, The Coterie Natural Area

REDWING MARSH NATURAL AREA



Redwing Marsh Natural Area site sign along Willox

Redwing Marsh is a 23-acre natural area that consists of three parcels: two north of Willox Lane and one south of Willox Lane (Map 7). The northwest parcel adjacent to King Soopers is not accessible to the public. It is mostly wetland with a cattail marsh. The other two parcels provide relaxing recreation with a natural surface trail through the woods and a bench for enjoying the pond. As its name suggests, red-winged blackbirds can often be seen and heard in the cattails around the pond sometimes even on a warm winter day. The Larimer and Weld Canal flows east along the north boundary of Redwing Marsh. Parking for the site is

available at the north end of Sandcreek Drive, with additional parking and a restroom located at nearby Greenbriar Park.

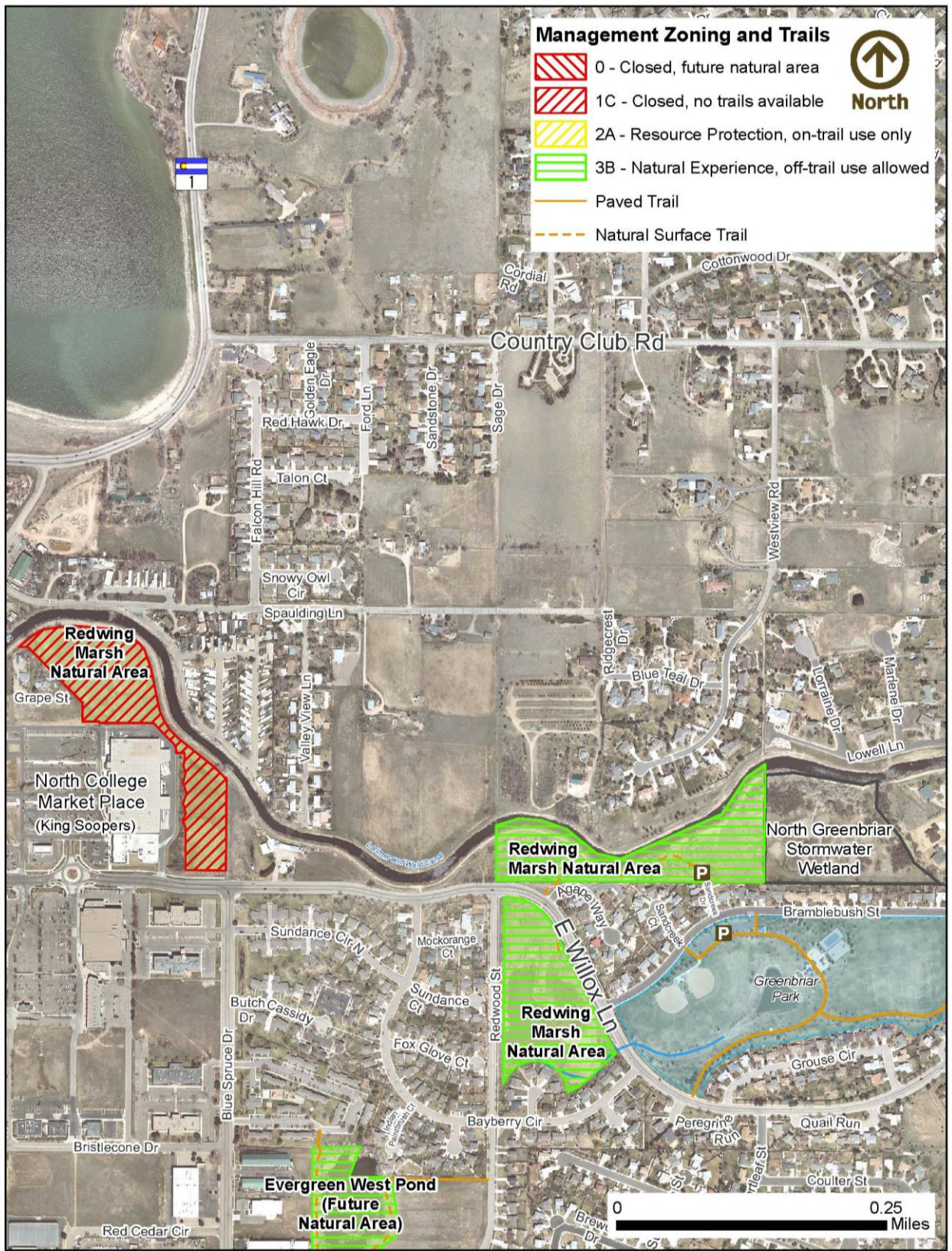
More than 50 animal species thus far have been documented using Redwing Marsh (Appendix C). Fox have denned on the site in the past. Nearly 100 plant species occur on the site, with 65% native to Colorado (Appendix B). Over 500 native shrubs and trees were planted on the site during 1997-2001 by Natural Areas staff with volunteers from the neighborhood.

Redwing Marsh's wildlife and recreational value is enhanced by the North Greenbriar Stormwater Wetland that provides another 7.6 acres of cattail marsh adjacent to Redwing Marsh (Map 7). A boardwalk built by the group Trees, Water & People in the mid-1990's provides easy access for classes. Nearby Tavelli Elementary students have used the wetland (formerly known as Lee Wetland from previous owners) as an outdoor classroom.



North Greenbriar Stormwater Wetland adjacent to Redwing Marsh Natural Area

Redwing Marsh is in the Dry Creek Basin and the pond provides stormwater detention for neighborhood flood protection. The pond is shallow and does not support much sport fishery, but it is a relaxing focal point of the natural area and a good fishing pond for families with young children.



Map 7. Redwing Marsh Natural Area

Site History

Prior to City ownership, Redwing Marsh parcels were fairly degraded sites from past construction waste dumping. In 1994, the first parcel (7.6 acres) of Redwing Marsh was purchased by Stormwater Utility (76%) and Natural Areas (24%) at a total cost of \$30,400 (\$4,002/acre). The joint acquisition facilitated construction of the Greenbriar Regional Detention Pond south of Willox (Map 7) with a design that restored and enhanced natural area values. The following year, Natural Areas purchased the second parcel, 7.8 acres northwest of the pond, for \$71,711(\$9,194/acre). Redwing Marsh Natural Area was named in 1995, through a public process. In 2014, 7.5 acres to the east of King Soopers was dedicated to Natural Areas and Stormwater Utility by the North College Market Place Development and incorporated into Redwing Marsh.



Stand of trees on Redwing Marsh Natural Area

Stormwater Utility is 100% owner of the 7.6 acres of the North Greenbriar Stormwater Wetland east of Redwing Marsh (Map 7), which was purchased in 1990 for \$62,220 (\$8,133/acre) to provide neighborhood flood protection.

The site had been used for detention from the early 1980s.

Site improvements to Redwing Marsh Natural Area included:

- 1997: Native shrub barrier planted north of Bramblebush to provide screening from houses on Sandcreek Drive and Court, and food and cover for songbirds and other wildlife.
- 1997: First removal of Russian olives from the site by City Forestry staff.
- 1997: Path created and native grasses and wildflowers seeded.
- 1997: Old moss rock entry-way sign base for development at Willox and Agape Way was removed from the natural area.
- 1998: Buck-and-rail fence installed at east entrance (Sandcreek Drive) to prevent vehicles from illegally accessing the site; old two-tracks reseeded with native grass.
- 1999: Sixteen native cottonwoods planted along Willox Lane.
- 1999-2004: Russian olive removal and control (Forestry, then Natural Areas staff).
- 2000: Pond (Greenbriar Detention Pond) on Redwing Marsh was enlarged to increase stormwater storage.
- 2001: Sidewalk installed along Willox on the pond parcel; Natural Areas began sidewalk snow removal.

- 2001: Neighbors and Natural Areas staff planted 420 native shrubs in parcel north of Bramblebush.
- 2001: Trail spur and seating bench installed on east side of pond; large log added to the pond for turtle sunning habitat.
- 2004: Mini-kiosks with regulation signs installed.
- 2005: Trash cans and dog waste bag containers installed.
- 2013-2014: North College Market Place planted trees and wetland plants on the parcel adjacent to King Soopers as mitigation for impacts from the development.

Site Management

Redwing Marsh Natural Area has been designed and managed to:

- ✓ Increase local and regional flood protection;
- ✓ Decrease stormwater pollution;
- ✓ Improve water quality;
- ✓ Enhance wildlife habitat; and
- ✓ Provide recreational opportunities.

Natural Areas owns about 58% of the site; Stormwater Utility owns 42%. Redwing Marsh is jointly managed. Natural Areas is responsible for weed control, trail and sidewalk maintenance, signage, fencing, benches, and the informal parking area at the north end of Sand Creek Drive.

Stormwater Utility maintains all flood protection and stormwater conveyance structures on the site. Stormwater has completed all proposed flood control and detention facilities at Redwing Marsh. No additional regional Best Management Practices (BMP) projects are planned at this site for the foreseeable future. The Larimer and Weld Canal on the north side of Redwing Marsh is maintained by a private ditch company and not the City of Fort Collins.



Pond at Redwing Marsh Natural Area

The northwest parcel next to King Soopers is zoned 1C—“Closed” to public use; “no trails available.” The other two parcels are zoned 3B “Natural Experience” with “Off-trail Use Allowed” (Map 7). Unauthorized camping and trash continue to be a problem on the northwest parcel, which was closed to the public in March 2015 due to safety concerns. The parcel is too wet for a trail and access is difficult. The dedication of this parcel to the City from North College Market Place included a \$14,000/year endowment to be used for overall management of the property, including any stormwater issues that might arise. Infractions have been relatively few for the other two parcels of Redwing Marsh and graffiti has not been a recurring issue on Redwing Marsh Natural Area. The site is regularly patrolled by Natural Areas Rangers.

Volunteers have been involved in site management since early-on with neighbors assisting with shrub plantings and site cleanup. Adopt-a-Natural Area volunteers help keep the site litter-free throughout the year.

Ten-year Site Management Objectives

Redwing Marsh is currently the only local natural area open to the public north of the Poudre River Corridor. The site complements Greenbriar Park, providing a more natural setting for exploration, wildlife viewing, dog walking, and pond fishing. City staff has identified a few site needs, but overall Redwing Marsh is in good condition. Both Natural Areas and Stormwater staff will continue to jointly manage the site:



Red-winged blackbird (Photo by Jack Hicks)

- ❖ **Stormwater Utility will continue to maintain all stormwater structures.**
- ❖ **Natural Areas will continue to maintain the vegetation, trail, and public improvements.**
- ❖ **Natural Areas will replace the fencing at the parking area at the north end of Sandcreek Drive with single-rail fence and install permanent *trail parking only* signs.**
- ❖ **Natural Areas will improve the fishing area on the southwest corner of the pond with more sustainable gravel surface and install a bench.**
- ❖ **The City will continue to implement existing policy and use a private contractor to monitor the site for presence of mosquito larvae that potentially could carry West Nile Virus and to apply biological larvicide to stagnant water for control of these mosquito larvae.**
- ❖ **Natural Areas will conduct periodic clean-up efforts to remove old camps and trash from the cattail area east of King Soopers.**
- ❖ **Natural Areas will consider re-moving/moving the trail and bench on the east side of the pond to a better location because it no longer overlooks open water.**



Bench on east side of pond at Redwing Marsh Natural Area

EVERGREEN WEST POND (FUTURE NATURAL AREA)



Evergreen West Pond

Evergreen West Pond is on a 5.7-acre site between Blue Spruce Drive and Redwood Street, north of Nokomis Court (Map 8). At this time, the site is not open to the public. Stormwater Utility has an easement for use of the pond for stormwater drainage and owns the southern tip of the pond (0.2 acres), but the majority of the pond site is privately owned. The name Evergreen West Pond comes from existing Stormwater Utility Management Documents.

Natural Areas is proposing to lease, accept a donation, or purchase portions of Evergreen West Pond in 2016 to manage the site as a natural area. The City is currently working with Fort Collins Housing Authority (FCHA) who owns about 4 acres of the site and Neighbor to Neighbor who owns about 1 acre in the northwest corner. Sundance Hills, F C LTD owns 0.45 acres of the pond in the northeast corner, but the City has no plans to lease or

purchase this parcel at this time. Two residential properties own right up to the water's edge, prohibiting future trail access in the northeast corner even if the City was able to lease or own the 0.45-acres pond parcel.

Most of Evergreen West Pond is very shallow, but reportedly supports bluegills and even some bass. Wildlife surveys of the site have been very limited to date; however, almost 60 species have been observed on Evergreen West Pond (Appendix C). Only 60 species of plants (52% native) have been identified so far, but that was from only two surveys in 2015 (Appendix B).

Water to Evergreen West Pond comes from groundwater, stormwater flow (Dry Creek Basin), and precipitation. The pond has open water throughout the year except during periods of extreme cold when the shallow pond ices over.



Canada geese at Evergreen West Pond

Evergreen West Pond has been a small haven for wildlife with limited human access (mostly nearby neighbors). Because it receives stormwater flow from the Evergreen Swale Inlet at the northwest corner of the pond and smaller detention basins from the business on the west side, the pond receives quite a lot of trash in rain events. Evergreen West Pond needs a major clean-up and trail amenities to make it more pleasant for users.



Map 8. Evergreen West Pond (Future Natural Area)

Site History

Evergreen West Pond was created at some point between 1976 and 1981 from a low area in an agricultural field (cropland or pasture). From aerial photos, the low depression area appeared to be intermittently flooded and was possibly saline. In the 1980s, Stormwater Utility started using the pond for stormwater detention as development occurred in the area.

Neighbor-to-Neighbor, Inc., purchased the northwest 1-acre portion of Evergreen West Pond in 1982 as part of the Coachlight Plaza affordable housing development. Stormwater Utility received the southern 0.2 acres of the pond when Nokomis Subdivision was developed in the mid-1990s. In 1996, Sundance Hills, F C, Ltd. acquired the northeast 0.45 acres of the pond from Larimer County in the County's Annual Tax Lien Sale. In 2011, The Fort Collins Housing Authority (FCHA) purchased the southern 4 acres of the pond from a development company as part of the Village on Redwood development site.



Natural Areas Department crew removing invasive Russian olive trees

Although Evergreen West Pond is privately owned, Stormwater Utility maintains their easement to facilitate water flow in storm events. Natural Areas assisted with some Russian olive removal in 2014.

Volunteers are already helping out with site management. A Boy Scout organized some Russian olive removal in 2013. Neighbors and adjacent businesses pitch in to pick up trash and debris out of the pond several times a year.

FCHA, Neighbor-to-Neighbor, and nearby residents who attended a neighborhood meeting in June 2015 on FCHA's proposed Village on Redwood development are looking forward to future City management of the pond. Construction of FCHA's 72-unit affordable housing development will likely start in January 2016 and will take about 14 months. A 50-foot buffer from the pond is required to be preserved in the development.

Site Management

In 2016, Evergreen West Pond will be managed to:

- ✓ Maintain local flood protection;
- ✓ Enhance wildlife habitat;
- ✓ Improve access for the public;
- ✓ Provide recreational amenities; and
- ✓ Improve safety for visitors.

In 2016, Natural Areas will lease and/or own approximately 5 acres of the Evergreen West Pond site. Natural Areas staff will be responsible for weed control, trail maintenance, signage, and fencing installed by the City. Management Zoning for Evergreen West Pond is proposed to be 3B “Natural Experience” with “Off-trail Use Allowed” (Map 8).

No onsite parking will be available; however, the public will be able to access the site via a future concrete trail/sidewalk along the north boundary of the Village on Redwood (see Map 8). The public can park along Redwood Street. Neighborhood pedestrian access will also be available from the south (via Nokomis Court) and the north (for Coachlight Plaza residents).

Stormwater Utility will continue to manage their easement for stormwater conveyance and flood protection. No new regional flood control or detention projects are proposed for the Evergreen West Pond.

Evergreen West Pond will be regularly patrolled by Natural Areas Rangers once the site is leased or owned by the City. Besides heavy amounts of trash and litter, the site has had one or two people camping on the site quite regularly in 2015. The no-camping regulation will be enforced once the site is managed as a natural area by the City.



Transient campsite at Evergreen West Pond

Proposed amenities for 2016/17 include the following (also see Map 8):

- A ¼-mile natural surface trail around 3/4 of the pond;
- Two foot bridges/boardwalks across drainages;
- Regular patrol by rangers;
- Pet waste bags and trash containers;
- Public parking on Redwood Street with access via paved sidewalk on the north boundary of Village on Redwood;
- Weed control and removal of Russian olives; and
- Fencing to prevent illegal vehicle access.



Looking northwest from Evergreen West Pond

Ten-year Site Management Objectives

Evergreen West Pond has the opportunity to become a treasured natural area for the neighborhood and the Fort Collins community at large. The shallow pond has the potential to be improved wildlife habitat with a major clean-up and regular maintenance activities. Volunteers from the local community can lend a helping hand in this effort.

- ❖ **Natural Areas Rangers will begin patrolling the Evergreen West Pond once the site is under City management and regulations are posted.**
- ❖ **Natural Areas proposes to begin weed control and remove Russian olives in 2016.**
- ❖ **Natural Areas proposes to construct and maintain a ¼-mile natural surface trail, signage, bridge, and boardwalk and open the site to the public by 2017.**
- ❖ **Natural Areas plans to engage volunteers in site clean-up, trail construction, and maintenance of the Evergreen West Pond.**
- ❖ **Natural Areas will install boundary markers, “no access beyond this point” signs, and additional fencing if necessary once site is under City management to prevent illegal access to private properties at the northeast corner of the pond.**
- ❖ **Natural Areas proposes to install trash cans and dog waste bag containers once Evergreen West Pond is open to the public.**
- ❖ **Natural Areas proposes to install a single-rail fence and gate on the west side of the site to prevent illegal vehicle access.**
- ❖ **Natural Areas plans to engage volunteers in site clean-up, trail construction, and maintenance of the Evergreen West Pond.**
- ❖ **Stormwater Utility will continue to maintain the stormwater structures at current levels.**
- ❖ **The City will continue to implement existing policy and use a private contractor to monitor the site for presence of mosquito larvae that**



Russian olives at Evergreen West Pond

potentially could carry West Nile Virus and to apply biological larvicide to stagnant water to control these mosquito larvae.

- ❖ **Fort Collins Housing Authority plans to construct and maintain a 450-foot long paved trail/sidewalk on the north side of Village on Redwood for public access to the pond from Redwood Street.**
- ❖ **Fort Collins Housing Authority plans to construct and maintain wood fencing on the east side of the pond to separate the residential area from the natural area.**



Looking northeast from Evergreen West Pond

SITE #13IS1 (FUTURE NATURAL AREA)

Jointly purchased by Natural Areas and Stormwater Utility, Site #13IS1 is currently being managed solely by Stormwater Utility and not open for public use. In the next 5-10 years, this 37.4-acre site will be named and undergo a major transformation into a regional detention pond and natural area. Public input is being sought through the Core Natural Areas Management Plan on features to consider in the future design and management of this site.



Site #13IS1 (Future Natural Area)

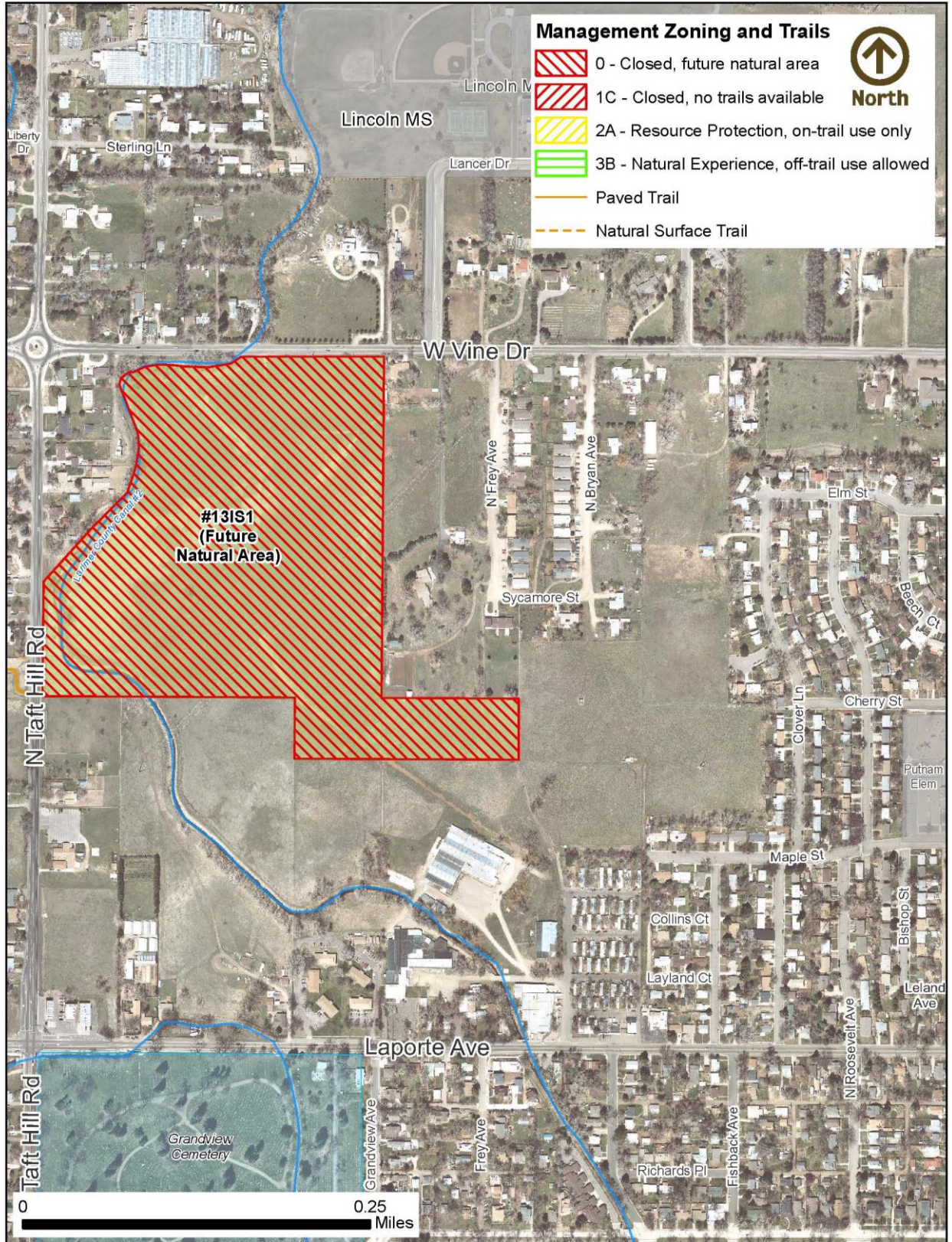
Site #13IS1 is east of the Larimer County Canal No. 2 at the southeast corner of Taft Hill Road and West Vine Drive (Map 9). Currently, Stormwater Utility is using the site for storing equipment and dirt. Large, heavy trucks enter and exit the site during working hours.



Stormwater Utility storage area at Site #13IS1

Stormwater Utility will construct a regional detention pond on the site in 5-10 years. The mostly-dry pond will need to be able to detain up to 100-acre feet of stormwater from the West Vine Basin in an extreme rain event. Water will exit the pond to the east via an outfall channel as it makes its way to the Cache la Poudre River. Exact configuration of the dry pond will be determined in the final design phase, but will need to encompass a minimum of 23 surface acres or 60% of the site.

Prominent features on the site include Larimer County Canal No. 2 on the west, a small 2-acre hill on the southwest, and Platte River Power Authority's large electric power poles. The gradual-sloped hill may be spoils from past ditch construction or maintenance. The recent construction of a buried sewer line can be seen on the aerial photo of the site (Map 9).



Map 9. Site #13IS1 (Future Natural Area)

A few site visits to #13IS1 in 2015 by Natural Areas staff have documented 30 animal species and 52 plant species (Appendix B and C), but this is only a start to a species list for the site. However, a quick visual assessment indicates low plant diversity with the exotic pasture grass smooth brome clearly the dominant species. Only a few trees occur outside of the canal corridor and they are all exotic, pest species (Siberian elm and Russian olive). A 5-acre degraded wet meadow runs from southwest to northeast on the west half of the property.

Site #13IS1 can definitely use some enhancement to increase its value for wildlife and to provide a future recreational experience. The creation of a regional detention pond on the site will provide a great opportunity to enhance natural areas values. Stormwater Utility and Natural Areas staff will work together on the design of the pond to fulfill Core Natural Areas goals of flood protection, habitat enhancement, and recreation.

Site History



Hayfield at Site #13IS1

Forney Industries likely hayed the property since the 1950s when they established their metal work manufacturing business to the southeast of Site #13IS1. In 2012, Forney Industries, Inc. sold the property to Stormwater Utility for \$1.05 million with Natural Areas contributing 40% of that cost to Stormwater Utility in 2013. Stormwater Utility has been using the site for material and vehicle storage for several years.

Site Management

Until construction begins on the regional detention pond on Site #13IS1, the site will continue to be managed by Stormwater Utility for storage of material and construction vehicles. Stormwater also plans to continue haying the property. In 5-10 years, Stormwater Utility, with input from

Natural Areas, will design and construct the regional detention pond with goals to:

- ✓ Increase local flood protection;
- ✓ Improve water quality for the Poudre River;
- ✓ Create a higher quality wet meadow habitat;
- ✓ Enhance wildlife habitat;
- ✓ Diversify the native plant community on the site;
- ✓ Remove non-native trees and shrubs;
- ✓ Include cottonwoods and native fruit-bearing shrubs in the planting plan; and.
- ✓ Provide recreational and educational opportunities.

Public amenities, including a natural surface trail and small (8-10 space) parking lot, are proposed to be incorporated into the site design. Natural Areas will contribute funding

for the construction of recreational amenities. The neighborhood and general public will have several opportunities to provide input during the site design phase.

After construction of the detention pond, which will usually be dry (except in a rain event), management of the site will be shared by Natural Areas and Stormwater Utility. Natural Areas will maintain the vegetation and public improvements on the site. Stormwater will maintain all flood protection and stormwater conveyance structures. The Larimer County Canal No. 2 will continue to be maintained by a private ditch company and not the City of Fort Collins.

Until the site is opened to the public, it will be zoned 0 “Closed Site” (Map 9). Once the site is opened, it will be classified 2A “Resource Protection; On-trail Use Only” until vegetation is well established, which typically takes 2-4 years after seeding and planting. Eventually, the site will likely be classified 3B “Natural Experience; off-trail use allowed.”

Ten-year Site Management Objectives



Mule deer near the canal on Site #13IS1

While Site #13IS1 awaits transformation into a detention pond and natural area, it still supports urban wildlife, particularly species that use the habitat along Larimer County Canal No. 2. The site also serves a current material storage need for Stormwater Utility. Sole management of the site by Stormwater Utility will continue until the detention pond is constructed in 5-10 years. In the interim, the following management objectives will help guide the process.

- ❖ **Stormwater Utility will continue to use Site #13IS1 for storage of materials, construction equipment, and vehicles until detention pond construction is completed.**
- ❖ **Stormwater Utility will continue to lease the smooth brome grassland for haying until pond construction begins.**
- ❖ **Stormwater Utility will continue to control weeds on the property until 2 years post planting of the newly constructed pond on the site when Natural Areas will take over weed control.**
- ❖ **Stormwater Utility will be the lead of site construction with Natural Areas providing input on design, native plantings, wetland mitigation, and recreational amenities.**

- ❖ **Proposed recreational amenities currently include a small 8- to 10-vehicle parking lot with a vault toilet along West Vine Drive, a loop trail, neighborhood trail connections, and an informational kiosk to be maintained by Natural Areas.**
- ❖ **Natural Areas will seek opportunities to acquire land or easements that would provide a future trail connection to Putnam Elementary (via Maple or Cherry streets).**
- ❖ **Natural Areas and Stormwater Management Staff will continue to seek ways to cooperate with the Larimer County Canal No. 2 ditch company during debris removal projects so that material is taken off-site to limit damage to the natural area.**
- ❖ **Natural Areas and Stormwater Education Staff will look for opportunities to use Site #13IS1 for outdoor education in 5-10 years.**



Wet meadow on Site #13IS1

SUMMARY



Old cottonwood on Fischer Natural Area

Core Natural Areas are small, urban sites that geographically fall outside the three major corridors of local conserved lands: The Cache la Poudre River, Foothills, and Fossil Creek corridors. The City of Fort Collins has conserved lands within the Core area for natural areas values since 1977. This is the first management plan written for those sites.

Core Natural Areas currently include eight sites, ranging in size from 4 to 41 acres. Six sites managed by the Natural Areas Department are open to the public: Red Fox Meadows, Fischer, Ross, Mallard's Nest, The Coterie, and Redwing Marsh natural areas. Two future natural areas not yet open to the public are also included in this plan: Evergreen West Pond (currently privately owned) and an unnamed site (Site #13IS1; currently managed solely by Stormwater Utility). The City of Fort Collins Parks Department has management responsibility for the Spring Creek

Trail system, which goes through four of the Core sites. Stormwater Utility owns five of the Core Natural Areas jointly with Natural Areas and has management responsibility for stormwater conveyance on all eight sites.

The following overarching goals established by the interdepartmental Core Natural Areas Management Team were reviewed by the public and provide the foundation upon which management decisions are made for natural areas in the Core Area:

- ❖ Conserve and enhance the ecological values and functions of each Core Natural Area.
- ❖ Maintain flood protection and stormwater conveyance functions.
- ❖ Conserve and improve wildlife habitat.
- ❖ Maintain and enhance natural aesthetics.
- ❖ Provide recreational opportunities.
- ❖ Improve site accessibility.
- ❖ Maintain a safe visitor experience.
- ❖ Provide educational and interpretive opportunities.
- ❖ Promote recreational and educational use by diverse groups.
- ❖ Encourage nature exploration and discovery.
- ❖ Maintain good relations with neighbors.
- ❖ Manage sites to provide an escape from the urban environment and a “wilderness in the city” experience.

For each of the eight Core Natural Areas, the plan documents site history and current management. Ten-year site management objectives are presented. Input was solicited from the public on future management for all the Core Natural Areas. Because the sites are small and most have been well established in the City system for a decade or more, major changes to site management were not expected during the plan review process. Major changes to two sites not yet open to the public are proposed to add recreational amenities, enhance wildlife habitat, and provide flood protection.

The predominant management zoning for Core Natural Areas is Zone 3B, “Natural Experience; off-trail use allowed.” The Coterie and part of Red Fox Meadows are zoned 2A, “Resource Protection; on-trail use only.” A parcel of Redwing Marsh Natural Area is closed to the public for safety and resource protection because it is a wet cattail marsh. Site #13IS1 will be closed to the public for at least 5-10 years while it is used for material storage by Stormwater Utility and until a detention pond can be built on the property.

Parks, Stormwater Utility, and Natural Areas have partnered on the purchase and management of Core Natural Areas for decades. The Core Natural Areas Management Plan provides a tool for the City of Fort Collins to help coordinate management of these sites among these and other City departments.



Adventure Club (Photo by Henry Mueller)



Raccoon (Photo by Norm Keally)

REFERENCES

- City of Fort Collins. 2015a. Nature in the City Strategic Plan. City of Fort Collins Planning Department, Fort Collins, Colo. 62 pages + appendices.
- City of Fort Collins. 2015b. West Central Area Plan. City of Fort Collins Planning Department, Fort Collins, Colo. 109 pages + appendices.
- City of Fort Collins. 2014. Natural Areas Master Plan. City of Fort Collins Natural Areas Department, Fort Collins, Colo. 90 pages + appendices.
- City of Fort Collins. 2013a. General Resource Protection Standards for Easements or Rights of Way on City of Fort Collins Natural Areas and Conserved Lands. 6 pp.
- City of Fort Collins. 2013b. Paved Recreational Trail Master Plan. City of Fort Collins Park Planning and Development, Fort Collins, Colo. 19 pp + appendices.
- City of Fort Collins. 2012. Natural Areas and Conserved Lands Easement Policy. City of Fort Collins Natural Areas Department, Fort Collins, Colo. 7 pp.
- City of Fort Collins. 2011. Cache la Poudre River Natural Areas Management Plan Update. City of Fort Collins Natural Areas Department, Fort Collins, Colo. 147 pp + appendices.
- City of Fort Collins. 2008. Foothills Natural Areas Management Plan. City of Fort Collins Natural Areas Department, Fort Collins, Colo. 36 pp + appendices.
- City of Fort Collins. 2007. Wildlife Management Guidelines. City of Fort Collins Natural Areas Program, Fort Collins, Colo. 96 pp + appendices.
- City of Fort Collins. 2005. Fossil Creek Natural Areas Management Plan Update. City of Fort Collins Natural Areas Department, Fort Collins, Colo. 54 pp + appendices.
- Corona Research, Inc. 2006. Natural Areas Observational and Intercept Surveys: The City of Fort Collins, Colorado – 2006. Corona Research, Inc., Denver, Colo. 45 pp + appendices.
- Design Workshop. 2012. Plug in to Nature: Finding Connections to the Outdoors for Youth and Families in Larimer County. Larimer County Open Lands, Loveland, Colo. 91 pp.

**Appendix A. Research and Educational Studies on Core Natural Areas
(Based on Permits Issued 1999-September 2015)**

Who	Topic	Natural Area ^a					
		RFM	FIS	ROS	MAL	COT	RWM
USDA National Wildlife Research Center	Prairie Dog Artificial Barrier Research					2001	
USDA National Wildlife Research Center	Raptor Use of Prairie Dog Colonies Research					2001	
USDA National Wildlife Research Center	Prairie Dog Contraception Methods					2002-2003	
USDA National Wildlife Research Center	West Nile Virus Research in Birds and Small Mammals	2003-2004					
USDA National Wildlife Research Center	Detecting Wildlife Use by Non-trapping Techniques	2011	2011	2011	2011	2011	2011
USDA National Wildlife Research Center	Occurrence of Gypsy Moths	2012					
USDA National Wildlife Research Center	Rabies Vaccination for Mid-size Wild Mammals	2013	2013	2013	2013	2013	2013
USDA National Wildlife Research Center	Antimicrobial Gene Study in Raccoon Scat			2014		2014	2014
US Forest Service	Elm Bark Beetle Study				2004		
US Bureau of Land Management	Plant Genotypes of Native Seed	2013	2013	2013	2013	2013	2013
Colorado State University	Effect of Habitat Fragmentation on Frogs	2006	2006	2006	2006	2006	2006
Colorado Natural Heritage Program	Wetland Study			2013			
Rocky Mountain Bird Observatory	Eastern Screech Owl Study					2013	
Colorado State University and City of Fort Collins Planning Department	Bird and Butterfly Surveys of Nature in the City Sites	2014	2014-2015	2014	2014	2014	2014
Colorado State University Student	Prairie Dog Study of Alarm Calls					2001	
Colorado State University Student	Effect of Recreational Impacts on Prairie Dogs					2014	
Colorado State University Student	Impacts of Road Noise on Prairie Dogs					2014	
Colorado State University Student	Pests of Leafy Spurge and Dalmation Toadflax			2014	2014		2014
Colorado State University Student	Stream Flow Study	2011		2011			
Colorado State University Student	Brome Grass Research		2013	2013			
Colorado State University Student	Visitor Use Survey to Determine Interest in APP Use			2013			
Colorado State University Student	Chorus Frog Study						2009-2011
Colorado State University Graduate Student	Nutrient Sinks and Sources					2001	
Colorado State University Student	Water Quality Study	2015					

**Appendix A. Research and Educational Studies on Core Natural Areas
(Based on Permits Issued 1999-September 2015)**

Who	Topic	Natural Area ^a					
		RFM	FIS	ROS	MAL	COT	RWM
Colorado State University Biology Class	Plant Study			2000			
Colorado State University Ecology Class	General Ecology Study	2001					
Colorado State University Archaeology Class	Archaeological Surveying	2010	2010	2010	2010	2010	2010
Colorado State University Plant Sciences Class	Insect Study		2014	2012	2012; 2015		
University of Denver Student	Host Plants of Fall Webworms			2011	2011	2011	
University of Northern Colorado Student	Bird Study				2014		2014
University of Wyoming	Chorus Frog Genetic Study	2010	2010	2010	2010	2010	
University of Minnesota-Duluth	Plant Evolution in Response to Environmental Change	2014			2014		
Larimer County Planning Department	Wetland Identification Training			1999			1999
Larimer County Search and Rescue	Search and Rescue Training			1999-2010			1999-2010
Blevins Middle School	Watershed Study	1999; 2011-13		1999-2004			
Bennett Elementary	General Ecology Study	1999					
Bauder Elementary	General Ecology Study	1999; 2001-02					

^aNatural Area = Red Fox Meadows Natural Area (RFM), Fischer Natural Area (FIS), Ross Natural Area (ROS), Mallard's Nest Natural Area (MAL), The Coterie Natural Area (COT), Redwing Marsh Natural Area (RWM).

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Natural Areas: Red Fox Meadows (RFM), Fischer (FIS), Ross (ROS), Mallard's Nest (MAL), The Coterie (COT), Redwing Marsh (RWM), Evergreen West Pond (EWP), #13IS1 (FUT).										
Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
FERNS AND FERN ALLIES										
Family - Equisetaceae										
<i>Equisetum arvense</i>	Field horsetail	N	X							X
<i>Equisetum laevigatum</i>	Smooth horsetail	N	X	X	X	X		X		X
GYMNOSPERMS										
Family - Cupressaceae										
<i>Juniperus scopulorum</i>	Rocky Mountain juniper	N	X		X					
<i>Juniperus</i> spp.	Juniper	E	X				X			
<i>Juniperus virginiana</i>	Eastern redcedar	E	X		X		X		X	
Family - Pinaceae										
<i>Picea pungens</i>	Blue spruce	N			X	X				
<i>Pinus ponderosa</i> var. <i>scopulorum</i>	Ponderosa pine	N	X			X				
ANGIOSPERMS										
Family - Aceraceae										
<i>Acer glabrum</i>	Rocky Mountain maple	N	X							
<i>Acer negundo</i> var. <i>interius</i>	Boxelder	N/E	X	X	X	X		X		
<i>Acer negundo</i> var. <i>violaceum</i>	Boxelder	E	X							X
<i>Acer saccharinum</i>	Silver maple	E		X	X					
Family - Acoraceae										
<i>Acorus calamus</i>	Sweetflag	N/E			X					
Family - Agavaceae										
<i>Yucca glauca</i>	Yucca	N	X	X	X	X	X	X		X
Family - Alismataceae										
<i>Sagittaria cuneata</i>	Duck potato	N			X					
Family - Amaranthaceae										
<i>Amaranthus retroflexus</i>	Redroot pigweed	E		X						

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Family - Anacardiaceae										
<i>Rhus glabra</i>	Smooth sumac	N	X	X	X					
<i>Rhus trilobata</i> var. <i>trilobata</i>	Skunkbrush	N			X		X	X		
Family - Apocynaceae										
<i>Apocynum cannabinum</i>	Indianhemp	N							X	
Family - Asclepiadaceae										
<i>Asclepias incarnata</i>	Marsh milkweed	N					X	X		
<i>Asclepias pumila</i>	Plains milkweed	N					X			
<i>Asclepias speciosa</i>	Showy milkweed	N	X	X	X	X	X	X	X	X
Family - Asteraceae										
<i>Acroptilon repens</i>	Russian knapweed	E					X			
<i>Ambrosia psilostachya</i>	Cuman ragweed	N	X	X		X	X			
<i>Ambrosia trifida</i>	Giant ragweed	E	X	X			X			
<i>Arctium minus</i>	Burdock	E	X	X	X					
<i>Artemisia dracunculus</i>	Wild tarragon	N						X		
<i>Artemisia frigida</i>	Fringed sage	N	X				X	X		
<i>Artemisia ludoviciana</i>	Cudweed sagewort	N						X		
<i>Bidens cernua</i>	Nodding beggartick	E	X		X					
<i>Carduus nutans</i>	Musk thistle	E	X				X			X
<i>Chrysothamnus viscidiflorus</i>	Yellow rabbitbrush	N					X	X		
<i>Cichorium intybus</i>	Chicory	E			X					
<i>Cirsium arvense</i>	Canada thistle	E	X	X	X	X	X	X	X	X
<i>Cirsium canescens</i>	Prairie thistle	N							X	
<i>Conyza canadensis</i>	Horseweed	E	X				X	X	X	
<i>Cyclachaena xanthiifolia</i>	Marshelder	N	X		X					
<i>Dyssodia papposa</i>	Fetid marigold	N	X				X			
Family - Asteraceae										
<i>Ericameria nauseosa</i>	Rubber rabbitbrush	N	X	X	X	X	X	X	X	
<i>Gaillardia aristata</i>	Indian blanketflower	N	X			X				
<i>Grindelia squarrosa</i>	Curlycup gumweed	N	X	X	X	X	X	X		X
<i>Gutierrezia sarothrae</i>	Broom snakeweed	N					X			
<i>Helianthus annuus</i>	Annual sunflower	N	X	X	X		X	X	X	X

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
<i>Helianthus nuttallii</i>	Nuttall's sunflower	N	X					X		
<i>Helianthus petiolaris</i>	Sunflower	N	X				X			
<i>Lactuca serriola</i>	Prickly lettuce	E	X	X	X	X	X	X		X
<i>Liatris punctata</i>	Dotted gayfeather	N						X		
<i>Lygodesmia juncea</i>	Skeletonweed	N						X		
<i>Machaeranthera tanacetifolia</i>	Tansyleaf tansyaster	N	X							
<i>Ratibida columnifera</i>	Prairie coneflower	N	X					X		
<i>Rudbeckia hirta</i>	Blackeyed Susan	N				X				
<i>Senecio spartioides</i>	Broomlike ragwort	N					X			
<i>Solidago canadensis</i>	Canada goldenrod	N	X				X			
<i>Solidago gigantea</i>	Giant goldenrod	N								X
<i>Symphotrichum ericoides</i>	White aster	N	X		X			X		
<i>Symphotrichum falcatum</i> var. <i>falcatum</i>	White prairie aster	N	X	X	X	X		X		
<i>Symphotrichum laeve</i> var. <i>geyeri</i>	Geyer's aster	N	X							
<i>Tanacetum vulgare</i>	Common tansy	E						X		
<i>Taraxacum officinale</i>	Dandelion	E	X	X	X	X	X	X	X	X
<i>Tragopogon dubius</i>	Yellow salsify	E	X		X			X		
<i>Alnus incana</i> ssp. <i>tenuifolia</i>	Thinleaf alder	N	X							
<i>Betula occidentalis</i>	Water birch	N	X		X			X		
Family - Boraginaceae										
<i>Asperugo procumbens</i>	German-madwort	E					X			
<i>Cynoglossum officinale</i>	Houndstongue	E	X	X	X	X	X	X		
Family - Brassicaceae										
<i>Camelina microcarpa</i>	False flax	E								X
Family - Brassicaceae										
<i>Chorispora tenella</i>	Blue mustard	E	X	X	X	X	X	X	X	X
<i>Descurainia incana</i> ssp. <i>procera</i>	Mountain tansymustard	N	X	X	X	X	X			
<i>Descurainia sophia</i>	Flixweed	E	X	X	X	X	X			X
<i>Lepidium campestre</i> or <i>Neolepia campestris</i>	Field pepperweed	E	X							

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
<i>Lepidium densiflorum</i>	Common pepperweed	N	X							
<i>Nasturtium officinale</i>	Watercress	E	X	X	X	X	X			
<i>Rorippa palustris</i>	Bog yellowcress	N	X							X
<i>Thlaspi arvense</i>	Field pennycress	E	X							
Family - Cactaceae										
<i>Opuntia macrorhiza</i>	Twistspine prickly pear	N								X
<i>Opuntia polyacantha</i>	Prickly pear cactus	N						X		
Family - Campanulaceae										
<i>Lobelia siphilitica</i> var. <i>ludoviciana</i>	Big blue lobelia	N	X							
Family - Capparaceae										
<i>Cleome serrulata</i>	Rocky Mountain beeplant	N					X			
Family - Caprifoliaceae										
<i>Lonicera</i> sp.	Honeysuckle	E	X						X	
<i>Lonicera tatarica</i>	Tatarian honeysuckle	E	X							
<i>Symphoricarpos albus</i>	Common snowberry	N	X	X	X	X	X	X		
<i>Symphoricarpos occidentalis</i>	Western snowberry	N	X	X	X	X		X		
Family - Caryophyllaceae										
<i>Spergularia maritima</i>	Sand spurry	N					X			
Family - Chenopodiaceae										
<i>Atriplex canescens</i>	Fourwing saltbush	N	X							
<i>Atriplex subspicata</i>	Saline saltbush	N/E						X		
Family - Chenopodiaceae										
<i>Bassia scoparia</i>	Kochia	E	X	X	X		X	X		X
<i>Krascheninnikovia lanata</i>	Winterfat	N						X		
<i>Salsola tragus</i>	Russian-thistle	E	X				X	X		
Family - Convolvulaceae										
<i>Convolvulus arvensis</i>	Field bindweed	E	X	X	X	X	X	X	X	X
Family - Cornaceae										
<i>Cornus sericea</i> ssp. <i>sericea</i>	Red-twig dogwood	N			X	X		X	X	

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Family - Cucurbitaceae										
<i>Echinocystis lobata</i>	Mock cucumber	N		X	X					
Family - Cyperaceae										
<i>Carex hystericina</i>	Porcupine sedge	N	X		X					
<i>Carex lenticularis</i> var. <i>lipocarpa</i>	Kellogg's sedge	N			X					
<i>Carex nebrascensis</i>	Nebraska sedge	N	X	X	X	X				
<i>Carex pellita</i>	Woolly sedge	N		X	X			X		X
<i>Carex praegracilis</i>	Clustered sedge	N								X
<i>Eleocharis acicularis</i>	Needle spikerush	N							X	
<i>Eleocharis palustris</i>	Spike-rush	N	X		X	X			X	
<i>Schoenoplectus</i> sp.	Bullrush	N	X		X			X		
<i>Schoenoplectus acutus</i>	Hardstem bulrush	N	X	X	X				X	
<i>Schoenoplectus americanus</i>	Olney's three-square bulrush	N	X	X		X				
<i>Schoenoplectus maritimus</i>	Alkali bulrush	N	X				X		X	
<i>Schoenoplectus pungens</i>	Common threesquare	N	X	X	X		X	X	X	X
<i>Schoenoplectus tabernaemontani</i>	Softstem bulrush	N	X	X	X					
<i>Scirpus microcarpus</i>	Panicled bulrush	N	X	X	X					
Family - Elaeagnaceae										
<i>Elaeagnus angustifolia</i>	Russian olive	E	X	X		X	X	X	X	X
<i>Shepherdia argentea</i>	Silver buffaloberry	N						X		
Family - Euphorbiaceae										
<i>Chamaesyce missurica</i>	Prairie sandmat	N					X			
<i>Euphorbia dentata</i>	Toothed spurge	E						X		
<i>Euphorbia esula</i>	Leafy spurge	E	X	X	X	X	X	X	X	X
<i>Euphorbia marginata</i>	Snow on the mountain	N	X				X			
Family - Fabaceae										
<i>Amorpha fruticosa</i>	Leadplant	N	X		X					
<i>Astragalus bisulcatus</i>	Two-grooved milkvetch	N			X		X			
<i>Astragalus cicer</i>	Chickpea milkvetch	E				X				
<i>Gleditsia triacanthos</i>	Honeylocust	E				X	X			
<i>Glycyrrhiza lepidota</i>	Wild licorice	N	X	X	X	X		X		

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
<i>Lathyrus latifolius</i>	Perennial sweetpea	E							X	
<i>Medicago lupulina</i>	Black medic	E	X				X			X
<i>Medicago sativa</i>	Alfalfa	E	X	X		X	X		X	X
<i>Melilotus albus</i>	White sweet clover	E	X	X	X	X	X	X	X	X
<i>Melilotus officinalis</i>	Yellow sweet clover	E	X	X	X	X	X	X	X	X
<i>Psoraleidum tenuiflorum</i>	Slimflower scurfpea	N								X
<i>Robinia pseudoacacia</i>	Black locust	E					X			
<i>Robinia sp.</i>	Locust	E	X	X						
<i>Securigera varia</i>	Crownvetch	E		X	X					
<i>Trifolium hybridum</i>	Alsike clover	E								X
<i>Trifolium repens</i>	White clover	E	X							
<i>Vicia americana</i>	American vetch	N	X							
Family - Geraniaceae										
<i>Erodium cicutarium</i>	Storksbill	E	X							
Family - Grossulariaceae										
<i>Ribes aureum</i>	Golden currant	N	X	X	X	X	X	X	X	
<i>Ribes inerme</i>	Whitestem gooseberry	N	X							
Family- Hydrocharitaceae										
<i>Elodea nuttallii</i>	Western waterweed	N			X					
Family - Iridaceae										
<i>Iris missouriensis</i>	Rocky Mountain iris	N						X		
Family - Jucaginaceae										
<i>Triglochin maritima</i>	Seaside arrowgrass	N					X			
Family - Juncaceae										
<i>Juncus arcticus ssp. littoralis</i>	Arctic rush	N	X				X	X	X	X
<i>Juncus bufonius</i>	Toad rush	N							X	
<i>Juncus compressus</i>	Roundfruit rush	E							X	
<i>Juncus dudleyi</i>	Dudley's rush	N	X							
<i>Juncus interior</i>	Inland rush	N					X			
<i>Juncus torreyi</i>	Torrey's rush	N	X	X					X	

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Family - Lamiaceae										
<i>Lycopus americanus</i>	American water horehound	N					X			
<i>Mentha arvensis</i>	Field mint	N					X			
<i>Nepeta cataria</i>	Catnip	E	X	X	X	X	X	X		
<i>Salvia azurea</i> var. <i>grandiflora</i>	Pitcher sage	N					X			
<i>Teucrium canadense</i> var. <i>occidentale</i>	Western germander	N					X			
Family - Lemnaceae										
<i>Lemna minor</i>	Common duckweed	N			X				X	
Family - Liliaceae										
<i>Asparagus officinalis</i>	Asparagus	E	X	X	X		X	X		X
<i>Leucocrinum montanum</i>	Sand lily	N					X			
<i>Maianthemum stellatum</i>	False Solomon's seal	N	X					X	X	
Family - Linaceae										
<i>Linum lewisii</i> var. <i>lewisii</i>	Blue flax	N		X	X		X			
<i>Linum perenne</i>	Blue flax	E	X							
<i>Linum usitatissimum</i>	Common flax	E	X							
Family- Lythraceae										
<i>Lythrum salicaria</i>	Purple loosestrife	E	X ^c		X ^c					
Family - Malvaceae										
<i>Malva neglecta</i>	Common mallow	E	X	X	X	X	X	X	X	X
<i>Sphaeralcea coccinea</i>	Scarlet globemallow	N				X	X			
Family - Moraceae										
<i>Morus alba</i>	White mulberry	E						X		
Family - Nyctaginaceae										
<i>Mirabilis nyctaginea</i>	Heartleaf four o'clock	N					X			
Family - Oleaceae										
<i>Fraxinus pennsylvanica</i>	Green ash	E	X	X	X	X	X	X		
Family - Onagraceae										
<i>Epilobium ciliatum</i>	Northern willow-herb	N	X		X		X			
<i>Epilobium hirsutum</i>	Hairy epilobium	E	X			X				

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
<i>Gaura coccinea</i>	Scarlet gaura	N	X	X	X		X			
<i>Gaura mollis</i>	Velvetweed	N					X			
<i>Oenothera howardii</i>	Howard's evening primrose	N					X			
<i>Oenothera villosa</i>	Hairy evening primrose	N	X	X						
<i>Oenothera villosa</i> ssp. <i>strigosa</i>	Hairy evening primrose	N	X							
Family - Papaveraceae										
<i>Argemone hispida</i>	Rough pricklypoppy	N	X							
<i>Argemone polyanthemos</i>	Prickly poppy	N					X			
Family - Plantaginaceae										
<i>Plantago major</i>	Common plantain	E	X	X	X					
Family - Poaceae										
<i>Achnatherum hymenoides</i>	Indian ricegrass	N				X				
<i>Agropyron cristatum</i>	Crested wheatgrass	E	X	X	X	X	X	X		X
<i>Agrostis gigantea</i>	Redtop	E	X							
<i>Agrostis stolonifera</i>	Redtop bent	E	X	X	X	X			X	
<i>Andropogon gerardii</i>	Big bluestem	N				X				
<i>Aristida purpurea</i>	Purple threeawn	N				X				
<i>Beckmannia syzigachne</i>	American sloughgrass	N	X							
<i>Bouteloua curtipendula</i>	Sideoats grama	N	X		X	X			X	
<i>Bouteloua dactyloides</i>	Buffalograss	N	X	X	X	X	X	X	X	
<i>Bouteloua gracilis</i>	Blue grama	N	X	X	X	X	X	X		
<i>Bromus arvensis</i>	Field brome	E	X	X	X	X	X			
<i>Bromus inermis</i> ssp. <i>inermis</i> var. <i>inermis</i>	Smooth brome	E	X	X	X	X	X	X	X	X
<i>Bromus tectorum</i>	Cheatgrass	E	X	X	X	X	X	X		
<i>Dactylis glomerata</i>	Orchardgrass	E	X	X	X	X			X	X
<i>Distichlis spicata</i>	Inland saltgrass	N	X		X		X	X		
<i>Echinochloa crus-galli</i>	Barnyardgrass	E	X	X	X	X	X			
<i>Elymus canadensis</i>	Canada wildrye	N	X						X	
<i>Elymus repens</i>	Quackgrass	E	X			X	X	X		
<i>Elymus trachycaulus</i>	Slender wheatgrass	N	X				X			

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
<i>Eragrostis cilianensis</i>	Stinkgrass	E		X						
<i>Glyceria grandis</i>	American mannagrass	N	X	X	X					
<i>Glyceria striata</i>	Fowl mannagrass	N							X	
<i>Hesperostipa comata</i>	Needle-n-thread	N						X		
<i>Hordeum jubatum</i> ssp. <i>jubatum</i>	Foxtail barley	N	X		X		X		X	
<i>Hordeum pusillum</i>	Little barley	N	X	X	X					
Family - Poaceae										
<i>Lolium perenne</i>	Perennial ryegrass	E							X	
<i>Muhlenbergia asperifolia</i>	Scratchgrass	N	X				X			
<i>Muhlenbergia racemosa</i>	Marsh muhly	N		X	X					
<i>Nassella viridula</i>	Green needlegrass	N	X					X		
<i>Panicum capillare</i>	Witchgrass	N						X		
<i>Panicum virgatum</i>	Switchgrass	N	X		X	X		X		
<i>Pascopyrum smithii</i>	Western wheatgrass	N	X	X		X	X	X		X
<i>Phalaris arundinacea</i>	Reed canarygrass	E	X	X	X	X	X	X		X
<i>Phleum pratense</i>	Timothy	E	X						X	X
<i>Poa annua</i>	Annual bluegrass	E	X							
<i>Poa arida</i>	Plains bluegrass	N					X			
<i>Poa palustris</i>	Fowl bluegrass	N	X						X	
<i>Poa pratensis</i>	Kentucky bluegrass	E				X		X	X	X
<i>Poa secunda</i>	Sandberg bluegrass	N	X							X
<i>Polypogon monspeliensis</i>	Rabbitfoot grass	E	X	X	X	X	X			
<i>Puccinellia nuttalliana</i>	Nuttall's alkaligrass	N					X		X	X
<i>Schedonardus paniculatus</i>	Tumblegrass	N					X			
<i>Schedonorus arundinaceus</i>	Tall fescue	E					X			
<i>Schedonorus pratensis</i>	Meadow fescue	E	X						X	
<i>Schizachyrium scoparium</i>	Little bluestem	N	X							
<i>Setaria parviflora</i>	Marsh bristlegrass	E		X	X		X	X		
<i>Sorghastrum nutans</i>	Yellow Indiangrass	N	X			X				
<i>Spartina pectinata</i>	Prairie cordgrass	N			X			X		
<i>Sporobolus airoides</i>	Alkali sacaton	N	X					X		
<i>Sporobolus compositus</i>	Composite dropseed	N	X							

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
<i>Sporobolus cryptandrus</i>	Sand dropseed	N	X			X				
<i>Thinopyrum intermedium</i>	Intermediate wheatgrass	E	X		X	X			X	
<i>Thinopyrum ponticum</i>	Tall wheatgrass	E	X	X	X	X	X	X		
Family - Polygonaceae										
<i>Polygonum amphibium</i> var. <i>emersum</i>	Longroot smartweed	N			X		X			
Family - Polygonaceae										
<i>Polygonum aviculare</i>	Prostrate knotweed	E	X				X			
<i>Polygonum lapathifolium</i>	Curlytop knotweed	E	X	X	X					
<i>Polygonum pennsylvanicum</i>	Pennsylvania smartweed	N	X							
<i>Polygonum persicaria</i>	Spotted ladythumb	E	X	X	X		X			
<i>Polygonum ramosissimum</i>	Bushy knotweed	N/E								
<i>Rumex crispus</i>	Curly dock	E	X	X	X	X	X	X	X	X
Family - Primulaceae										
<i>Lysimachia thyrsiflora</i>	Tufted loosestrife	N	X							
Family - Ranunculaceae										
<i>Clematis ligusticifolia</i>	Western virgin's bower	N	X	X	X	X		X		
<i>Ranunculus cymbalaria</i>	Alkali buttercup	N					X		X	
<i>Thalictrum dasycarpum</i>	Purple meadowrue	N	X	X	X					
Family - Rosaceae										
<i>Amelanchier alnifolia</i>	Saskatoon serviceberry	N						X		
<i>Crataegus erythropoda</i>	Cerro hawthorn	N								X
<i>Malus pumila</i>	Common apple	E						X		
<i>Malus</i> sp.	Crabapple	E			X					
<i>Prunus americana</i>	Wild plum	N	X		X		X	X	X	X
<i>Prunus pumila</i> var. <i>besseyi</i>	Sandcherry	N					X	X		
<i>Prunus tomentosa</i>	Nanking cherry	E							X	
Family - Rosaceae										
<i>Prunus virginiana</i> var. <i>canada red</i>	Canada red chokecherry	E	X	X	X			X	X	

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
<i>Prunus virginiana</i> var. <i>melanocarpa</i>	Chokecherry	N	X	X	X	X	X	X	X	
<i>Rosa eglanteria</i>	Sweetbriar rose	E	X							
<i>Rosa ferruiginea</i>	Redleaf rose	E								
<i>Rosa woodsii</i>	Wood's rose	N	X	X	X	X	X	X		
<i>Rubus parviflorus</i> var. <i>parviflorus</i>	Thimbleberry	N						X		
Family - Salicaceae										
<i>Populus X acuminata</i>	Lanceleaf cottonwood	N	X	X	X	X	X	X		
<i>Populus alba</i>	White poplar	E	X							
<i>Populus angustifolia</i>	Narrowleaf cottonwood	N	X		X	X	X	X	X	
<i>Salix babylonica</i>	Weeping willow	E	X			X				
<i>Populus deltoides</i> ssp. <i>monilifera</i>	Plains cottonwood	N	X	X	X	X	X	X	X	X
<i>Salix alba</i>	White willow	E						X		
<i>Salix amygdaloides</i>	Peach-leaf willow	N	X		X			X	X	
<i>Salix exigua</i>	Coyote willow	N	X	X	X	X	X	X	X	
<i>Salix fragilis</i>	Crack willow	E	X	X	X	X	X	X		
<i>Salix interior</i>	Sandbar willow	N			X	X		X		
Family - Scrophulariaceae										
<i>Verbascum thapsus</i>	Common mullein	E	X	X	X	X	X	X	X	X
<i>Veronica anagallis-aquatica</i>	Water speedwell	N			X					X
<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	Hairy purslane speedwell	N	X							
Family - Solanaceae										
<i>Physalis virginiana</i>	Virginia groundcherry	N		X						
<i>Quincula lobata</i>	Chinese lantern	N					X			
<i>Solanum rostratum</i>	Buffalobur	E	X	X			X			X
<i>Solanum triflorum</i>	Cutleaf nightshade	N	X							
Family- Tamaricaceae										
<i>Tamarix chinensis</i>	Five-stamen tamarisk	E						X		

Appendix B. Plants Documented on Core Natural Areas (as of September 2015)

Scientific Name	Common Name	Origin ^a	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Family - Typhaceae										
<i>Typha angustifolia</i>	Narrowleaf cattail	N	X		X			X	X	
<i>Typha latifolia</i>	Broad-leaved cattail	N	X	X	X	X	X			
Family - Ulmaceae										
<i>Celtis laevigata</i> var. <i>reticulata</i>	Netleaf hackberry	N						X		
<i>Celtis occidentalis</i>	Common hackberry	E		X			X			
<i>Ulmus americana</i>	American elm	E		X		X				X
<i>Ulmus pumila</i>	Siberian elm	E	X	X	X	X	X	X	X	X
Family - Urticaceae										
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	N		X	X					
Family - Verbenaceae										
<i>Glandularia bipinnatifida</i>	Dakota mock vervain	N	X							
<i>Verbena bracteata</i>	Big bract verbena	E					X			X
<i>Verbena hastata</i>	Swamp verbena	N	X	X	X			X		
Family - Violaceae										
<i>Viola nuttallii</i>	Nuttall's viola	N		X			X			
Family - Vitaceae										
<i>Parthenocissus quinquefolia</i>	Virginia creeper	E	X							
<i>Vitis riparia</i>	Riverbank grape	N			X			X		
Family - Zygophyllaceae										
<i>Tribulus terrestris</i>	Puncture vine	E					X			
Total No. of Plant Species: 275; 174 N (63%)			168; 98 N (58%)	92; 45 N (49%)	114; 69 N (60%)	79; 41 N (52%)	115; 65 N (57%)	99; 64 N (65%)	60; 31 N (52%)	52; 21 N (40%)

^a Compiled from surveys by Crystal Strouse (2010-2015), Jan Peterson (2001, 2007), Ellen Wheeling (1995), and Natural Areas Department Staff (1990-2015); nomenclature follows USDA Plants National Database, USDA, NRCS. 2015, *The PLANTS Database* (<http://plants.usda.gov>, 25 February 2015), National Plant Data Team, Greensboro, NC 27401-4901 USA.

^b Origin: N = Native to Colorado (not necessarily to Fort Collins or the site); E = Exotic (not native to Colorado); N/E = some debate among botanists if species is native to Colorado.

^c Eradicated; no longer present.

Appendix C. Animals Observed on Core Natural Areas (As of September 2015)

Natural Area: Red Fox Meadows (RFM), Fischer (FIS), Ross (ROS), Mallard=s Nest (MAL), The Coterie (COT), Redwing Marsh (RWM), Evergreen West Pond (EWP), and #13IS1 (FUT).

Species: U = unusual; I = Introduced (to North America for Birds; to Fort Collins for other species); CS = Colorado Species of Concern.

Occurrence: X = recorded on site; XD = dens on site.

Source: Compiled from observations by researchers, volunteers, and Natural Areas staff (1991-2015); includes accounts from Colorado Field Ornithologists= reports. Not all sites have been intensively surveyed; therefore, species may occur on a site and not yet be reflected in these tables.

BIRDS	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Canada goose	X	X	X	X	X	X	X	X
Wood duck	X						X	
American wigeon	X		X	X		X	X	
Gadwall							X	
Mallard	X	X	X	X	X	X	X	X
Cinnamon teal							X	
Green-winged teal	X							
Lesser scaup							X	
Common merganser	X					X		
Ring-necked pheasant (I)	X							
American bittern						X		
American white pelican							X	
Great blue heron	X	X	X	X	X	X	X	X
Great egret (U)	X							
Black-crowned night-heron	X		X				X	
Bald eagle (CS)	X							
Turkey vulture	X						X	
Osprey							X	
Sharp-shinned hawk	X			X		X	X	

BIRDS	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Red-tailed hawk	X					X	X	X
Cooper's hawk			X				X	
American kestrel	X	X	X	X	X	X	X	X
Prairie falcon	X							
American coot	X					X	X	
Killdeer	X	X	X	X	X	X	X	X
Greater yellowlegs	X							
Wilson=s snipe					X			
Ring-billed gull	X	X	X	X	X	X	X	
Rock pigeon (I)	X	X	X	X	X	X	X	X
Eurasian collared-dove (I)	X	X	X			X	X	X
Mourning dove	X	X	X	X	X	X	X	X
Great horned owl	X							
Common nighthawk	X	X	X	X	X			
Chimney swift	X							
Broad-tailed hummingbird	X	X						
Belted kingfisher	X	X	X	X	X	X	X	
Downy woodpecker	X	X	X	X	X	X	X	
Northern flicker	X	X	X	X	X	X	X	X
Western wood-peewee	X							
Western kingbird	X				X			X
Plumbeous vireo	X							
Blue jay	X	X	X	X	X	X	X	
Black-billed magpie	X	X	X	X	X	X	X	X
American crow	X	X	X	X	X	X	X	X
Violet-green swallow	X		X		X			
Northern rough-winged swallow					X			
Bank swallow	X				X			
Barn swallow	X	X	X	X	X	X	X	X

BIRDS	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Black-capped chickadee	X	X	X	X	X	X	X	X
White-breasted nuthatch	X	X						
Brown creeper	X							
House wren	X		X					
Blue-gray gnatcatcher						X		
American robin	X	X	X	X	X	X	X	X
European starling (I)	X	X	X	X	X	X	X	X
Cedar waxwing	X			X				
Yellow warbler	X		X		X	X	X	
Yellow-rumped warbler	X		X		X	X	X	
Yellow-throated warbler (U)	X							
Wilson's warbler	X		X		X	X	X	
Western tanager	X				X			
Green-tailed towhee	X							
Spotted towhee	X							
American tree sparrow	X	X	X	X	X	X	X	
Chipping sparrow	X	X	X	X	X			
Lark sparrow								X
Song sparrow	X	X	X	X	X	X	X	
White-throated sparrow	X							
White-crowned sparrow	X				X	X	X	
Dark-eyed junco	X	X	X	X	X	X	X	
Black-headed grosbeak (U)	X							
Lazuli bunting (U)	X							
Red-winged blackbird	X	X	X	X	X	X	X	X
Western meadowlark	X				X	X	X	X
Common grackle	X	X	X	X	X	X	X	X
Bullock=s oriole	X					X	X	
Cassin=s finch	X							

BIRDS	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
House finch	X	X	X	X	X	X	X	X
Common redpoll (U)	X							
Pine siskin	X							
American goldfinch	X				X	X	X	X
Evening grosbeak	X							
House sparrow (I)	X	X	X	X	X	X	X	X
TOTAL BIRDS (83)	72	30	36	30	39	409	46	24

MAMMALS	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Western small-footed myotis (U)				X				
Fringed myotis (U)				X				
Little brown bat	X	X	X	X	X			
Big brown bat				X				
Eastern cottontail	X	X	X	X	X	X	X	X
Black-tailed prairie dog					X			
Fox squirrel	X	X	X	X	X	X	X	X
Beaver	X		X	X				
Mexican woodrat	X							
Prairie vole	X							
Muskrat	X			X	X	X	X	
House mouse (I)	X					X		
Red fox	XD	X	X	X	X	XD	X	X
Black bear (U)	X							
Raccoon	X	X	X	X	X	X	X	X
Mink (U)	X							
Striped skunk	X		X		X	X	X	
Mule deer	X	X	X					X
TOTAL MAMMALS (18)	14	6	8	10	8	7	6	5

AMPHIBIANS AND REPTILES	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Woodhouse's toad	X					X		
Chorus frog	X		X			X	X	
Bullfrog							X	
Snapping turtle						X		
Painted turtle	X					X	X	
Ornate box turtle (U)	X							
Plains garter snake	X	X	X	X	X	X	X	X
TOTAL AMPHIBIANS AND REPTILES (7)	5	1	2	1	1	5	4	1

FISHES	RFM	FIS	ROS	MAL	COT	RWM	EWP	FUT
Common carp (I)	X			X	X	X	X	
Red shiner			X					
Sand shiner			X		X			
Fathead minnow			X	X	X			
Longnose Dace			X	X	X			
Creek Chub			X	X	X			
Longnose sucker				X	X			
White sucker				X	X			
Brook stickleback (I)			X	X	X			
Green sunfish			X	X	X			
Bluegill (I)			X		X	X	X	
Largemouth bass					X		X	
Johnny darter					X			
TOTAL FISHES (13)	1	0	8	8	12	2	3	0

TOTAL	RFM	FIS	ROS	MAL	COT	RWM	EWP	FOR
NO. OF SPECIES (121)	92	37	54	49	60	54	59	30