



WILDLIFE HABITAT ASSESSMENT

Wellman Canal Area

prepared for

City of Boulder
Real Estate & Open Space
1877 Broadway Boulder, Colorado 80302

prepared by

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1.0 INTRODUCTION

A section of the Wellman Canal extending from Eisenhower Drive one-fourth mile east is being considered as a possible route for linking existing segments of the Centennial Trail. The wildlife habitats and wildlife resources of this area and the surrounding urban habitat have been inventoried and described for use in routing a potential trail and designing mitigation for potential impacts. Figure 1 illustrates the study area.

This report describes the major wildlife habitats, determines the relative value of these habitats, assesses potential impacts to wildlife, and identifies mitigation procedures.

2.0 METHODS

Bird populations are a good index for monitoring biological community diversity and impacts to biological communities (Plunkett 1979). Thus, they were selected as the principal wildlife parameter for the purposes of this study. Mammals, reptiles, amphibians, and fish also were addressed, although at a more cursory level.

To help determine whether trail construction and use would be likely to adversely affect wildlife, thorough surveys of the Wellman Canal and adjacent areas between Eisenhower Drive and 55th Street were conducted on the mornings of 19, 20, and 27 September 1985. This included coverage of both the north and south banks of the ditch to the extent that access was possible, as well as the existing Centennial Trail segment, the proposed extension, and nearby landscaped lawns and unmaintained lots. Finally, older trail sections adjacent to Wellman Canal west between Eisenhower Drive and Foothills Parkway and between 55th Street and Cherryvale Road were briefly surveyed on 27 September as a basis for comparison.

The plant species composition and relative abundance of each habitat has been described through direct field observation.

3.0 RESULTS

3.1 ENVIRONMENTAL SETTING

The Wellman Canal carries water from sources in the foothills to Valmont Reservoir. The V-shaped canal is approximately 50 feet wide and 10 feet deep. The north bank has a mound of soil, perhaps excavations from the original digging, 3-5 feet high. The slope of the canal banks are steep. At the time of this study, water flowed rapidly eastward in a stream approximately 12-18 inches deep and 8-10 feet wide. The canal bottom has rounded boulders amid a sandy substrate.

The canal is totally surrounded by urban developments. Eisenhower Elementary borders the canal on the north for about 540 feet. East of the school ten different houses have frontage to the canal. On the south the Unitarian Universalist Church property parallels the canal for 550 feet. West of the church three houses abut the canal and two additional houses border the canal to the east, the Vickery and Mayo properties. See Figure 1.

The canal is urbanized from 28th Street at Boulder Creek to 55th Street. East of 55th Street the area surrounding the canal becomes more natural with the golf course to the north and open space to the south. Immediately outside of the study area to the east from Merritt Drive to 55th Street, the canal has well developed riparian vegetation and is paralleled by the Centennial Trail. Immediately west of the study area, Eisenhower Drive to Foothills Boulevard, the canal has only small areas of well developed riparian vegetation and is also paralleled by the Centennial Trail.

3.2 HABITAT TYPES

From the perspective of wildlife use, the area along the canal offers four habitat types in addition to adjacent urban landscapes. They include: aquatic, grass-forb, riparian tree and shrub, and weed barren. Each of these types has its own particular value to birds and other vertebrate species, as described in the following subsections.

Section 7.0 contains the species list for birds, mammals, amphibians and reptiles, fish, and vascular plants.

3.2.1 Aquatic Habitat

Habitat Characteristics. The aquatic, semi-aquatic, and emergent flora of the canal is quite limited to a few species. Water weed (Eloдея canadensis), an aquatic plant attached to rocks, is profusely abundant, as is algae which accumulates as a thick mass in the quieter portions of the stream. Smaller herbaceous semi-aquatic plants rooted near the edge of the water include speedwell (Veronica americana) and smartweed (Persicaria pensylvanica). Larger herba-

ceous plants sparsely present at the water edge include great bulrush (Scirpus pallidus), a sedge (Carex aquatilis), and cattail (Typha latifolia). Sandbar willow (Salix exigua), a shrub, forms a dense growth at the water's edge for a short distance on the south side of the canal.

Wildlife Use. The flowing water within Wellman Canal is both the direct and indirect cause of the wildlife value it affords. Direct benefits are reflected in the use of this manmade stream by species such as the mallard and potentially other ducks, great blue herons and black-crowned night-herons (as reported by an adjacent resident, A. Vickery), belted kingfishers, muskrats, bullfrogs, leopard frogs, garter snakes, and possibly a few species of small fish. The value of the ditch to predators such as kingfishers, herons, and raccoons is dependent on the presence of adequate prey, particularly fish and frogs, which in turn are limited by the persistence of surface flows and the type of substrate. The water probably is used as a drinking source by most of the terrestrial vertebrates in the area whenever unfrozen surface flows are available. This could include occasional use by mule deer or white-tailed deer, but if so only infrequently and by a small number of individuals. The dense sandbar willow has relatively little wildlife value other than as cover for species going to the water to drink. Species probably nesting in the sandbar willows include common yellowthroats and song sparrows.

3.2.2 Grass-Forb Habitat

Habitat Characteristics. A mesic grass-forb zone extends along both sides of the Wellman Canal the entire length of the study area. See Figure 2. Reed canary grass (Phalaris arundinacea) up to 6 feet tall, the principal plant of the zone, gradually replaces the sedges, rushes, and cattails of the aquatic zone with increased elevation on the slopes of the canal. Numerous other grasses occur mixed with reed canary grass. They include reedtop (Agrostis gigantea), meadow fescue (Festuca pratensis), native bluegrass (Poa agassizensis), green bristlegrass (Setaria viridis), and foxtail barley (Hordeum jubatum). Many forbs are present in this moist habitat. Spearmint (Mentha spicata) forms small aromatic stands, as does catnip (Nepeta cataria). Other forbs conspicuously present include beggars tick (Bidens frondosa), cucklebur (Xanthium strumarium), goldenrod (Solidago altissima), two species of dock (Rumex spp.), and the tall evening primrose (Oenothera strigosa).

Plains cottonwood (Populus deltoides) and peachleaf willow (Salix amygdaloides), riparian trees, and green ash (Fraxinus pennsylvanica), a naturalized species, are reproducing in the moist grass-forb habitat.

Wildlife Use. The dense cover and abundant green tissue provided by these species are of little value to most birds, but they

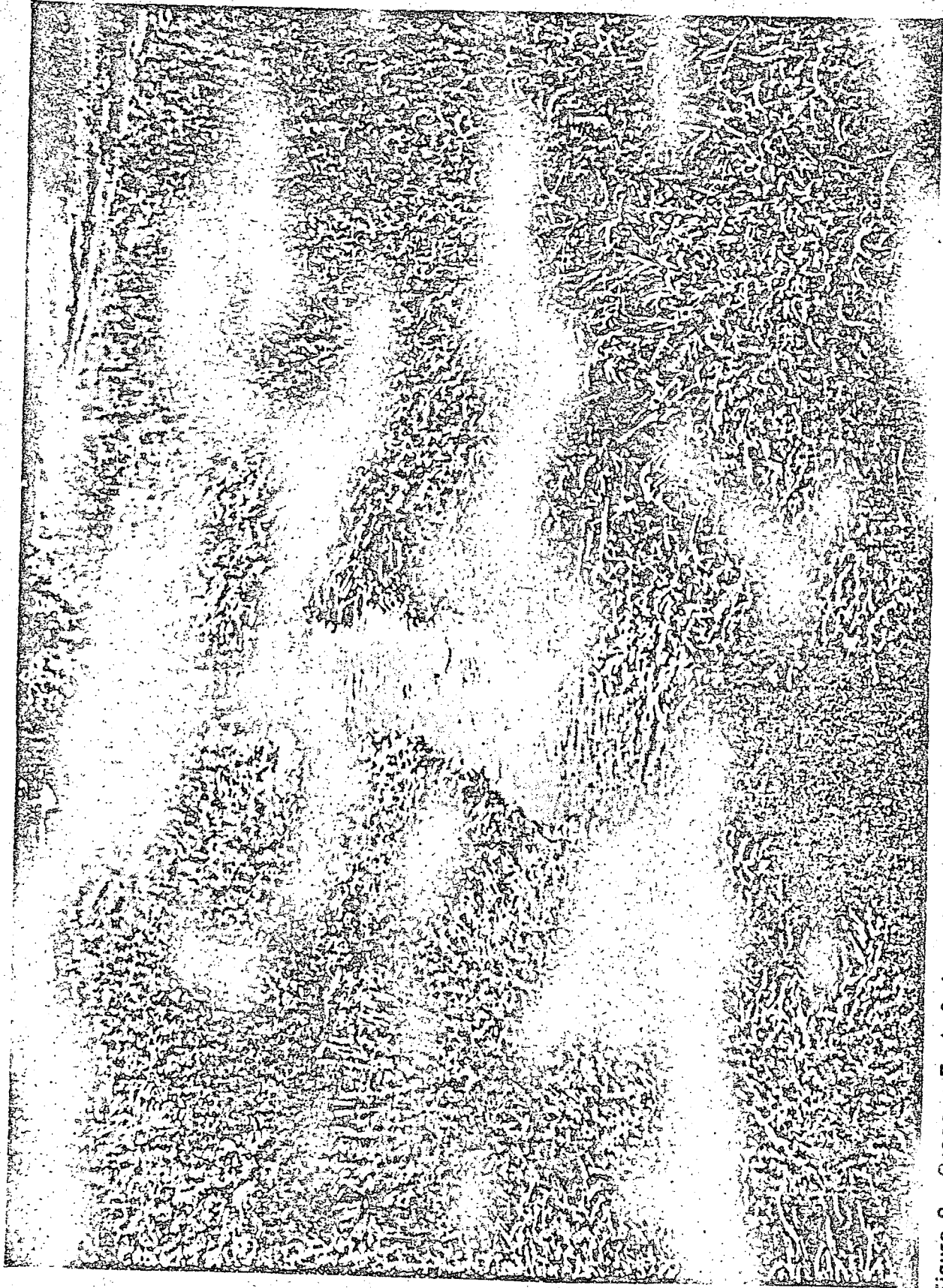


Figure 2. Grass - Forb & Aquatic Habitat. Reed canarygrass up to six feet tall dominates a very narrow zone of lush vegetation on both sides of the canal.

do represent good habitat for meadow voles, deer mice, and muskrats, as well as for leopard frogs, garter snakes, lizards, and nesting mallards. Songbirds potentially nesting here include common yellowthroat and song sparrows.

3.2.3 Arboreal Tree and Shrub Habitat

Habitat Characteristics. About 800 feet of the north side of the canal is characterized by a narrow zone of trees. See Figure 3. Peachleaf willow, a native, is the most abundant. Also present are young plains cottonwood and box elder (Acer negundo), both native species. Introduced trees present include Russian olive (Elaeagnus angustifolia), green ash, American elm (Ulmus americana), and seedlings of black locust (Robinia pseudoacacia). Numerous species of shrubs occur as an understory beneath the trees and as thickets bordering the stand of trees. Wild plum (Prunus americana), hawthorn (Crataegus erythracea), chokecherry (Prunus virginiana var. marilandica), and Woods rose (Rosa woodsii), a native and producer of fruit, are the most abundant. One introduced ornamental shrub, Cotoneaster sp., a prolific producer of small fruit, is also present.

Because of the dense tree and shrub canopy and trampling from use by children playing, understory vegetation cover is sparse. Common grasses include smooth brome (Bromopsis inermis), orchard grass (Dactylis glomerata), and cheatgrass (Bromus tectorum), all introduced species. Native bluegrass is the only native grass present. Conspicuous forbs include aster (Aster hesperius), thistle (Cirsium canescens), licorice (Glycyrrhiza lepidota), and western ragweed (Ambrosia psilostachya), all weed species.

Wildlife Use. The trunks of the large trees provide nesting habitat for cavity-excavators such as northern flickers and downy woodpeckers, and for use of abandoned woodpecker holes or natural cavities such as European starlings, black-capped chickadees, house sparrows, American kestrels, eastern screech owls, great horned owl, raccoon, and fox squirrels.

The lower branches also provide foraging, resting, and nesting sites for fox squirrels and a variety of summer or year-round resident birds, including yellow-billed cuckoos, blue jays, American crows, black-billed magpies, northern plovers, American robins, warbling and red-eyed vireos, yellow warblers, lazuli and indigo buntings, lesser goldfinches, and house finches. Migrants attracted to the dense shrubs may include uncommon species such as hooded warblers, Nashville warblers, ovenbirds, and others. Winter residents or visitors generally requiring large trees include ruby-crowned and golden-crowned kinglets, white-breasted and red-breasted nuthatches, cedar and Bohemian waxwings, Townsend's solitaires, brown creepers, evening grosbeaks, and pine siskins.



Figure 3. Riparian Tree Habitat. Peachleaf willow & plains cottonwood characterize a narrow & linear zone along the north side of the Well-man Canal.

The mature deciduous trees are equally important during spring and fall migrations, when they attract flocks of American goldfinches, chipping sparrows, and yellow-rumped and orange-crowned warblers, and occasionally such uncommon species as Tennessee warblers, northern parula warblers, blackburnian warblers, Townsend's warblers, chestnut-sided warblers, black-and-white warblers, blackpoll warblers, a number of flycatchers, and others.

The shrubs associated with the riparian trees provide food and cover for many wildlife species. The low-growing shrubs such as Woods' rose bear fruit used by some species of birds and mammals as food and provide good cover for small rodents such as deer mice and eastern cottontails. Taller shrubs, such as wild plum, hawthorn, choke-cherry, and the introduced Cotoneaster sp. also provide food and cover, and their greater heights (up to 2 meters) attract some birds not normally found either on the open ground or in mature trees. Examples of the latter might include migrants such as house wrens, gray catbirds, brown thrashers, M. Gillivray's and Wilson's warblers, Swainson's and hermit thrushes, rufous-sided towhees, and white-crowned sparrows; winter residents such as dark-eyed juncos; and winter visitors such as common redpolls and American tree sparrows.

Dense shrub growth also is used by some arboreal birds (e.g., American robins, house sparrows, and house finches) for foraging and has the added benefit of providing visual screening.

3.2.4 Weed Barrens

Habitat Characteristics. Historic and current disturbances have fostered the development and perpetuation of habitats dominated by native and introduced weeds. Today, weeds characterize the entire south side of the canal from Eisenhower to and through the Mayo property. The Mayo property north of the canal is also highly disturbed due to recent use as a horse pasture. Other areas on the north side of the canal near Eisenhower Elementary School can also be characterized as weedy. This area in general receives somewhat less disturbance than the south side of the canal and is developing a more diverse flora. The drier upper portion of the canal slopes, another weedy habitat, is also developing a diverse flora.

The compacted soils along the maintenance road on the south side of the canal are characterized by Mexican greenweed (Kochia scoparia) and Russian thistle (Salsola kali), tall annual introduced weeds. See Figure 4. Common and perennial ragweed (Ambrosia elator and A. psilostachya), tall native weeds, are also abundant. Prostrate weeds, species well adapted to disturbance, dominate the lower stratum. Abundant species include field bindweed (Con. livulus arvensis), and Russian knapweed, prohibited noxious weeds (highly detrimental and especially difficult to control); prostrate pigweed

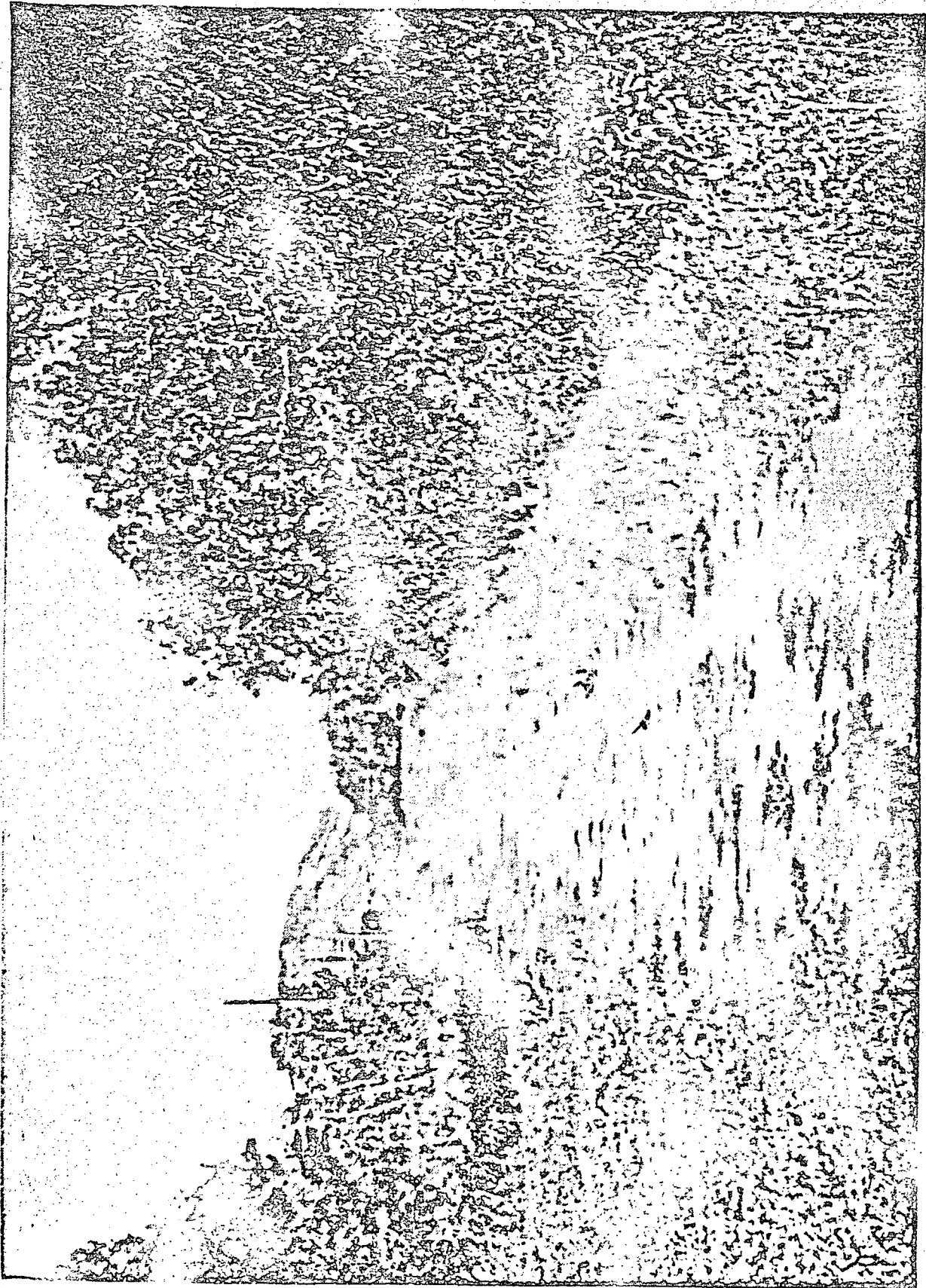


Figure 4. Weed Barren Habitat. Annual & perennial weeds thrive along the canal maintenance road, a disturbed area, on the south side of the canal.

(Ageranthus graecizans), another annual native; and prostrate knotweed (Polygonum aviculare).

The Mayo property immediately north of the canal is characterized by weeds amid four peachleaf willows. See Figure 5. Much of the soil surface, especially under the trees, is bare due to trampling by horses. Almost pure stands of Mexican fireweed, an introduced annual weed, in excess of 5 feet dominate the vegetated portions of the site. Indian hemp (Apocynum cannabinum), another plant characteristic to disturbed sites, forms small stands. Other weeds present include prickly lettuce (Lactuca scariola), spearmint, salsify (Tragopogon pratensis), alfalfa (Medicago sativa), dock, aster (Aster hesperis), gumweed (Grindelia squarrosa), field bindweed, clover (Trifolium pratense), ragweeds, tumble mustard (Sisymbrium altissimum), wild parsnip (Pastinaca sativa), and bluegrass.

A 50 foot wide portion of the Vickery and Mayo properties immediately south of and bordering the canal is characterized by a weedy community dominated by Mexican fireweed. Likewise, the area west of the church is also characterized by weeds. Again, Mexican fireweed is the dominant plant. The vacant lot east of the church was once a hayfield. Today, alfalfa, amid a sparse cover of smooth brome, an introduced hay grass, is the dominant plant. Many of the weeds common along the maintenance road are also present here.

The slopes of the canal also have a weedy character, but because of their steepness are somewhat less inclined to disturbance. Vegetation on the slope therefore tends to have a greater number of perennial grasses and forbs in its composition. Large patches of mostly pure stands of grasses occur amid the weedy species. Common grasses forming these small stands include smooth brome and slender wheatgrass (Agropyron trachycaulum). Other grasses sparsely present include orchardgrass, native bluegrass, alta fescue (Festuca arundinacea), and windmill grass (Chloris verticillata).

Conspicuous forbs include chicory (Chicorium intybus), wild licorice, thistle, annual sunflower (Helianthus annuus), and teasel (Dipsacus sylvestris). Brittle cactus (Opuntia fragilis) and yucca (Yucca glauca) occur in the driest soils.

Wildlife Use. While not aesthetically pleasing, the annual weeds have some wildlife value, notably as a source of seeds and grasshoppers for birds nesting in the riparian tree and landscaped yard habitats on either side and for small mammals living in adjacent shrub and mesic grass-forb areas. Aside from its contribution as a food source for wildlife from adjacent habitats, however, the weed barren type is of little value. Despite the high density of vegetation, the ground itself is nearly bare at the surface, and thus is not as attractive to small mammals as other herbaceous types. Most important, its value as a food source is not unique but could be replaced or improved

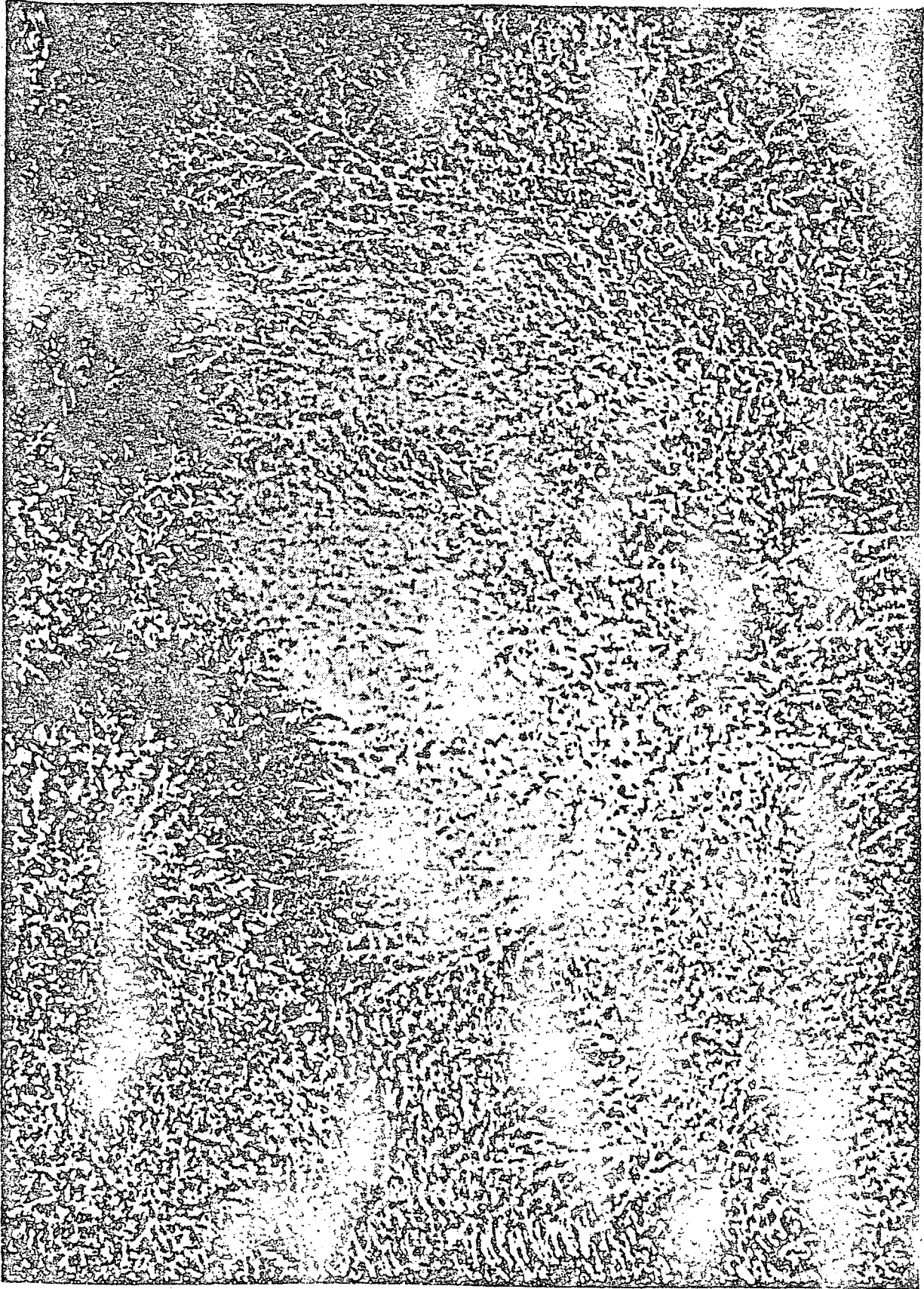


Figure 5. Weed Barren Habitat. The Mayo property on the north side of the canal is highly disturbed. Mexican fireweed, an introduced annual, is the dominant plant.

by other types of herbaceous communities such as a perennial grass-wild-flower mix.

3.2.5 Urban Habitat

Habitat Characteristics. The urban habitat surrounding the one-fourth mile long study area consists of bluegrass (Poa pratensis), lawns and ornamental trees and shrubs. Housing developments to the north of the canal are generally newer and thus ornamental trees are smaller. The Vickery and Mayo properties to the south are older and hence ornamental vegetation is more mature. There are two ponds in the study area: one on the Mayo property and another on the adjacent Fitt-Peaster property. The Dawe and Calking residences to the east also have ponds. However, marsh vegetation is not well developed in these ponds and bluegrass lawns generally extend to the pond margins on the south.

Several rows of trees near the church add structural diversity to the area. A row of locust is present on the west property boundary between the church and adjacent houses. Another row of trees, Russian olives, occurs midway between the church and the west property boundary along an access road. A third row of trees is nearer the church and extends to the north side of the church. This row includes locust, Russian olive, ash, cottonwood, pine (Pinus sp.), and others.

Other trees widely planted in the neighborhood include aspen (Populus tremuloides), maples (Acer spp.), elm, apples (Malus spp.), Colorado blue spruce (Picea pungens), cottonwoods, and pines (Pinus spp.). Widely planted shrubs include lilac, dogwood, cranberry bush, honeysuckle, and numerous others. A few of the properties have flower and small vegetable gardens.

Wildlife Use. The quality of urban habitat near the study area varies. Older residences with mature landscaping provide a better wildlife habitat than the newer residences with immature landscapes. Observations made during this study indicated older, mature trees had more bird use than younger trees. This was true for areas along the Wellman Canal and for developments farther from the canal.

Although urban habitats may provide a great deal of food for wildlife, they are not structurally diverse and hence provide little cover for wildlife. Their frequent use by people further diminishes their attractiveness to many species of wildlife. Thus, urban habitats have a low species diversity. In general, they provide habitat for many species of songbirds and small mammals. The urban habitat provided by the ponds on the Mayo and Fitt-Peaster properties is of a higher quality and attracts many of the species present along the Wellman Canal.

House sparrows, American robins, and chipping sparrows are ubiquitous to most urban areas. Ornamental trees of urban habitats are used by cedar waxwings, yellow warblers, orange-crowned warblers, and house finches. European starlings and pine siskins use both trees and lawns while dark-eyed juncos use ornamental shrubs.

Fox squirrels are quite common in urban habitats that provide acorns or other edible fruit. Garter snakes are also common to urban environments.

4.0 IMPACTS

Extending the Centennial Trail westward to Eisenhower Drive from a point northeast of the Mayo property would have two types of potential adverse impacts: disturbance and habitat loss. Disturbance, associated with the increased presence of runners, cyclists, and their pets, should have little if any effect on the vast majority of species present. The reasons for this conclusion are three-fold: (1) most of the species typically occur in proximity to human dwellings, roadways, or trails and are tolerant of human activity; (2) most of the more sensitive species potentially or reportedly present, such as great blue herons, use the area in such low numbers that even if they were excluded from further use (not necessarily the result of the trail extension) the impacts would be negligible; and (3) the area is not now wild, but rather is very close to occupied dwellings and an elementary school, so that the incremental increase in disturbance resulting from trail use would be very slight.

Of potentially greater concern is habitat loss. Fortunately, the majority* of the new segment of the recommended alternative (south bank/north jog) would be through the weed barren habitat type, which has limited wildlife value. Moreover, the area lost by trail construction would be unlikely to have a measurable effect on the seed or insect prey source for birds and small mammals. The section of trail proposed for the north side of the ditch may require pruning of four peachleaf willows on the Mayo property and perhaps some pruning on the Fitt-Peaster property. Even so, the net effect of this loss would be slight because of the small number of trees and shrubs involved.

*Assuming a trail width of 10 feet, 2.5 acres of area would be required.

5.0 MITIGATION

Impacts associated with the loss of 2.5 acres of weedy habitat and disturbance from a greater human usage can be mitigated through habitat improvement that also provides visual screening.

Rehabilitation of the trail extension also would be advisable both for aesthetic and ecologic reasons. This could include three elements: (1) replacing the weed barren areas with more attractive and productive native grasses (including big bluestem or turkey-foot grass) and wild-flowers; (2) planting clusters of native shrubs for wildlife use and visual screening; and (3) improving the diversity of the tree stratum, such as by planting different species of moisture-loving deciduous trees (e.g., sycamores) and especially conifers (e.g., ponderosa pine, Douglas-fir, and Rocky Mountain juniper).

The improved herbaceous stratum might result in an area like that along the present eastern end of the Centennial Trail southeast of the Flatirons Country Club golf course. Sycamores would provide similar value as the present cottonwoods and willows while affording greater diversity. Vegetation could be used to visually screen activities along the trail from wildlife. Conifers, especially those noted above, would attract some songbirds in greater numbers than the deciduous trees and would provide better winter use, diversity, and especially good visual screening. Most of the conifers being planted by adjacent residential landowners are non-native pines with more limited attractiveness to wildlife.

Plantings of native shrubs would be especially beneficial by increasing the diversity and availability of food and cover and providing visual screening. This would include thickets of wild plum, hawthorn, and chokecherry like those already present, plus elderberry, redbud, dogwood, golden currant, and skunkbrush sumac for their flowers, berries, and attractive fall color. Particularly desirable might be clumps of silver buffaloberry, which have attractive silver foliage (like its relative the Russian-olive) and persistent red berries in fall. Attractive and beneficial non-natives in addition to the already present cotoneaster and honeysuckle include several viburnums such as nannyberry, highbush cranberry, and wayfaring tree, all of which are naturalized in the area to some extent as "escaped" species.

6.0 CONCLUSION

The Wellman Canal and adjacent habitats between Eisenhower Drive and the northeastern corner of the Mayo property provide aquatic, mesic grass-forb, and riparian tree and shrub habitats not normally associated with an urban/suburban residential neighborhood. In a sense, the ditch is a sort of artificial stream that supports some aquatic life as well as riparian vegetation used by a variety of terrestrial vertebrates. The vegetation of the proposed trail extension area is not high quality riparian habitat, however, and almost all of the habitat lost would be in the relatively low value weed barrens.

The effects of weed barren habitat loss would be negligible. Disturbance impacts caused by increased levels of human activity along the new trail segment also would be minimal. The trail extension is in an area that already receives considerable foot traffic and is sandwiched between residences on both sides of the ditch. Thus, any species likely to be adversely affected by the trail currently make little if any use of the area.

In summary, the proposed Centennial Trail extension would have little if any negative impacts to wildlife. Moreover, the value of the segment could be enhanced by rehabilitating previously abused weedy areas and planting beneficial shrubs. By following these steps, the area could be made better for wildlife while at the same time being improved aesthetically and meeting the needs of runners, cyclists, bird watchers, and strollers young and old.

TABLE 1

BIRD SPECIES OBSERVED OR POTENTIALLY PRESENT IN THE STUDY AREA*

Common Name	Scientific Name	Seasonal Status	Relative Abundance	Habitat Preference
WATERFOWL				
*Mallard	<u>Anas platyrhynchos</u>	year-round	uncommon	aquatic
Green-winged Teal	<u>A. carolinensis</u>	migration	irregular	aquatic
WADING BIRDS				
Great Blue Heron	<u>Ardea herodias</u>	summer	irregular	aquatic
Black-crowned Night-heron	<u>Nycticorax nycticorax</u>	summer	irregular	aquatic
RAPTORS				
American Kestrel	<u>Falco sparverius</u>	summer	irregular	trees
Sharp-shinned Hawk	<u>Accipiter striatus</u>	resident	uncommon	trees
Cooper's Hawk	<u>A. cooperii</u>	resident	uncommon	trees
Eastern Screech Owl	<u>Otus asio</u>	resident	irregular	trees
Great Horned Owl	<u>Bubo virginiana</u>	resident	uncommon	trees
Northern Pygmy Owl	<u>Glaucidium gnoma</u>	resident	irregular	trees
DUCKS, CUCKOOS, AND GOATSUCKERS				
*Rock Dove (Pigeon)	<u>Columba livia</u>	resident	uncommon	trees, weeds
Mourning Dove	<u>Zenaida macroura</u>	summer	uncommon	trees, weeds
Yellow-billed Cuckoo	<u>Coccyzus americanus</u>	summer	irregular	trees
Common Nighthawk	<u>Chordeiles minor</u>	summer	irregular	trees
KINGFISHERS AND WOODPECKERS				
*Belted Kingfisher	<u>Ceryle alcyon</u>	summer	common	trees, aquatic
*Northern Flicker	<u>Colaptes auratus</u>	resident	common	trees, weeds
*Downy Woodpecker	<u>Picoides pubescens</u>	resident	common	trees
Hairy Woodpecker	<u>P. villosus</u>	winter	irregular	trees
Lewis' Woodpecker	<u>Melanerpes lewis</u>	resident	irregular	trees
PERCHING BIRDS				
Western Kingbird	<u>Tyrannus verticalis</u>	summer	irregular	trees
Flycatchers	<u>Empidonax spp.</u>	summer, migration	irregular	trees
Barn Swallow	<u>Hirundo rustica</u>	summer	uncommon	ubiquitous
Violet-Green Swallow	<u>Tachycineta thalassina</u>	summer	irregular	ubiquitous
*Blue Jay	<u>Cyanocitta cristata</u>	resident	uncommon	trees
*Black-billed Magpie	<u>Pica pica</u>	resident	common	trees
*American Crow	<u>Corvus brachyrhynchos</u>	resident	uncommon	trees, weeds

*species observed

TABLE 1 (cont.)

Common Name	Scientific Name	Seasonal Status	Relative Abundance	Habitat Preference
PERCHING BIRDS (cont.)				
*Black-capped Chickadee	<u>Parus atricapillus</u>	resident	uncommon	trees
White-breasted Nuthatch	<u>Sitta carolinensis</u>	winter	uncommon	trees
Red-breasted Nuthatch	<u>S. canadensis</u>	winter	irregular	trees
*Brown Creeper	<u>Certhia americana</u>	winter	uncommon	trees
House Wren	<u>Troglodytes aedon</u>	migration	uncommon	shrubs
Marsh Wren	<u>Cistothorus palustris</u>	migration	irregular	cattails
Golden-crowned Kinglet	<u>Regulus satrapa</u>	winter	irregular	trees
Ruby-crowned Kinglet	<u>R. calendula</u>	winter	irregular	trees
Townsend's Solitaire	<u>Myadestes townsendi</u>	winter	uncommon	trees
Swainson's Thrush	<u>Catharus ustulatus</u>	migration	irregular	shrubs
*Hermit Thrush	<u>C. guttatus</u>	migration	irregular	shrubs
*American Robin	<u>Turdus migratorius</u>	summer	common	ubiquitous
Mountain Bluebird	<u>Sialia currucoides</u>	migration	irregular	trees, weeds
Gray Catbird	<u>Dumetella carolinensis</u>	migration	irregular	shrubs
Brown Thrasher	<u>Toxostoma rufum</u>	migration	irregular	shrubs
Bohemian Waxwing	<u>Bombycilla garrulus</u>	winter	irregular	trees
Cedar Waxwing	<u>B. cedrorum</u>	winter	common	trees
*European Starling	<u>Sturnus vulgaris</u>	resident	common	trees, weeds
Red-eyed Vireo	<u>Vireo olivaceus</u>	summer	uncommon	trees
Warbling Vireo	<u>V. gilvus</u>	summer	uncommon	trees
Tennessee Warbler	<u>Vermivora peregrina</u>	migration	irregular	trees
*Orange-crowned Warbler	<u>V. celata</u>	migration	common	trees
Nashville warbler	<u>V. ruficapilla</u>	migration	irregular	shrubs
Northern Parula	<u>Parula americana</u>	migration	irregular	trees
Black-and-white Warbler	<u>Mniotilta varia</u>	migration	irregular	trees
Blackburnian Warbler	<u>Dendroica fusca</u>	migration	irregular	trees
Chestnut-sided Warbler	<u>D. pensylvanica</u>	migration	irregular	trees
*Townsend's Warbler	<u>D. townsendi</u>	migration	irregular	trees
*Yellow-rumped Warbler	<u>D. coronata</u>	migration	abundant	trees
Blackpoll Warbler	<u>D. striata</u>	migration	irregular	trees
*Yellow Warbler	<u>D. petechia</u>	summer	common	trees
*MacGillivray's Warbler	<u>Oporornis tolmiei</u>	summer	uncommon	shrubs
*Wilson's Warbler	<u>Wilsonia pusilla</u>	migration	uncommon	shrubs
Hooded Warbler	<u>W. citrina</u>	migration	irregular	shrubs
Ovenbird	<u>Seiurus aurocapillus</u>	migration	irregular	shrubs
Common Yellowthroat	<u>Geothlypis trichas</u>	summer	irregular	cattails
Indigo Bunting	<u>Passerina cyanea</u>	summer	irregular	trees
Lazuli Bunting	<u>P. amoena</u>	summer	irregular	trees
Green-tailed Towhee	<u>Pipilo chlorurus</u>	migration	irregular	shrubs
Rufous-sided Towhee	<u>P. erythrophthalmus</u>	migration	irregular	shrubs
*Song Sparrow	<u>Melospiza melodia</u>	summer	uncommon	shrubs, cattails
Lark Sparrow	<u>Chondestes grammacus</u>	summer	uncommon	trees
American Tree Sparrow	<u>Spizella arborea</u>	winter	irregular	shrubs, weeds

TABLE 1 (cont.)

Common Name	Scientific Name	Seasonal Status	Relative Abundance	Habitat Preference
PERCHING BIRDS (cont.)				
*Chipping Sparrow	<u>S. passerina</u>	migration	abundant	ubiquitous
*Dark-eyed Junco	<u>Junco hyemalis</u>	winter	abundant	shrubs
White-throated Sparrow	<u>Zonotrichia albicollis</u>	winter	irregular	shrubs
*White-crowned Sparrow	<u>Z. leucophrys</u>	migration	irregular	shrubs
Red-winged Blackbird	<u>Agelaius phoeniceus</u>	summer	uncommon	ubiquitous
*Brewer's Blackbird	<u>Euphagus cyanocephalus</u>	resident	uncommon	trees, weeds
Brown-headed Cowbird	<u>Molothrus ater</u>	summer	uncommon	trees, weeds
*Common Grackle	<u>Quiscalus quiscula</u>	summer	uncommon	trees, weeds
*Northern Oriole	<u>Icterus galbula</u>	summer	uncommon	trees
*Western Tanager	<u>Piranga ludoviciana</u>	summer	uncommon	trees
*House Sparrow	<u>Passer domesticus</u>	resident	abundant	ubiquitous
Pine Siskin	<u>Carduelis pinus</u>	winter	abundant	trees, weeds
American Goldfinch	<u>C. tristis</u>	migration	common	trees, weeds
Lesser Goldfinch	<u>C. psaltria</u>	summer	common	trees, weeds
Common Redpoll	<u>C. flammea</u>	winter	irregular	shrubs
*House Finch	<u>Carpodacus mexicanus</u>	resident	common	trees
*Evening Grosbeak	<u>Coccothraustes vespertinus</u>	resident	irregular	trees

TABLE 2

MAMMAL SPECIES OBSERVED OR POTENTIALLY PRESENT IN THE STUDY AREA*

Common Name	Scientific Name	Status	Habitat Preference
UNGULATES			
Mule Deer	<u>Odocoileus hemionus</u>	potential	ubiquitous
White-tailed Deer	<u>O. virginianus</u>	potential	ubiquitous
CARNIVORES			
Red Fox	<u>Vulpes vulpes</u>	potential	ubiquitous
Long-tailed Weasel	<u>Mustela frenata</u>	potential	trees, shrubs
Raccoon	<u>Procyon lotor</u>	likely	aquatic, trees
Striped Skunk	<u>Mephitis mephitis</u>	likely	ubiquitous
LAGOMORPHS AND RODENTS			
Eastern Cottontail	<u>Sylvilagus floridanus</u>	likely	shrubs
Fox Squirrel	<u>Sciurus niger</u>	observed	trees, shrubs
Western Harvest Mouse	<u>Reithrodontomys megalotis</u>	potential	grass, weeds
Deer Mouse	<u>Peromyscus maniculatus</u>	likely	ubiquitous
Prairie Vole	<u>Microtus ochrogaster</u>	potential	grass, weeds
Meadow Vole	<u>M. pennsylvanicus</u>	likely	grass, weeds
Muskrat	<u>Ondatra zibethica</u>	likely	aquatic
Western Jumping Mouse	<u>Zapus princeps</u>	potential	wet grass
House Mouse	<u>Mus musculus</u>	likely	ubiquitous
Norway Rat	<u>Rattus norvegicus</u>	potential	ubiquitous

*species observed

TABLE 3

AMPHIBIAN AND REPTILE SPECIES OBSERVED OR POTENTIALLY PRESENT IN THE STUDY AREA*

Common Name	Scientific Name	Status	Habitat Preference
AMPHIBIANS			
Frogs and Toads			
Plains Spadefoot	<u>Scaphiopus bombifrons</u>	potential	grass, weeds
Western Toad	<u>Bufo boreas</u>	potential	aquatic
Great Plains Toad	<u>B. cognatus</u>	potential	grass, weeds
Woodhouse's Toad	<u>B. woodhousii</u>	potential	grass, weeds
Striped Chorus Frog	<u>Pseudacris triseriata</u>	potential	aquatic
Bullfrog	<u>Rana catesbeiana</u>	likely	aquatic
Northern Leopard Frog	<u>R. pipiens</u>	likely	aquatic
REPTILES			
Turtles			
Snapping Turtle	<u>Chelydra serpentina</u>	potential	aquatic
Painted Turtle	<u>Crysemys picta</u>	potential	aquatic
Lizards			
Lesser Earless Lizard	<u>Holbrookia maculata</u>	potential	grass, aquatic
Short Horned Lizard	<u>Phrynosoma douglasii</u>	potential	grass, weeds
Eastern Fence Lizard	<u>Sceloporus undulatus</u>	potential	grass, weeds
Snakes			
Racer	<u>Coluber constrictor</u>	likely	grass, trees
Western Hognose Snake	<u>Heterodon nasicus</u>	potential	grass
Milk Snake	<u>Lampropeltis triangulum</u>	potential	ubiquitous
Northern Water Snake	<u>Nerodia sipedon</u>	likely	aquatic
Smooth Green Snake	<u>Opheodrys vernalis</u>	potential	grass
Bullsnake	<u>Pituophis melanoleucus</u>	potential	ubiquitous
Plains Blackhead Snake	<u>Tantilla nigriceps</u>	potential	grass
Western Terrestrial GarterSnake	<u>Thamnophis elegans</u>	potential	grass, aquatic
*Plains Garter Snake	<u>T. radix</u>	observed	aquatic
Common Garter Snake	<u>T. sirtalis</u>	likely	grass, aquatic
Lined Snake	<u>Tropidoclonion lineatum</u>	potential	grass, weeds
Western Rattlesnake	<u>Crotalus viridis</u>	potential	grass

*species observed

TABLE 4

FISH SPECIES POTENTIALLY PRESENT
IN THE STUDY AREA

Common Name	Scientific Name	Status
Sand Shiner	<u>Notropis stromineus</u>	potential
Creek Chub	<u>Semotilus atromaculatus</u>	potential
Flathead Minnow	<u>Pimephales promelas</u>	potential
Longnose Dace	<u>Rhinichthys cataractae</u>	potential

TABLE 5

PLANT SPECIES AT THE STUDY AREA

Scientific Name	Common Name	Origin*
TREES		
<u>Acer glabrum</u>	Rocky Mountain Maple	N
<u>Acer negundo</u>	Boxelder	N
<u>Crataegus douglasii</u>	Black Hawthorn	N
<u>Eleagnus angustifolia</u>	Russian-olive	I
<u>Fraxinus pennsylvanica</u> var. <u>lanceolata</u>	Green Ash	I
<u>Picea pungens</u>	Colorado Blue Spruce	N
<u>Pinus spp.</u>	Pine	N
<u>Populus deltoides</u>	Plains Cottonwood	N
<u>Populus fremontii</u>	Fremont Cottonwood	N
<u>Populus tremuloides</u>	Quaking Aspen	N
<u>Pyrus malus</u>	Apple	I
<u>Robinia neomexicana</u>	New Mexico Locust	N
<u>Robinia pseudoacacia</u>	Black Locust	N
<u>Salix amygdaloides</u>	Peachleaf Willow	N
<u>Salix babylonica</u>	Weeping Willow	I
<u>Ulmus americana</u>	American Elm	I
<u>Ulmus pumila</u>	Siberian Elm	I
SHRUBS		
<u>Artemisia ludoviciana</u>	Prairie Sage	N
<u>Cornus spp.</u>	Dogwood	N
<u>Cotoneaster spp.</u>		I
<u>Crataegus erythropoda</u>	Hawthorn	N
<u>Lonicera spp.</u>	Honeysuckle	N
<u>Prunus americana</u>	American Plum	N
<u>Prunus virginiana</u> var. <u>melanocarp</u>	Chokecherry	N
<u>Rosa woodsii</u>	Woods' Rose	N
<u>Salix exigua</u>	Sandbar Willow	N
<u>Symphoricarpos occidentalis</u>	Snowberry	N
<u>Syringa spp.</u>	Lilac	I
<u>Vaccinium spp.</u>	Cranberry	I

TABLE 5 (cont.)

Scientific Name	Common Name	Origin*
GRAMINOIDS		
<u>Agropyron repens</u>	Quackgrass	I
<u>Agropyron spicatum</u>	Crested Wheatgrass	I
<u>Agropyron trachycaulum</u>	Slender Wheatgrass	N
<u>Agrostis gigantea</u>	Redtop	I
<u>Bromopsis inermis</u>	Smooth Brome	I
<u>Bromus tectorum</u>	Cheatgrass	I
<u>Carex aquatilis</u>	Sedge	N
<u>Carex spp.</u>	Sedges	N
<u>Chloris verticillata</u>	Windmillgrass	N
<u>Dactylis glomerata</u>	Orchard Grass	I
<u>Echinochloa crusgalli</u>	Barnyard Grass	I
<u>Elymus canadensis</u>	Canada Wildrye	N
<u>Festuca arundinacea</u>	Alta Fescue	I
<u>Festuca pratensis</u>	Meadow Fescue	I
<u>Hordeum jubatum</u>	Foxtail Barley	N
<u>Panicum capillare</u>		
var. <u>occidentale</u>	Witchgrass	
<u>Pascopyrum smithii</u>		
var. <u>molle</u>	Western Wheatgrass	N
<u>Phalaris arundinacea</u>	Reed Canary Grass	I
<u>Poa agassizensis</u>	Native Bluegrass	N
<u>Poa annua</u>	Annual Bluegrass	N
<u>Scirpus pallidus</u>	Great Bulrush	N
<u>Setaria glauca</u>	Bristle Grass	I
<u>Setaria viridis</u>	Green Bristlegrass	I
<u>Typha latifolia</u>	Cattail	N
FORBS		
<u>Achillea lanulosa</u>	Western Yarrow	N
<u>Amaranthus albus</u>	Tumble Pigweed	N
<u>Amaranthus graecizans</u>	Prostrate Pigweed	N
<u>Ambrosia elatior</u>	Common Ragweed	N
<u>Ambrosia psilostachya</u>	Perennial Ragweed	N
<u>Apocynum cannabinum</u>	Indian Hemp	N
<u>Argemone polyanthemos</u>	Prickly Poppy	N
<u>Asclepias speciosa</u>	Common Milkweed	N
<u>Asparagus officinalis</u>	Asparagus	N
<u>Aster hesperius</u>	Aster	N
<u>Aster spp.</u>	Aster	N
<u>Atriplex heterosperma</u>	Saltbush	I
<u>Bidens frondosa</u>	Beggar's Tick	N
<u>Centaurea repens</u>	Russian Knapweed	I
<u>Chenopodium album</u>	Lambsquarters	I
<u>Chicoriumintybus</u>	Chicory	I
<u>Cirsium canescens</u>	Western Flodman Thistle	N
<u>Convolvulus arvensis</u>	Field Bindweed	I

TABLE 5 (cont.)

Scientific Name	Common Name	Origin*
FORBS (cont.)		
<u>Descurainia spp.</u>	Tansy Mustard	I
<u>Dipsacus sylvestris</u>	Teasel	I
<u>Equisetum spp.</u>	Horsetail	N
<u>Glycyrrhiza lepidota</u>	Licorice	N
<u>Grindelia squarrosa</u>	Gumweed	N
<u>Helianthus annuus</u>	Common Sunflower	N
<u>Kochia scoparia</u>	Fireweed	I
<u>Lactuca pulchella</u>	Blue Lettuce	N
<u>Lactuca scariolla</u>	Prickly Lettuce	I
<u>Lepidium spp.</u>	Peppergrass	I
<u>Medicago sativa</u>	Alfalfa	I
<u>Melilotus alba</u>	White Sweetclover	I
<u>Mentha spicata</u>	Spearmint	I
<u>Nepeta cataria</u>	Catnip	I
<u>Oenothera strigosa</u>	Eveningprimrose	N
<u>Pastinaca sativa</u>	Wild Parsnip	I
<u>Persicaria pensylvanica</u>	Smartweed	N
<u>Phacelia heterophylla</u>	Scorpionweed	N
<u>Polygonum aviculare</u>	Prostrate Knotweed	I
<u>Polygonum ramosissimum</u>	Knotweed	I
<u>Rumex acetosella</u>	Red Sorrel	I
<u>Rumex spp.</u>	Dock	I
<u>Salsola kali</u>	Russian Thistle	I
<u>Saponaria officinalis</u>	Bouncing Bet	I
<u>Solidago altissima</u>	Goldenrod	N
<u>Sisymbrium altissimum</u>	Tumble Mustard	I
<u>Taraxacum officinalis</u>	Dandelion	I
<u>Tragopogon pratensis</u>	Salsify	I
<u>Trifolium pratense</u>	Red Clover	I
<u>Verbascum thapsis</u>	Common Mullein	I
<u>Veronica americana</u>	American Brooklime	N
<u>Virgulus falcatus</u>	White Prairie Aster	N
<u>Xanthium italicum</u>	Cocklebur	I
SUCCULENTS		
<u>Opuntia fragilis</u>	Brittle Cactus	N
<u>Opuntia spp.</u>	Prickly Pear Cactus	N
<u>Yucca glauca</u>	Yucca	N
AQUATIC		
<u>Elodea canadensis</u>	Water Weed	N

*Refers to the origin of the plant: N = native; I = introduced.

8.0 REFERENCES

- Bissell, S. J. (ed.). 1978. Colorado mammal distribution latilong study. Colorado Division of Wildlife, Denver.
- Colorado Field Ornithologists. 1982. Colorado bird distribution latilong study. Denver Museum of Natural History, Denver.
- Plunkett, R. L. 1979. The importance of birds in forest communities. Management of northcentral and northeastern forests for nongame birds. USDA For. Serv. Gen. Tech. Rep. NC-51.
- Schmidt, R. L. (ed.). 1983. Management of cottonwood-willow riparian associations below elevation 8,000 in Colorado. Colorado Chapter of the Wildlife Society, Fort Collins.
- Thompson, R. W. and J. G. Strauch, Jr. 1985. Habitat use by breeding birds of Boulder Open Space, 1984. City of Boulder, Real Estate Service/Open Space, Boulder.



**WESTERN
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CORP.**

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RECEIVED JAN 21 1986

January 21, 1986

Ms. Delani Wheeler
Assistant Director
Real Estate/Open Space
City of Boulder
1877 Broadway
Boulder, CO 80302

Re: Wildlife Habitat Assessment - Wellman Canal Area

Dear Delani:

Last Thursday night the Trails Committee approved Alternative D, a route entirely on the south side of the Wellman Canal. Impacts in our report were for Alternative E which follows the south side of the canal to the Vickery property and then crosses the canal and parallels the north side.

We wish to modify Section 4.0, impacts, of our report. The last two sentences of the second paragraph of Section 4.0 no longer apply as they refer to the north side of the canal. Omit those sentences and add the following sentences: "The section of trail through the Vickery, Mayo and Fitt Peaster properties is primarily in the weed barren habitat. A few trees are present in this area amid the robust growth of weeds. However, these trees would not be impacted nor would their root systems be affected by the proposed trail. In fact, the wildlife value of Alternative D could be enhanced by rehabilitating the abused weedy areas with trees, shrubs, and herbaceous plants beneficial to wildlife."

Sincerely,

David L. Johnson

David L. Johnson
Biologist

DLJ:ei