



NATURAL HERITAGE INVENTORY
OF
JEFFERSON COUNTY, COLORADO

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EXECUTIVE SUMMARY

In 1992, The Nature Conservancy (through its Colorado Natural Heritage Program (CNHP)) was contracted by Jefferson County Open Space to conduct a Natural Heritage Inventory of potential conservation sites within the county. The goal of the inventory was to systematically identify the localities of rare, threatened, or endangered species and the locations of significant natural communities (as represented by plant associations).

The Natural Heritage Inventory was conducted in six steps:

1. Review aerial photographs, topographic maps, soil maps, and geological maps.
2. Gather existing information, including land ownership.
3. From information gathered in steps 1 and 2, map the "potential natural areas".
4. Perform initial ground surveys.
5. Complete an inventory of the PNA's.
6. Compile the results and prepare a final report.

At the completion of the inventory, the CNHP had records of two rare vertebrate species, 6 rare invertebrate species, 10 rare plant species, and 17 natural communities/plant associations of statewide significance. The information gathered during this study allowed the CNHP to re-evaluate the rarity of two vascular plants; these species are now considered more common and without threat of extinction in the foreseeable future. Many of these elements of natural diversity are sensitive to unnatural disturbance or may be sought out by collectors. For this reason, the exact locations have not been presented in this report. Requests for additional information on these resources should be addressed to: Colorado Natural Heritage Program, c/o University of Colorado Museum, Hunter 115, Campus Box 315, Boulder, CO 80309-0315.

Eighty-four PNAs were identified during the preparatory and inventory stages of this study (Figure 2 and 4). Of these, 32 support natural heritage resources (rare, threatened, or endangered species and significant natural communities/plant associations). Using information from other sources and the results of this inventory, we have mapped 27 significant biodiversity areas which range in size from 57 to 3,208 acres (Figure 3 and 4). Each biodiversity area is designated as a Conservation Site. For each of these sites the Natural Heritage Program developed preliminary conservation planning boundaries. In developing these boundaries, a number of factors were considered including: habitat for rare species, protection of

water quality, buffers from potentially detrimental land uses, and the maintenance of ecological processes necessary for the perpetuance of the significant elements in the area.

The delineation of conservation planning boundaries in this report does not confer any regulatory protection on recommended areas. These boundaries are intended to be used to support wise planning and decision-making for the conservation of these significant areas. The Colorado Natural Heritage Program encourages Jefferson County to take actions that will protect these sites. CNHP offers its assistance in working with the County to ensure protection of these areas.

The report includes six recommendations for Jefferson County Open Space:

1. Where appropriate, large areas of biodiversity significance should not be fragmented unavoidably.
2. Where trail development is desired, they should be located to minimize impacts to natural heritage resources.
3. Expand public and staff awareness of the need for protecting significant natural areas.
4. Manage all areas known to be inhabited by sensitive, rare, threatened, or endangered species or significant natural communities in a manner which assures that these elements of natural diversity persist.
5. Continue inventory/survey efforts in the study area, particularly for rare, threatened, and endangered animal species.
6. Promote cooperation among pertinent organizations.

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INTRODUCTION

In February 1992, The Nature Conservancy (through its Colorado Natural Heritage Program) was contracted by Jefferson County Open Space to conduct an inventory of potential natural areas within the county. The goal of the inventory was to systematically identify the localities containing natural heritage resources. Natural heritage resources are defined as rare, threatened, endangered, or sensitive species and significant natural communities that are monitored by the Colorado Natural Heritage Program. In short, we were to identify those sites supporting unique or exemplary natural communities, rare plants and rare animals, and other significant natural features.

This inventory has been completed, and the results of it are presented herein. A brief overview of the natural condition of the study area is presented first. This is followed by an outline of the mission and methodology of the Colorado Natural Heritage Program. The results of the inventory are briefly discussed. Finally, the areas of biodiversity significance identified during this study are described and future actions, including protection options, are introduced.

Overview of the Study Area

Jefferson County covers approximately 800 square miles and has three major physiographic areas: the plains, foothills, and mountains. The foothills and the mountains are part of the east slope of the Front Range and end abruptly at the western edge of the Great Plains. Elevations range from approximately 5400' to over 11,600', encompassing grasslands, montane, and subalpine life zones. The southern part of the County is mostly within Pike National Forest and received little attention during this study.

Climate. The climate of the area is strongly influenced by the mountains and is continental in general character. Sudden and extreme changes in atmospheric conditions may occur from hour to hour and day to day at any season of the year. Temperatures vary with elevation. Temperatures recorded in Evergreen, Colorado between 1962-75 record the extreme high as 93 F and the low as -26 F. The average daily temperature is 61 F in the summer and 28 F in the winter. Temperatures recorded at Lakewood, Colorado for the same time period report the extreme high as 100 F and the low as -17 F. The average daily temperature is 69 F in the summer and 32 F in the winter (Price and Amen 1981). The average frost free days are approximately 3 months and 4 months for Evergreen and Lakewood respectively.

Jefferson County is on the lee side of the Front Range and gets less moisture than the western side; the plains receive even less moisture. The average yearly precipitation is 18 inches at Evergreen and 15 inches at Lakewood. Of this, 70 percent usually falls in April through September (Price and Amen 1981).

Soils. The area has a broad variety of soils mostly correlating with the physiographic area (plains, foothills, and mountains). In general, the plains and foothills have alluvial, colluvial, and eolian deposits of Quaternary age. The plains have well drained, deep, cobbly, and gravelly soils that formed in mixed alluvium. The foothills and mountains have shallow to moderately deep, well drained, stony, gravelly, and loamy soils formed from igneous and metamorphic rocks. The table mountains have well drained moderately deep to shallow stony and clayey soils that formed in material derived from volcanic rock and shale. The hogbacks have well drained, stony and loamy soils that formed in colluvium derived from sedimentary rocks (Price and Amen 1981).

Geology. Jefferson County includes both the mountains and the plains. The Front Range is unique geographically because it is the easternmost unit of the complex Rocky Mountain System. There is no single dominant topographic form for the range as a whole; valleys vary from deep and narrow to shallow and broad; some interstream uplands are knife-edges while others are broad, gently rolling surfaces; there are some high peaks with broad, rounded tops while others are sharp, with only a few square yards on their top (Marr 1967).

Metamorphic, sedimentary, and igneous rock types are all found within Jefferson County. In general, the table mountains are igneous, the hogbacks are sedimentary, and the mountains metamorphic.

Current Vegetation. The vegetation of Jefferson County has both Great Plains and Rocky Mountain components. The eastern part of the county is on the western most edge of the Great Plains and, in sharp contrast to the rest of Jefferson County, is vegetated almost totally with grasslands. These grasslands are periodically forested by groves of cottonwoods and willows in isolated sites of unusual soil conditions and along riparian corridors. Grasses also dominate many of the lower mesas and foothill slopes, but trees become dominant on the higher slopes. The transition zone from grassland to forest is generally a mix of shrubs and grasses. The forested area of Jefferson County occupies the largest part of the County. The lowest elevations are dominated by ponderosa pine, juniper, and Doug fir, middle elevations by lodgepole pine/aspen; and highest elevations by spruce-fir.

Within this mosaic of vegetation are many wetland types. Not the least of these are riparian zones. At the lower elevations these may be dominated by deciduous trees and shrubs (such as narrowleaf cottonwood, birch, maple and

alder). At higher elevations, including most of the study area, blue spruce, Douglas fir, and others dominate.

The plant species of the area are well known and are covered by the excellent books by Weber (1990) and by Harrington (1954). An estimated 1500 species of vascular plants grow in the Front Range vicinity alone, along with four to five hundred species of lichens and two to three hundred species of mosses and liverworts (Mutel and Emerick 1984).

Most forest stands on the east slope of the Front range have been affected by lumbering or fire or both (Marr 1967, Veblen and Lorenz 1990). Fire has always been an important component of the Front Range and Great Plains landscape, yet fire suppression in this century is a common occurrence and is altering the vegetation (Veblen and Lorenz 1990).

Faunal Composition. As might be expected from the preceding discussion, the fauna of Jefferson County is typical of the Southern Rocky Mountains and the western Great Plains. In fact, Jefferson County is known to be highly diverse in its animal life because of its diversity of habitats (Woodling 1985, Hammerson 1982, Andrews and Righter 1992, Armstrong 1972).

Great Plains representatives from each major group of vertebrates include: Prebles jumping mouse (Zapus hudsonicus preblei), Bison (Bison bison - historically, Lark bunting ()), Ferruginous hawk ()), Plains topminnow (Fundulus sciadicus), Fantail darter (Etheostoma nigrum), Lined snake (Tropidoclonion lineatus), and Great Plains toad (Bufo cognatus). Southern Rocky Mountain representatives from each major vertebrate group includes: Yellow-bellied marmot (Marmota flaviventris), Stellers jay (Cyanocitta stelleri), Greenback cutthroat trout (Oncorhynchus clarki stomias), Smooth green snake (Opheodrys vernalis), and Boreal toad (Bufo boreas).

This high species richness is not limited to vertebrates, but is also well known in invertebrate groups. The Front Range of Colorado is well known for its butterfly diversity (Pyle 1992) and continues to observe among the highest number of species in the Fourth of July Butterfly Counts (Opler and Swengel 1992). This pattern even extends to ants (Gregg 1963).

The relatively recent but extensive use of the area in and around Jefferson County has greatly impacted the fauna. Extirpations have been largely restricted to large mammals. Grizzly bears and Gray wolves once roamed throughout the State and Black-footed ferret were not uncommon in large Prairie dog towns (Armstrong 1972). All are no longer resident within the state. However, most species have not suffered so extensively, but many have been reduced in numbers -- some

significantly. It is part of the purpose of this effort to identify the remaining sites occupied by these most impacted species.

Colorado's Natural Heritage Program

The Colorado Natural Heritage Program (CNHP) is the latest stage of a fourteen year development. CNHP was relocated from the Division of Parks and Outdoor Recreation into the University of Colorado Museum in the spring of 1992. With an increased staff, the Program is revitalized and updating comprehensive information on the rare, threatened, and endangered species and significant ecosystems in Colorado. The multi-disciplinary team of scientists and information managers gather information and incorporate it into their continually updated databases. CNHP is part of an international network of conservation data centers that use the Biological and Conservation Databases (developed by The Nature Conservancy). Concentrating on site-specific data for each element of natural diversity, the accurate status of each element becomes known. The mapped data illustrate sites that are important to the conservation of Colorado's natural biological diversity. By using the element ranks and the quality of each occurrence, priorities can be established for the protection of the most sensitive or imperilled sites. It is by having an updated locational database and priority-setting system that CNHP can provide its most effective, proactive land-planning tools.

The information gathered by CNHP is on species, natural communities, and ecosystems. Each of these significant natural features (species and community types) is an **element of natural diversity**, or simply an **element**. Each element is assigned a rank that indicates its relative rarity on a five-point scale (1 = extremely rare; 5 = abundant; Table 1).

The primary criterion for ranking elements is the number of occurrences, i.e. the number of known distinct localities or populations. Also of great importance is the number of individuals at each locality or, for highly mobile organisms, the total number of individuals. Other considerations include the condition of the occurrences, the number of protected occurrences, population trends, and threats. However, the emphasis remains on the number of occurrences, such that ranks are an index of known biological rarity. These ranks are assigned both in terms of the element's rarity within Colorado (its State or S-rank) and the element's rarity over its entire range (its Global or G-rank). Taken together, these two ranks give an instant picture of the rarity of the element. Although most species protected under state or federal endangered species laws are extremely rare, not all rare species are listed as Endangered or Threatened and Natural Heritage rarity ranks should not be interpreted as legal designations.

Table 1. Definition of Natural Heritage state rarity ranks. Global rarity ranks are similar, but refer to a species' rarity throughout its range. State and Global ranks are denoted, respectively, with an "S" or a "G" followed by a character. Note that GA and G#N are not used and GX means extinct. These ranks should not be interpreted as legal designations.

S1	Extremely rare; usually 5 or fewer occurrences in the state; or may be a few remaining individuals; often especially vulnerable to extirpation.
S2	Very rare; usually between 5 and 20 occurrences; or with many individuals in fewer occurrences; often susceptible to becoming endangered.
S3	Rare to uncommon; usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
S4	Common; usually > 100 occurrences, but may be fewer with many large populations; may be restricted to only a portion of the state; usually not susceptible to immediate threats.
S5	Very common; demonstrably secure under present conditions.
SA	Accidental in the state.
SH	Historically known from the state, but not verified for an extended period, usually > 15 years; this rank is used primarily when inventory has been attempted recently.
S#B	Same rank as the numbered S-series, but refers to the breeding season rarity of migrants.
S#N	Same rank as the numbered S-series, but refers to the non-breeding season rarity of migrants; where no consistent location can be discerned for migrants or non-breeding populations, a rank of SZN is used.
SU	Status uncertain, often because of low search effort or cryptic nature of the element.
SX	Apparently extirpated from the state.

The spot on the landscape that supports a particular population of a specific species or a specific stand of a given community type is an **element occurrence**. The Colorado Natural Heritage Program has mapped over 3,500 element occurrences in Colorado. Information on the location and quality of these element occurrences is also entered into the computerized Biological and Conservation Databases (BCD). This computer system, developed by The Nature Conservancy, is utilized by the international network of heritage programs and conservation data centers. All centers utilize the same methodology, allowing a unique, direct comparison of information throughout the area covered.

In addition to ranking each element in terms of rarity, Natural Heritage staff scientists rank each element occurrence so that protection efforts can be aimed not only at the rarest elements, but at the best examples of each. Element occurrences are ranked in terms of the **quality** (size, vigor, etc.) of the population or community, the **condition** or naturalness of the habitat, the long-term **viability** of the population or community, and the **defensibility** (ease or difficulty of protecting) of the occurrence. Given the intimate relationship between a natural community and its environment, community occurrences are largely ranked in terms of their quality and size.

One of the strongest ways that the Colorado Natural Heritage Program uses these element and element occurrence ranks is to assess the overall significance of a site, which may include one or many element occurrences. Based on these ranks, each site is assigned a **biodiversity (or B-) rank**:

- B1 Outstanding Significance: only site known for an element or an excellent occurrence of a G1 species.
- B2 Very High Significance: one of the best examples of a community type, good occurrence of a G1 species, or excellent occurrence of a G2 or G3 species.
- B3 High Significance: excellent example of any community type, good occurrence of a G3 species, or a large concentration of good occurrences of state rare species.
- B4 Moderate Significance: good example of a community type, excellent or good occurrence of state-rare species.
- B5 General Biodiversity Significance: good or marginal occurrence of a community type, S1, or S2 species.

What is Biological Diversity?

Biological diversity has recently become an important management issue for many natural resource professionals. In the most simple terms, biological diversity, or simply biodiversity, is the full variety of plant and animal life in an area AND the ecological processes of which they are a part. This concept includes all living organisms from bacteria and fungi, invertebrate animals, mosses and lichens, and the "higher life forms" of plants and animals.

The biological diversity of an area can be described at four levels:

1. Genetic Diversity -- the genetic variation within a population and among populations of a plant or animal species. The genetic makeup of a species is variable between populations of a species within its geographic range. Loss of a species' population results in a loss of genetic diversity for that species and a reduction of total biological diversity for the region.
2. Species Diversity -- the total number and abundance of plant and animal species in an area.
3. Community Diversity -- the variety of natural communities or ecosystems within that area. These communities may be diagnostic or even endemic to an area. It is within these ecosystems that all life dwells.
4. Landscape Diversity -- the type, condition, pattern, and connectedness of natural communities or ecosystems within a landscape. Fragmentation of forested landscapes, loss of connections and migratory corridors, and loss of natural communities all result in a loss of biological diversity for a region. Humans and the results of their activities are integral parts of most landscapes.

All of the sites presented in this report support important components of the total biological diversity of Jefferson County. These sites, if protected, will represent protection for genetic, species, community, and landscape diversity for the county.

Relating this Report to Managing Biological Diversity at the Landscape Level.

The management of Biological Diversity must consider more than species specific management criteria and consider the elements of human-use across Jefferson County. The

conservation sites identified in this study may be considered as core areas for the protection of the full range of biological diversity. Some of these areas are best considered as candidates for special area designations, others as sites within a landscape that should be managed to include the maintenance of the site's integrity. These sites should be considered as **Regional Preserves** ("Critical Habitat Areas") as defined in The Jefferson County Open Space Master Plan (BRW, Inc. 1989). Other areas fit into the category of **Special Use Areas**. Within the Master Plan it recommends that such areas be a part of a Regional Park or Preserve where possible. Such a plan would incorporate the core and buffer idea expressed above.

A basic premise in the landscape management approach starts with the delineation of core protected areas that can be represented by special designations. Where possible, these should be connected through corridors and appropriately buffered. Buffer zones should include the ecological processes supporting the diversity of the core area. Such is the basis of the development of preliminary conservation planning boundaries. It is hoped that this report will assist Jefferson County in creating a county-wide landscape that permits the fruitful coexistence humans and other organisms.

METHODS

Natural Heritage staff initiated prioritized inventories in order to gather information on Colorado's rare species and communities in a more thorough and systematic manner. Given that some regions of the state face greater development pressures than others, Natural Heritage staff and network scientists are attempting to inventory the most highly threatened areas first. The Natural Heritage staff conducts a natural heritage inventory in six stages:

1. Review aerial photographs. Aerial photographs of the entire survey area were reviewed in detail to identify Potential Natural Areas (PNA's) to be studied in the following stages. Photographs taken by Jefferson County in August 1991 were initially used. These photographs were compared with topographic maps, soil maps, and geological maps to enhance our ability to detect significant habitats.
2. Gather existing information. The herbarium collections of the University of Colorado were visited by Natural Heritage scientists where label information from specimens pertaining to the study area was recorded.

Published and unpublished information for the inventory information was reviewed as time allowed. This included the gathering of maps, reviewing the BCD and manual Natural Heritage data, and consulting experts. County records were inventoried for current land ownership.

3. Refinement of Potential Natural Area numbers and boundaries. From information gathered in steps 1 and 2, the "potential natural areas" were mapped with ecosystem boundaries.
4. Perform initial ground surveys. There were several purposes of this stage. One was to identify access routes and conditions of terrain. A second purpose was to screen the PNA's to eliminate those that showed signs of substantial disturbance not visible from aerial photographs. This stage also eliminated those areas which may have been misinterpreted from aerial photograph examination. A third was to plan for the main survey of PNAs that still showed potential as significant biodiversity areas. Among decisions that were made were when the survey could best be conducted, which scientist(s) should be involved (i.e. what is the potential for rare plants, rare animals or exemplary communities), and how much time should be budgeted for completing the survey. Where there was a need to verify the accuracy of the photo interpretation conducted during stage 1, these stages may have overlapped.
5. Field inventory of the PNAs. Detailed information was collected on the presence and status of unique or exemplary natural communities and rare species that were present, the extent of the feature(s) that made the PNA significant, and the area that needs to be protected to preserve those features. Threats and past or present disturbances were also noted. For element occurrences found to be of statewide significance, these data were transcribed onto Natural Heritage Program maps and entered into the BCD. (See Appendix C for examples of Natural Heritage data forms.)
6. Compilation of results and preparation of final report. As fieldwork was completed, Natural Heritage staff scientists reviewed the information gathered. Based on a review of all natural heritage resources present, the staff prioritized the sites in terms of their significance and the threats facing them, developed and mapped preliminary conservation planning boundaries, and drafted protection and management recommendations.

RESULTS

The Natural Heritage Inventory of Jefferson County has been completed. During the 1992 field season, Natural Heritage staff and network scientists concentrated on completing field surveys of priority PNAs, species, and natural communities (steps 4 and 5 of the inventory). Based on the results of the inventory, preliminary conservation planning boundaries were developed for natural heritage resources, and these sites were prioritized in terms of their contribution to maintaining the State's and County's natural biological diversity.

Information Collection Phase

Aerial photographs of the entire study area (dated August 1991) were reviewed in conjunction with 1:24,000 scale topographic maps. When compared with information existing in the Biological Conservation Databases (BCD), a total of 84 Potential Natural Areas (PNAs) were identified (Figures 2 and 4).

The herbarium at the University of Colorado Museum, Boulder, was searched to verify existing records and enhance search images. Information was gathered from knowledgeable individuals or files of the Colorado Natural Areas Program, The Nature Conservancy, the Colorado Native Plant Society, and the Colorado Division of Wildlife. Contact with local naturalists and experts provided leads on several rare plants, animals, and significant natural communities. From the literature and expert contacts, few rare animals were identified for Jefferson County. Others were considered extremely difficult to survey in a single year. Animal search was confined to a few priority areas and species, with the results presumably setting the stage for locations of highest probability for rare species occurrences. The Colorado Natural Heritage Program currently has records of two vertebrates, 6 invertebrates, 12 plants, and sixteen significant natural communities from the study area in its databases (Table 2).

During the course of this inventory, Natural Heritage staff used the information collected from the PNAs to re-evaluate two species of concern. Selaginella weatherbiana (Weatherby's club moss) and Asplenium septentrionale (Grass fern) are now considered more common and do not warrant special protection. The illustration of recommended conservation site sites illustrates the known distribution of natural heritage resources in the study area (Figure 3).

Table 2. Rare species and significant natural communities of Jefferson County.

ELEMENT	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL ¹ STATUS	STATE ² STATUS
VERTEBRATES					
<u>Etheostoma nigrum</u>	Johnny Darter	G5G2	S3S2	-	-
<u>Falco peregrinus</u>	Peregrine Falcon	G3	S3	-	-
INVERTEBRATES					
<u>Adelpha bredowii</u>	Sister	G5	S3	-	-
<u>Atrytone arogos</u>	Arogos skipper	G4	S2	-	-
<u>Erynnis martialis</u>	Mottled dusky wing	G4	S2S3	-	-
<u>Hesperia leonardus montana</u>	North Platte montane skipper	G4T1	S1	-	LT
<u>Incisalia mossii</u>	Moss's elfin	G4	S3	C2	-
<u>Speyeria idalia</u>	Regal fritillary	G3	S1	C2	-
VASCULAR PLANTS					
<u>Aristida basiramea</u>	Forktip three-awn	G5	S?	-	3
<u>Carex torreyi</u>	Torrey sedge	G4	S?	-	3
<u>Eustoma grandiflorum</u>	Showy prairie gentian	G5	S3	-	2
<u>Goodyera repens</u>	Dwarf rattlesnake-plantain	G5	S2	-	2
<u>Lilium philadelphicum</u>	Wood lily	G5	S2	-	2
<u>Malaxis brachypoda</u>	White Adder's-mouth	G4	S1	-	2
<u>Mimulus gemmiferus</u>	Weber monkey-flower	G2	S2	C2	1
<u>Physaria bellii</u>	Bell's twinpod	G2	S2	C2	1
<u>Smilax lasioneura</u>	Carrión-flower	G?	S2	-	2
<u>Spiranthes diluvialis</u>	Ute Ladies' tresses	G2	S1	LT	1
COMMUNITIES					
<u>Andropogon gerardii-Schizachyrium scoparium</u>	Xeric tallgrass prairies	G3	S2?	-	-
<u>Carex nebecensis</u>	Great plains wet meadow	G4	S?	-	-
<u>Cercocarpus montanus/Stipa comata</u>	Mixed foothill shrublands	G2	S2	-	-
<u>Danthonia parryi</u>	Montane grasslands	G3	S2	-	-
<u>Picea pungens/Ainus incana</u>	Montane riparian forests	G2	S2	-	-
<u>Pinus flexilis/</u>	Lower montane	G4?	S2?	-	-

<u>Arctostaphylos uva-ursi</u>	woodlands				
<u>Pinus ponderosa/</u> <u>Arctostaphylos uva-ursi</u>	Lower montane forests	G5	S3	-	-
<u>Pinus ponderosa/</u> <u>Cercocarpus montanus</u>	Foothills ponderosa pine scrub woodlands	G4	S4	-	-
<u>Pinus ponderosa/</u> <u>Cercocarpus montanus/</u> <u>Andropogon gerardii</u>	Foothills ponderosa pine scrub woodlands	G2	S2?	-	-
<u>Pinus ponderosa/</u> <u>Leucopis kingii</u>	Foothills ponderosa pine savannas	G3	S2	-	-
<u>Pinus ponderosa/</u> <u>Muhlenbergia montana</u>	Foothills ponderosa pine savannas	G5	S2S3	-	-
<u>Pinus ponderosa/</u> <u>Quercus gambelii</u>	Foothills ponderosa pine scrub woodlands	G5	S4	-	-
<u>Pseudotsuga menziesii/</u> <u>Carex geyeri</u>	Lower montane forests	G5G	S3	-	-
<u>Pseudotsuga menziesii/</u> <u>Jamesia americana</u>	Lower montane forests	G3G4	S3	-	-
<u>Pseudotsuga menziesii/</u> <u>Quercus gambelii</u>	Lower montane forest	G3	S2	-	-
<u>Quercus gambelii-</u> <u>Cercocarpus montanus/</u> <u>Muhlenbergia montana</u>	Mesic oak thickets		S?	-	-
<u>Stipa comata</u> grassland	Great Plains mixed grass prairies	G4	S2	-	-

1 Abbreviations are as follows:

C2 = Category 2 Candidate

LE = Listed Endangered

2 Abbreviations are as follows:

1 = federal threatened or endangered that are rare throughout their range

2 = plant species which are rare in Colorado but relatively common elsewhere within their range

3 = species which appear to be rare but for which conclusive information is lacking;

Field Survey Phase

Field surveys conducted as part of the Jefferson County natural heritage inventory have revealed substantial information on the natural history of the study area. Representative element of natural diversity found in Jefferson County are illustrated in Figure 1. Among the survey's highlights are:

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Jefferson County was one of the first places in Colorado to feel the effects of "gold fever". By 1859 the city of Golden was established and offered passage from the plains to the rivers in the mountains (Price and Amen 1981). The population grew rapidly and by 1862 the Homestead Law was as important for settling the county as mining and road building (Bentley 1978). Intense logging and pasture clearing was the result. Near the turn of the century much of Jefferson County had been cleared. Many of our conversations with landowners recounted the paucity of trees in the 1920's and the increased density today. Due to this past history it is nearly impossible to find any "pristine" land within Jefferson County, although small patches undoubtedly exist. In spite of the turn of the century disturbances, land that was left undeveloped is returning to its natural state and many forests have mature trees.

★

Two plants, Selaginella weatherbiana (Weatherby's club moss) and Asplenium septentrionale (Grass fern), were ranked G2G3/S2S3 and G3/S3 respectively, when this study began. Our inventories revealed both these plants to be more common than believed, as we documented many healthy populations within Jefferson County. The ranks have since been changed to G3G4/S3S4 for each species (considered a watchlist category). This information will be used to re-evaluate these species and potentially delist them from the CNHP watch list.

★

When the first pioneers came to the region, grasslands extended eastward from the base of the mountains for hundreds of miles (Mutel and Emerick 1984). Herds of pronghorn and bison were hunted by gray wolves and Indians. Today much of the natural vegetation has been replaced by croplands, cattle fields, and buildings. Along the Front Range, extensive urbanization has dramatically changed the character of the grasslands. Due to the great loss of grasslands throughout the U.S. we feel special attention should be made to maintain any existing grasslands. Three areas were found to have examples of prairie grasslands: Porter Circle, Rocky Flats, and the Ken Caryl Hogback complex. However, signs of overuse and potential threats abound and the integrity of the area is considered highly threatened.

★

Riparian corridors are often used for road building, with the result that all the major rivers of Jefferson County have highways beside them. These roads often alter the natural vegetation as well as stream flow and have adverse effects on the riparian community. This inventory only identified two riparian corridors in good condition: Berrian Mountain-North and an upper stretch of Ralston Creek.

★

Many of the major wetlands of Jefferson County have been protected in one way or another. This study revealed the Legault Mountain wetland that is still intact yet unprotected.

★

Indian Gulch stands out as a site with several significant plants and plant associations. In addition it is the type locality for several species of butterflies.

★

North Table Mountain, although far from pristine, is important habitat for ground nesting birds in spring and early summer.

**Figure 1. Representative natural heritage
resources of Jefferson County**

Upper left: Great blue heron (Ardea herodias)

Upper right: Weber's monkey flower (Mimulus
gemmiparus)

Lower: Dry tall-grass prairie between the
hogbacks near Ken Caryl Ranch



Figure 2. The locations of the 84 Potential Natural Areas identified during the survey of Jefferson County. Key to locations is in Figure 4 and Table 4.

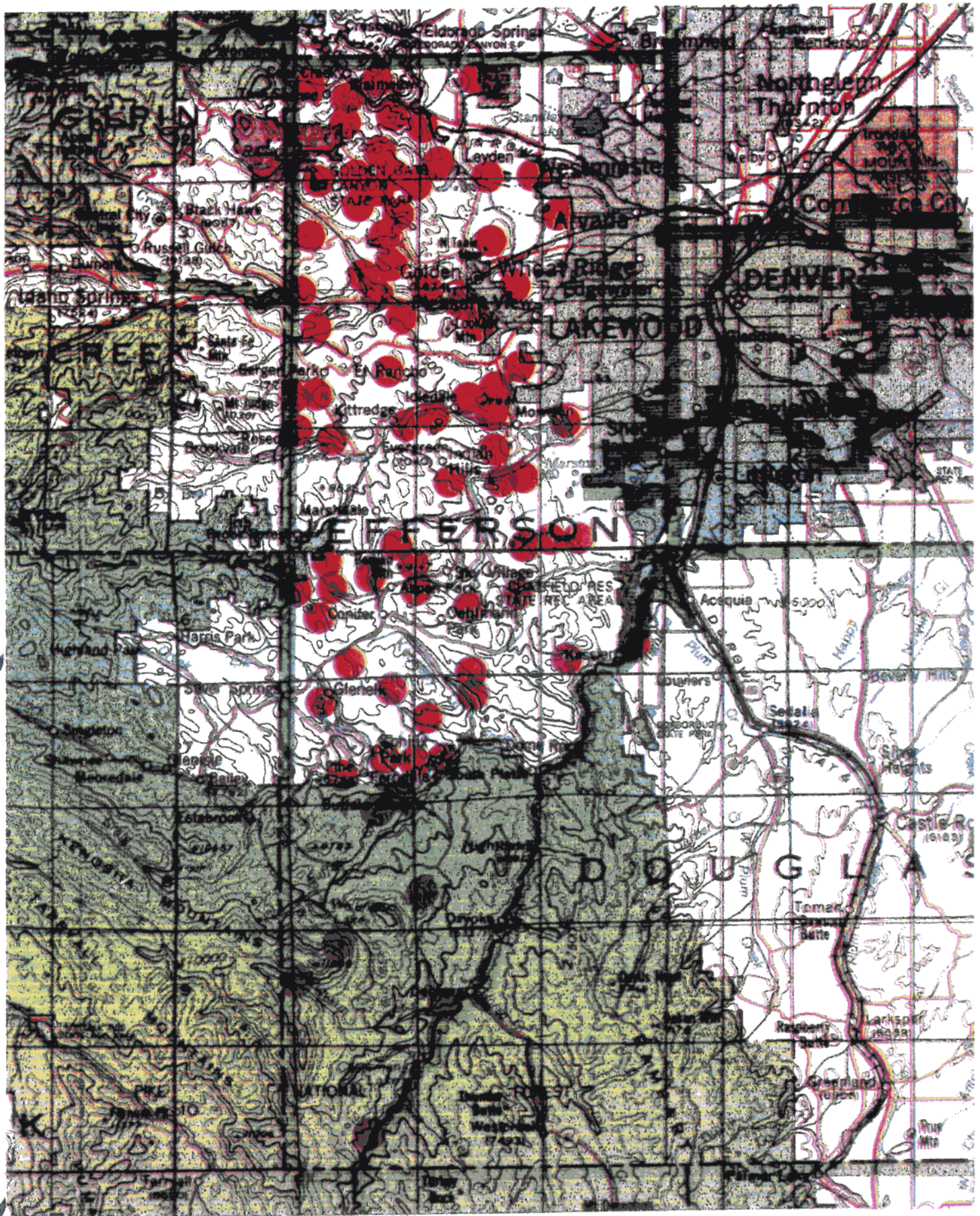


Figure 3. The locations of the 27 conservation sites identified during this inventory. Key to locations and site names is in Figure 4 and Table 4.

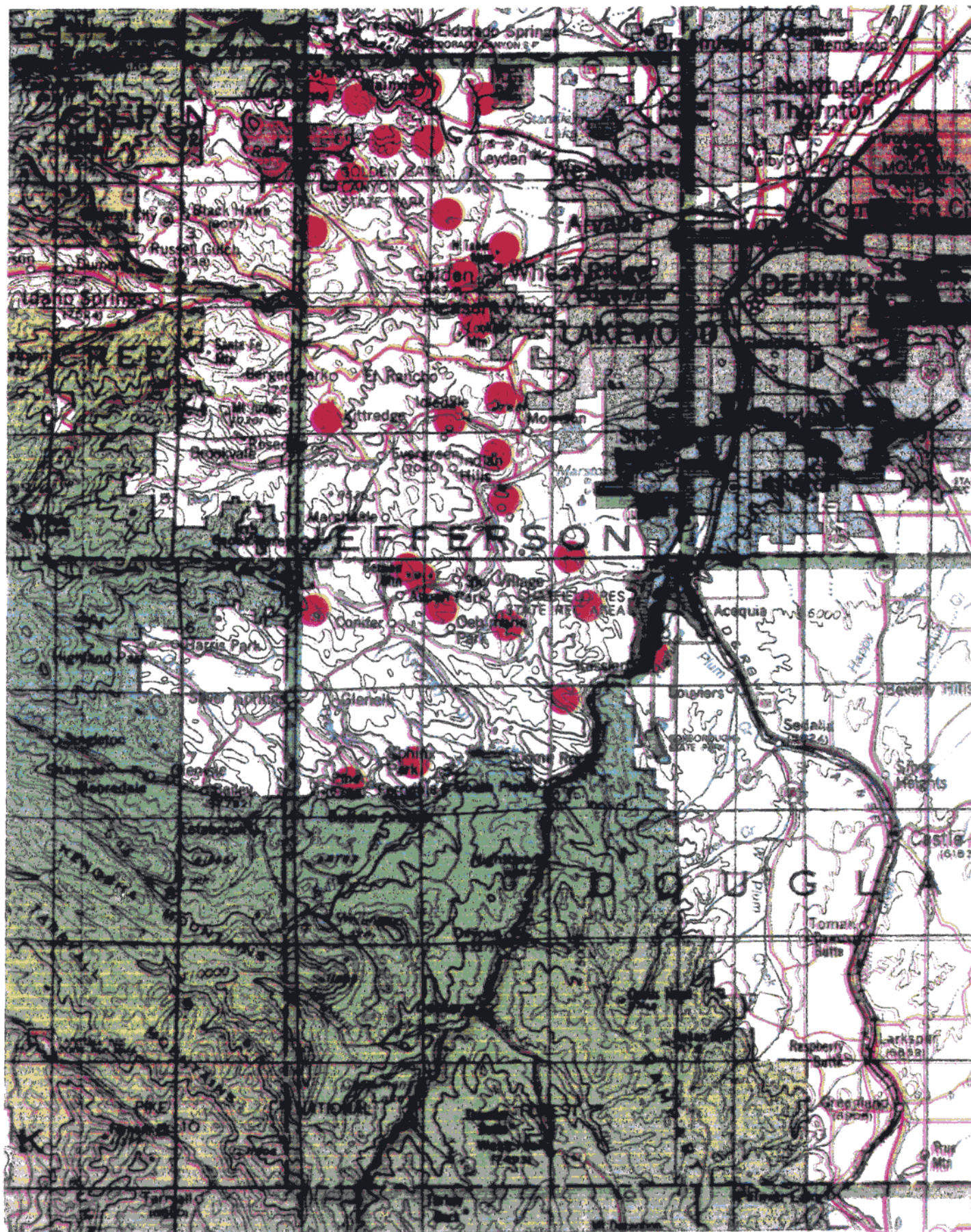
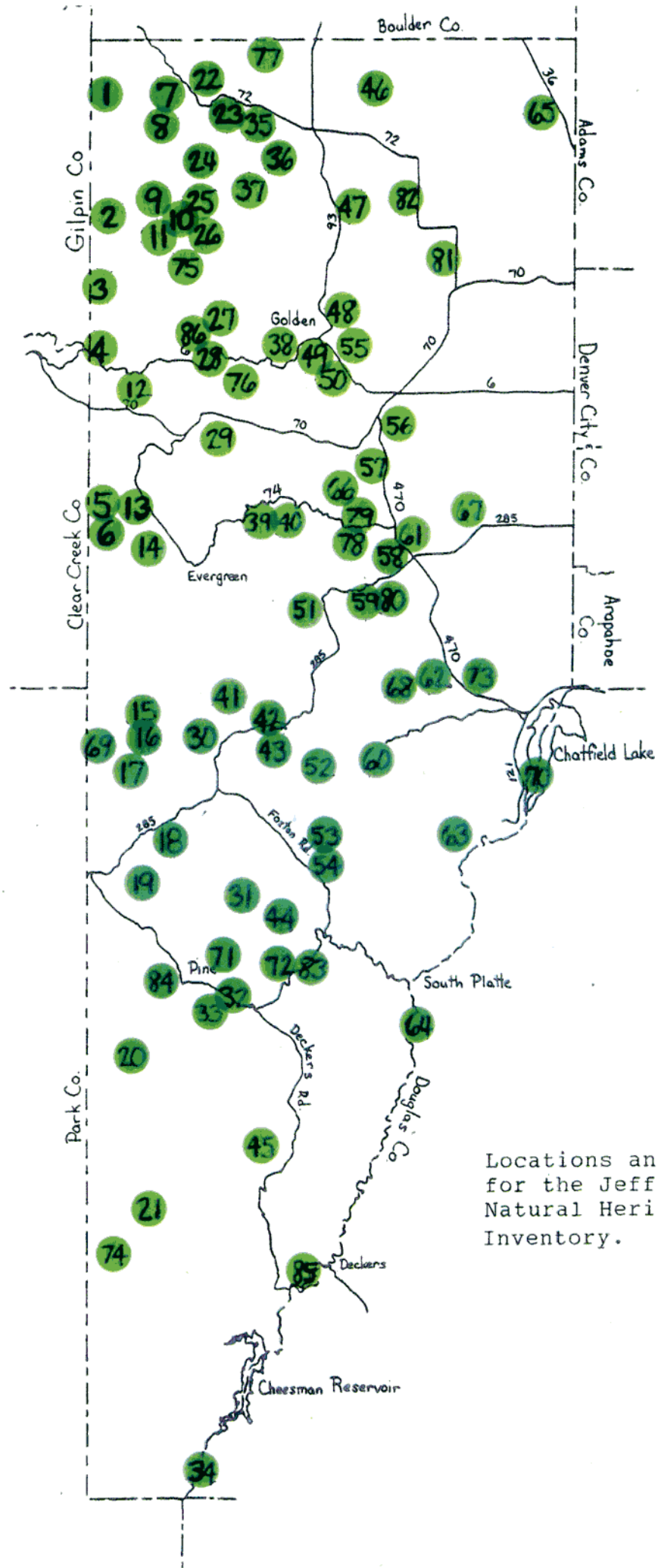


Figure 4. A key to the Potential Natural Areas and most Conservation Sites identified during a survey of Jefferson County. Numbers match the names in **Table 4** below.



Locations and PNA ##
for the Jefferson Co.
Natural Heritage
Inventory.

Table 4. Potential Natural Areas identified during the Jefferson County natural heritage inventory.

<u>PNA#</u>	<u>PNA NAME</u>		
1	Miramonte Pond	42	Landing Strip
2	Guy Gulch North	43	Legault Mountain
3	Black Hawk Mountain	44	Last Resort Creek
4	Horse Creek	45	Little Scraggy Peaks
5	Bergen Peak South	46	Rocky Flats
6	Krinder Peak	47	Ralston Creek
7	Blue Mountain	48	North Table Mountain
8	Section 21 Tributary	49	Clear Creek Talus
9	Sawmill Gulch	50	Deadman Gulch
10	Mount Tom Tributary	51	Gilmore Chapel
	North	52	North Fork Deer Creek
11	Mount Tom	53	North Reynolds Ranch
12	Beaver Brook	54	Reynolds Ranch
13	Bergen Creek	55	South Table Mountain
14	Elephant Park	56	Green Mountain
15	North Turkey Creek	57	Morrison Hogback-North
	Headwaters	58	Mount Glennon
16	North Turkey Creek	59	Mount Lindo
	Hill	60	Bald Mountain-South
17	Mason Creek	61	Bear Creek
18	Gooseberry Gulch	62	Hogback
19	Shattuck Gulch	63	Goat Mountain
20	Rolling Creek	64	Eagle Rock
21	Buffalo Peak	65	Dry Creek
22	Crescent Mountain	66	Red Rocks Park
23	Coal Creek Talus	67	Bear Creek-Downstream
24	Ralston Creek North	68	Ken Caryl Ranch
25	Ralston Creek South	69	Black Mountain
26	Van Bibber Headwaters	70	Chatfield Lake
27	Guy Hill East	71	Banner Peak
28	Guy Gulch/Elk Creek	72	Cathedral Spires
29	Genessee Mountain	73	Massey Draw
	South	74	Freeman Forest
30	DMPS Tributary	75	Sawmill Gulch East
31	West Resort Creek	76	Bald Mountain Canyon
32	Buffalo Creek-	77	Bull Gulch
	Northwest	78	Mount Falcon Side
33	Miller Gulch		Canyon
34	Wild Cat	79	Bear Creek Canyon
35	Section 13	80	Mouth of Turkey Creek
36	Ralston Buttes		Canyon
37	White Ranch	81	Van Bibber Creek
38	Indian Gulch	82	Ralston Creek @ 72
39	Corwina	83	Porter Circle Ranch
40	Little Park West	84	N. Fk South Platte
41	Berrian Mountain-		(changed to Pine
	North		Valley)

Identification and protection of rare and wide-ranging species.

Site level protection is not adequate for some natural features. For example, the conservation of bird populations, particularly those that occur over large geographical areas, may best be implemented by establishing complementary management practices over the entire occupied area. Local site protection efforts generally will only apply to a small, usually inadequate, portion of the entire population of such species. Such considerations may be of most importance for migrating birds.

In several sites during this study we observed large numbers of post-breeding warblers, sparrows, and other migrants. Many of the species observed are considered neotropical migratory birds (Partners-In-Flight's Western Working Group draft list). Many of these species are known to be declining in numbers over large parts of their ranges (Terborgh 1988). Conservation efforts for these species will by necessity be land management considerations. However, as sites are identified that may be significant to concentrations of these species, land protection should again be considered. We note that two types of sites should be considered as important for conservation of these and other birds: riparian habitats and wetlands. Any efforts to protect such areas will benefit many declining bird species.

Other rare, wide-ranging bird species that utilize the study area include raptors, particularly peregrine falcons, golden eagles, and goshawks. In general, these birds are locally sensitive to increased human activity. Peregrine falcons and golden eagles utilize nesting sites year after year. Any known nesting sites for these species should be protected. We observed two sites for these species in this study: golden eagle nests at the Mt. Lindo area at the mouth of Turkey Creek Canyon and goshawks at the canyon near Berrian Mountain. The Goshawk is a tree-nesting species with no lack of habitat. However, the species may be in decline for other reasons, human disturbance among them. To minimize impacts to this species, we would encourage the protection of these two sites.

Wetlands and biodiversity.

Wetlands and riparian habitats are known to be of significance to wildlife (Windell et al. 1986 and references cited within). The diversity of plants and animals is higher in such areas due to the high productivity, diversity of structural habitat, and simply the availability of water. In the dry western United States, most life forms congregate around water. Humans are no exception. Water is

needed for consumption, agriculture, livestock, and the support of industry. It is because of the necessity of water combined with its scarcity that the wetlands and riparian habitats, particularly in the western United States have suffered serious ecological degradation or losses.

It is estimated that more than 50% of the original wetlands have been lost. Much of the remaining habitat is heavily altered. Therefore, it can be expected that in a survey such as a natural heritage inventory, where naturalness and rarity are used as key factors establishing priorities, wetlands may not appear strongly represented. We do not argue with the need to protect wetlands for their extremely important ecological contributions. Such areas were considered a high priority in the recommendations of the Jefferson County Open Space Master Plan (BRW, Inc. 1989). But other tools are available for the identification of all wetland types. In an effort to aid Jefferson County in the location of wetlands we have delivered, with this final report, a set of U. S. Fish and Wildlife Service Wetland Inventory Maps. We would stress that using these maps this study used wetland and riparian habitats as a major criteria in searching for Potential Natural Areas. More than half of the PNAs were in fact associated with wetlands.

The significance of wetlands to large numbers of species is an important consideration in land use planning. To protect the natural diversity of an area, wetlands must take a high priority. The approach we have taken will assist in the protection of those wetlands that are the rarest, those with the natural characteristics and species. Often these have rare or endangered species with them. Again, we agree that there should be no loss of wetlands and that every local government should do everything possible to assure that. There are several strong laws in place to assist in this type of protection. We also recognize the role that opportunism must play in the protection of any land. However, we believe that this study will provide scientifically-based priorities to guide the protection and disposition of such areas. Among the many good reasons for protecting wetlands with high ecological integrity is the need to have "control" sites. It is from such sites that we can gauge the success of our attempts to reclaim or restore wetlands. Also of great significance is the fact that wetlands that contain rare species or rare natural communities, once lost, cannot be regained. This is the basis for the results presented here.

We encourage Jefferson County to take a progressive stand on wetland protection and management. While visiting the many riparian and wetland sites in Jefferson County we viewed the degradation of many such sites. But we

have also been able to find some sites that despite intensive human activity, remain largely natural in their function, structure, and species composition. It is these sites that we believe are of the highest priority in wetland protection.

Notes on sites not chosen as Conservation Sites.

In studying aerial photographs, maps, and actual sites, we observed a large portion of Jefferson County. The County is fortunate to have a diverse terrain, much of which remains at least somewhat natural. We have argued that Conservation Sites identified herein are a high priority from the perspective of protecting the State's natural heritage. Other priorities exist and that to save all of the County's natural heritage will not be done exclusively in the sites designated herein. Other priorities include viewsheds, backcountry opportunities, wildlife habitat, organized sports areas, and sound buffers. However, the conservation sites presented herein are documented to be of highest priority and urgency to assure that the sites and their associated imperiled elements of natural diversity don't disappear forever.

Many of the areas we visited were spectacular in scenery or were simply large expanses of open space. Other sites had abundant wildlife or beautiful displays of wildflowers. These sites often meet criteria presented in the County's Open Space Master Plan (BRW, Inc. 1989). Such sites are listed and briefly described in **Appendix C** for use by the County if it so desires.

PROTECTION OF SIGNIFICANT BIODIVERSITY AREAS

Of the 84 Potential Natural Areas (PNAs) identified during the study (Figure 2), 52 were dropped from consideration (**Appendix A**). The remaining 32 sites were found to support rare, threatened, or endangered species or significant natural communities. Of these 32 PNA's, several were merged to form a total of 27 Conservation Sites (Figure 3). These sites are recommended to Jefferson County as areas in need of special protection. The CNHP in no way implies that areas that were studied but not considered conservation sites are not of importance for conservation purposes. The ranking system used merely ranks sites for protection relative to the rarity of known significant features. Therefore, the sites identified herein comprise the highest priority sites, based on known information, for the conservation of the study area's natural diversity. Other sites are worthy of conservation, but in those sites, species and natural

communities that might be lost are found in many additional sites.

Once a Conservation Site has been identified, the first step in protecting the sensitive species or communities is to delineate a preliminary conservation planning boundary for the site. In developing these boundaries, Natural Heritage Program staff considered a number of factors. These included, but were not limited to:

- the extent of current and potential habitat for natural heritage resources, considering the ecological processes necessary to maintain or improve existing conditions;
- species movement and migration corridors;
- maintenance of surface water quality within the site and the surrounding watershed;
- maintenance of the hydrologic integrity of the groundwater, e.g. by protecting recharge zones;
- land intended to buffer the site against future changes in the use of surrounding lands;
- exclusion or control of invasive exotic species; and
- land necessary for management or monitoring activities.

The final 27 conservation sites found to support natural heritage resources range in size from 57 to 3,208 acres (Appendix B, Table 3,).

As the label "conservation planning" indicates, the boundaries presented here are for planning purposes. They delineate ecologically sensitive areas where land-use practices should be carefully planned and managed to ensure that they are compatible with protection goals for natural heritage resources and sensitive species. All land within the conservation planning boundary should be considered an integral part of a complex economic, social, and ecological landscape that requires wise land-use planning at all levels. Maps showing these preliminary boundaries are included in Appendix B.

Table 3. Conservation sites identified during the Jefferson County natural areas inventory.

Conservation Site	Biodiversity Rank	PNA #	USGS Quadrangle
Bear Gulch	85	63	Platte Canyon
Bergen Creek Wetlands	84	13	Evergreen
Berrian Mountain-North	83	41	Conifer
Black Hawk Mountain-South	85	3	Black Hawk
Black Mountain	82	69	Meridian Hill
Blue Mountain	85	7	Eldorado Spgs, Ralston Buttes
Bluejay Gulch	85	60	Indian Hills
Cathedral Spikes/Banner Peak	84	71,72	Pine
Chatfield Lake	85	70	Littleton
Deachan Gulch	83	50	Morrison
Indian Gulch	82	38,49	Golden, Ralston Buttes, Evergreen Indian Hills, Littleton
Ken Caryl Hogback Complex	83	62	Conifer
Landing Strip Wetlands	85	42	Conifer
Legault Mountain	85	43	Conifer
Little Park West	84	40	Evergreen
Miramonte Pond	85	1	Tungsten
Mount Falcon North	84	78	Morrison
Mount Lindo	85	59,80	Indian Hills
Mount Tom	84	9,10,11	Ralston Buttes
Pine Valley	82	84	Pine
North Table Mountain	84	48	Golden
Porter Circle	83	36	Ralston Buttes
Ralston Buttes	85	36	Ralston Buttes
Red Rocks Park	85	66	Morrison
Rocky Flats	83	46	Golden, Louisville
Upper Ralston Creek	85	24,25	Ralston Buttes
White Ranch Open Space	85	39	Ralston Buttes

Protection Tools

Intensive land use in Colorado and multiple demands for many areas contribute to the continual degradation of many natural communities, endangered species habitats, and other types of natural areas. Best management practices can help protect critical buffers, but may not be adequate in the protection of sensitive species and sites. The first and most significant and proactive tool for protection is the identification of locations of rare species, natural communities, and the ecosystems that support them. Only with this information can informed decision-making occur.

While Jefferson County has taken great strides to protect areas within the county as "open space", there are still several areas that would benefit from protection. This document provides a base-level of information to begin a planned protection effort of the significant biodiversity features within those portions of Jefferson County included in the study area. For the most part, public lands, especially U.S. Forest Service land was not inventoried under this study. By using careful planning, and a monitoring program, the significant elements of natural diversity identified herein will be adequately conserved.

RECOMMENDATIONS

1. **Develop an implementation plan for designations of areas the county determines fulfill criteria for protection.**

This inventory has documented the existence of 27 sites determined to be significant for the protection of Colorado's and Jefferson County's natural diversity (Figure 3). The county should consider including this report's recommendations in the Open Space Plan's most recent revision.

2. **Incorporate the information included in this report in the review of activities in or near areas identified as significant.**

The areas identified in this study are known to support unique or exemplary natural communities and rare species. As proposed activities within the county are considered, they may be compared to the maps presented herein (Appendix B). Should the proposed project potentially impact one of these areas, Jefferson County Open Space can decide if it is desirable to contact persons, organizations, or agencies with expertise. The Colorado Division of Wildlife, Colorado Natural Areas Program, and Colorado Natural Heritage Program routinely conduct environmental reviews statewide and should be considered as a resource available to Jefferson County Open Space.

3. **Increase public awareness of the benefits of protecting areas determined to be significant to the County's natural diversity.**

Given the proximity of Jefferson County to the densely populated metropolitan areas, natural lands are becoming ever more scarce. Rare species will continue to decline if not given appropriate protective measures. Increasing the public's knowledge of the remaining significant areas will build support for the programmatic initiatives necessary to protect them. Such activities could be done through interpretive facilities, conferences or meetings to stimulate public involvement, and information pamphlets. Finally, it would be desirable for the County to promote any protective designations to the public and scientific community to build awareness of the commitment to the protection of natural areas within the scope of open space projects.

4. **Promote cooperation among pertinent organizations.**

The long-term protection of the County's natural diversity will be facilitated with the cooperation of many organizations. The County has played a leadership role in attempting to incorporate diverse opinions in the planning process. Efforts to this end should continue, providing the County with stronger ties among federal, state, and local and private interests involved in the protection or management of natural lands.

5. **Properly manage significant elements of natural diversity within Jefferson County.**

The first step in accomplishing this recommendation would be the appropriate designation of identified Conservation Sites. In doing so, the development of management plans would be a necessary component of the designations. Several organizations and agencies are available for consultation in the development of Management Plans for significant natural lands (e.g., Colorado Natural Areas Program, the City of Boulder, The Nature Conservancy, and the CNHP). We would also encourage the development of partnerships that could research and develop techniques for maintaining or restoring conservation sites to aid in the preservation of rare, threatened, or endangered species or significant natural communities (e.g. Colorado Division of Wildlife, Colorado Native Plant Society, The Nature Conservancy, and various academic institutions).

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The authors of this report are but a portion of the CNHP staff that contributed in essential ways with this study. We are grateful to Katie Pague, Cathy Porter, Karen Knorr, Lynn Belancik, Cate Werner, and Steve Kettler. Volunteers of the Colorado Natural Heritage Program who cheerfully provided invaluable help included: Paul Jones, Suzie Miles, Julia Kintsch, Meg Miller, Dan Farr, Beth Goodwin, and Kirstin Shier.

Finally we would like to thank all of the landowners that granted us access to their properties. In many cases these owners or caretakers added greatly to the conservation information we were able to obtain from a site. We wish we had more time with each of them.

APPENDIX A.

Potential Natural Areas Identified
in Jefferson County

PNA	#PNA NAME	STATUS
1	Miramonte Pond	C,F
2	Guy Gulch North	O
3	Black Hawk Mountain-South	C
4	Horse Creek	O
5	Bergen Peak South	O
6	Krinder Peak	O
7	Blue Mountain	C
8	Section 21 Tributary	O
9	Sawmill Gulch	C,S
10	Mount Tom Tributary-North	C
11	Mount Tom	C
12	Beaver Brook	O
13	Bergen Creek	C,J
14	Elephant Park	O
15	North Turkey Creek Headwaters	O
16	North Turkey Creek Hill	O
17	Mason Creek	O
18	Gooseberry Gulch	O
19	Shattuck Gulch	O
20	Rolling Creek	O
21	Buffalo Peak	F
22	Crescent Mountain	O
23	Coal Creek Talus	O
24	Ralston Creek South	C
25	Ralston Creek North	C
26	Van Bibber Headwaters	O
27	Guy Hill East	O
28	Guy Gulch/Elk Creek	O
29	Genessee Mountain South	O
30	DMPS Tributary	O
31	West Resort Creek	O
32	Buffalo Creek-Northwest	O
33	Miller Gulch	F
34	Wild Cat	F
35	Section 13	O
36	Ralston Buttes	C
37	White Ranch	C,J
38	Indian Gulch	C
39	Corwina	O
40	Little Park West	C
41	Berrian Mountain-North	C

42	Landing Strip Wetlands	C,J
43	Legault Mountain	C
44	Last Resort Creek	O
45	Little Scraggy Peaks	F
46	Rocky Flats	C
47	Ralston Creek Riparian	O
48	North Table Mountain	C
49	Clear Creek Talus	
50	Deadman Gulch	C
51	Gilmore Chapel	O
52	North Fork Deer Creek	C
53	North Reynolds Ranch	O
54	Reynolds Ranch	O
55	South Table Mountain	O
56	Green Mountain	O
57	Morrison Hogback-North	O
58	Mount Glennon	O
59	Mount Lindo	C
60	Bluejay Gulch (Bald Mountain-South)	C
61	Bear Creek	O
62	Ken Caryl Hogback Complex	C
63	Bear Gulch	C
64	Eagle Rock	F
65	Dry Creek	O
66	Red Rocks Park	C,J
67	Bear Creek-Downstream	O
68	Ken Caryl Ranch Escarpment	O
69	Black Mountain	C,S
70	Chatfield Lake	C,S
71	Banner Peak	C
72	Cathedral Spires	C
73	Massey Draw	O
74	Freeman Forest	F
75	Sawmill Gulch East	O
76	Bald Mountain Canyon	O
77	Bull Gulch	?
78	Mount Falcon North	C
79	Bear Creek Canyon	O
80	Mouth of Turkey Creek Canyon	C
81	Van Bibber Creek	O
82	Ralston Creek at Hwy 72	O
83	Porter Circle	C
84	North Fork of the South Platte (Pine Valley)	C

PNAs in **boldface** have been included as a Conservation Site. Detailed information on each Conservation Site is found in **Appendix B**.

- C = Conservation sites that are known to have one or more occurrences of a natural heritage resource. These are Potential Natural Areas that have proven to have conservation significance.
- F = Federal land (most of these sites were not visited).
- J = Jefferson County land.
- O = Omitted from the study as Conservation Sites. This designation does not imply the lack of conservation value; rather, such sites are prioritized lower than sites known to have rare, sensitive, threatened, or endangered species or exemplary natural communities.
- S = State land.
- X = PNA found is no longer in a natural state. No such sites were found in this study.

APPENDIX B:

Conservation Sites Identified During the Inventory

Conservation Sites Identified During the Inventory

The 84 PNAs identified during this Natural Heritage Inventory (Figure 2; Appendix A) were surveyed and subsequently categorized as: (1) Omitted from further consideration; (2) Considered in need of additional survey prior to the need for conservation attention; and (3) Designated as a Conservation Site. A Conservation Site is any site which contains one or more occurrences, believed to be viable, of a rare species or significant natural community. Therefore, conservation sites have known values for conserving the natural biological diversity of Jefferson County.

The conservation sites are described in standard site reports and appear in alphabetical order by site name. The sections of these reports and their contents are outlined and explained below.

SIZE: The approximate acreage included within the conservation planning boundary for the conservation site.

BIODIVERSITY RANK: The overall significance of the conservation site in terms of rarity of the natural heritage resources and the quality (health, abundance, etc.) of their occurrences. As discussed on page 5, these ranks range from B1 (Outstanding Significance) to B5 (General Biodiversity Significance).

LOCATION: The county and USGS 7.5' quadrangles that include the Conservation Site. The Natural Heritage Program code for the quadrangle is noted in parentheses (e.g. 3910573 is the Ralston Buttes quad).

GENERAL DESCRIPTION: A brief narrative picture of the topography, vegetation, and current use of the conservation site. Common names are used along with the scientific names.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: A synopsis of the rare species and significant natural communities that occur on the conservation site. Many rare species and some natural communities are sensitive to disturbance or may be sought out by collectors; therefore, the exact locations of each element are not shown on the maps. Requests for additional information should be addressed to the Colorado Natural Heritage Program.

CURRENT STATUS: A summary of the ownership, degree of protection currently afforded the conservation site, and threats to the site or natural heritage resources as determined to date.

BOUNDARY JUSTIFICATION: The preliminary conservation planning boundary delineated in this report includes all known occurrences of natural heritage

resources and the adjacent lands required for their protection. A discussion of the major factors that were considered is on pages iii-vi.

PROTECTION AND MANAGEMENT CONSIDERATIONS: A summary of the major issues and factors that are known or likely to affect the protection and management of the conservation site.

BEAR GULCH

SIZE: 1,920 acres

BIODIVERSITY RANK: B5

LOCATION:

Platte Canyon Quadrangle (3910542)

GENERAL DESCRIPTION: Bear Gulch, a small tributary of the South Platte River, has a fairly high gradient and steep slopes. The stream is discontinuous and perennial and supports a lush growth of native vegetation including two species of cottonwoods, Douglas fir, chokecherry, grape vine, maple, ubiquitous stands of poison ivy, and the rare Smilax vine. The south and north-facing slopes are drastically different from each other. The north-facing slopes support a dense forest of Douglas fir and ponderosa pine while the south-facing slopes are dominated by Gambels oak and mountain mahogany. The herbaceous layer is thick and diverse on the south-facing slopes and includes many species of grasses. An obscure foot trail follows the stream channel. Although in relatively good condition, the bottom of the gulch show signs of past logging, mining, and grazing. The slopes of Bear Gulch show less disturbance.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The rare carrion-flower vine was found at approximately 6200'. Infrequent patches of the vine occur for approximately 1/4 of a mile along the creek bottom. It typically was growing on Gambels oak. This Smilax species is endemic to the foothills of the Front Range and the outwash mesas. Other Jefferson County sites were reported to have this plant, but in our search, this was the only location found.

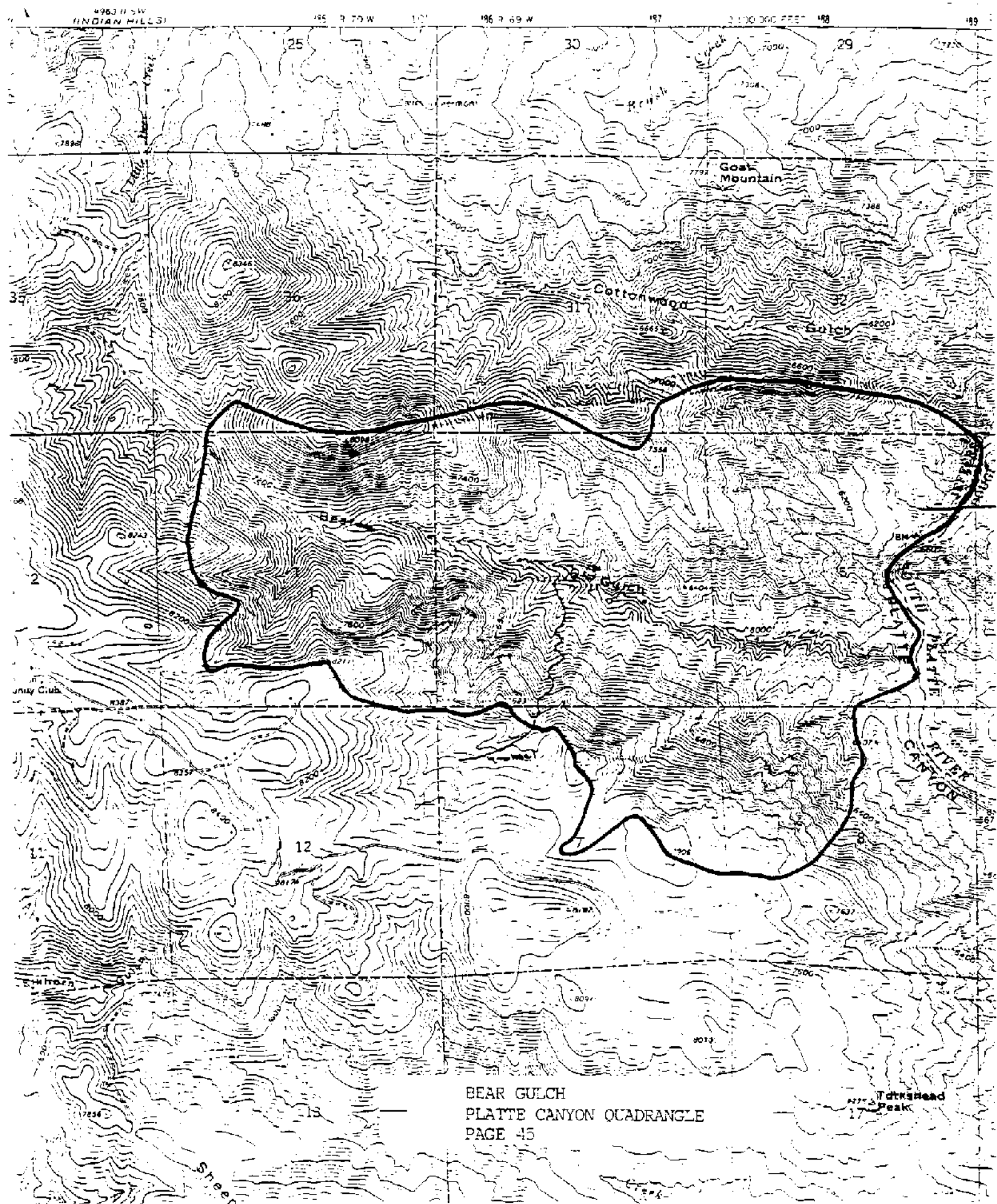
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Smilax lasioneura</u>	Carrion flower	8	G4	S2	-	2

CURRENT STATUS: No special protection is provided to this site. The majority of this land is privately owned. The U.S. Forest Service owns a portion of the northeast corner.

BOUNDARY JUSTIFICATION: The Conservation Site boundaries include Bear Gulch and the adjacent slopes, therefore providing some protection to the essential watershed. All known populations of the Carrion flower within Bear Gulch as well as nearby side canyons are included. The side canyons likely contain additional individuals of the carrion flower.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The endemic carrion-flower vine should be periodically monitored and the area managed to ensure the existence of this population. The species may be susceptible to weedy invasions. Development should be discouraged and the land protected. Careful placement of trails would not threaten this species.

should be discouraged and the land protected. Careful placement of trails would not threaten this species.



BERGEN CREEK WETLANDS

SIZE: 216 acres

BIODIVERSITY RANK: B4

LOCATION: Evergreen Quadrangle (3910563)

GENERAL DESCRIPTION: Bergen Creek wetland is a mid-montane wet meadow within Elk Meadows Park, just north of Evergreen. The wetland is generally undisturbed and supports a nearly ubiquitous stand of Carex nebrascensis (a sedge). Adjacent dry meadows are a mix of non-native hay grasses and some small stands of native grasses. Bergen Creek drains Bergen Peak and is the main source for the wetland. Trails traverse this area. Historically these adjacent meadows have been mowed for hay, but now mowed for weed control.

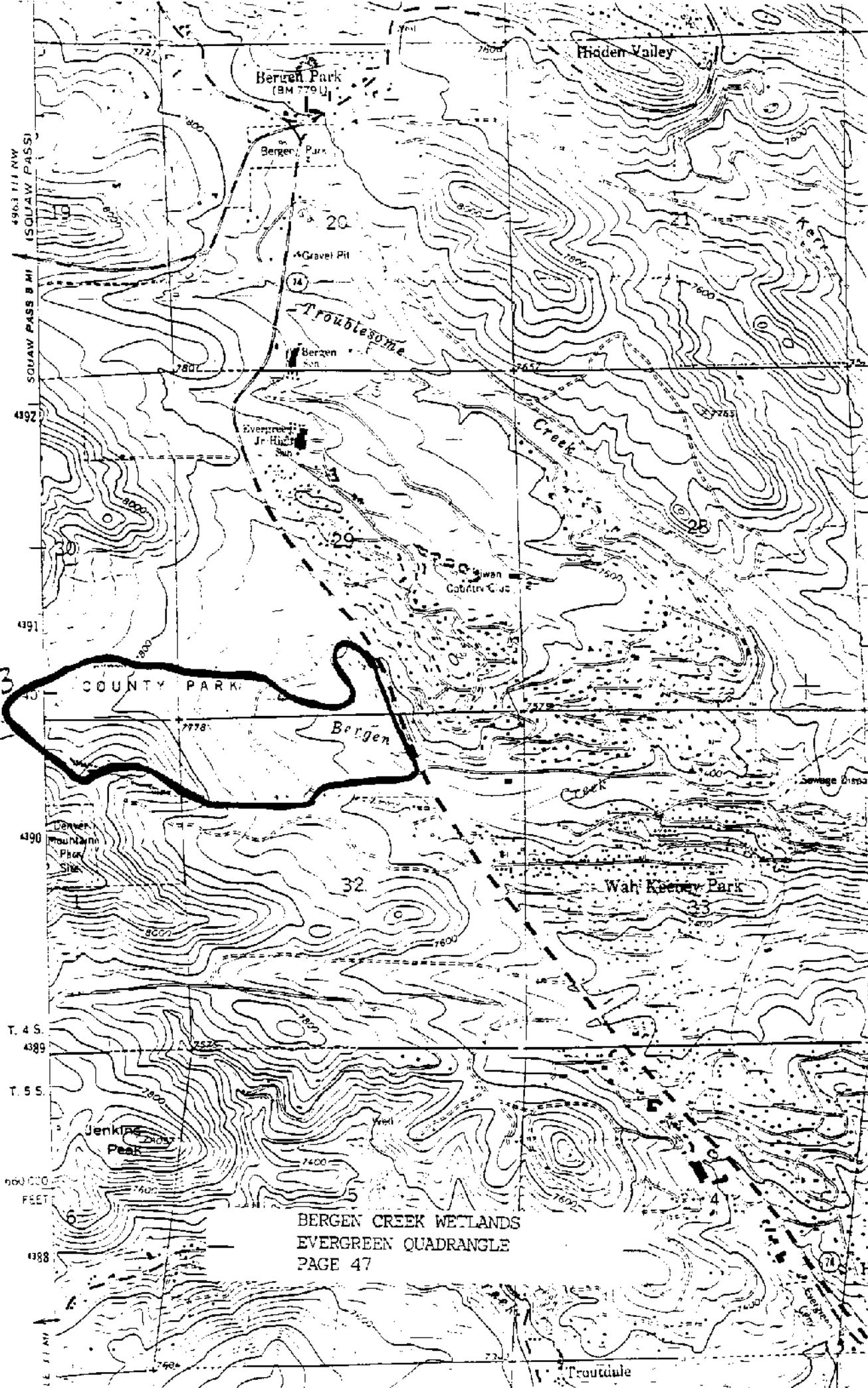
NATURAL HERITAGE RESOURCE SIGNIFICANCE: The wetland is significant and supports a good example of a wetland community.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Carex nebrascensis</u> wet meadow	Great Plains wet meadow	B	G4	S?	-	-

CURRENT STATUS: All but one small portion is owned by Jefferson County Open Space. Trails cross this wetland but apparently pose no harm to it.

BOUNDARY JUSTIFICATION: The boundaries include the wetland and the major water source for the wetland.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The wetland should be managed to maintain its integrity; water quality should be maintained at a high standard; introduced species should be monitored to make sure the wetland species are not encroached upon. Pesticide use would be detrimental to wetland associated organisms.



Hatched area
RNA #13

BERRIAN MOUNTAIN-NORTH

SIZE: 100 acres

BIODIVERSITY RANK: B3

LOCATION: Conifer Quadrangle (3910553)

GENERAL DESCRIPTION: The Berrian Mountain conservation site is a steep-sloped ravine which runs south and drains into North Turkey Creek. It is a small linear site supporting a unique mid-montane riparian habitat. The upper and mid slopes of the ravine are forested with Douglas fir, ponderosa pine, and lodgepole pine, each dominating at different places. The understories of these slopes are primarily common juniper or kinnikinnick. The creek bottom has a narrow perennial stream bounded on both sides with Colorado blue spruce, alder, maple, and dogwood. A dense mesic understory consisting of ferns, orchids, bellwort, horsetails, monkshood, buttercups, meadowrue, and many other riparian species making this creek bottom exceedingly lush. As the topography becomes less steep at both the lower and upper ends of the drainage, the vegetation becomes less dense. Exotic plants are a problem in these open areas, but become choked out in the steep part of the ravine. Signs of black bear, elk, mountain lion (including a den), and other mammals were seen, along with an abundant and diverse bird life, including goshawks, juncos, flickers, chickadees, and others. The lower end of the drainage has been cleared and one house built, while the upper slopes just outside the conservation site is a residential area. Two Denver Mountain Park Sites are adjacent to this conservation site.

The riparian zone is in very good condition with minimal human use evident. There were few weeds present. The integrity of this area was unsurpassed for a riparian zone.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: This conservation site has an intact, narrow riparian zone that is unique in Jefferson County and is significant in and of itself. The montane riparian forest is considered rare both worldwide and statewide. This association of Colorado blue spruce and alder was not found at any of the other sites in Jefferson County. Several rare orchids were searched for, although none were reported, we still expect this to be suitable habitat for Malaxis and other orchids. Nesting goshawks and a mountain lion den make this an important wildlife habitat. Goshawks remain abundant throughout their worldwide range, but have been suspected of showing declines in recent years.

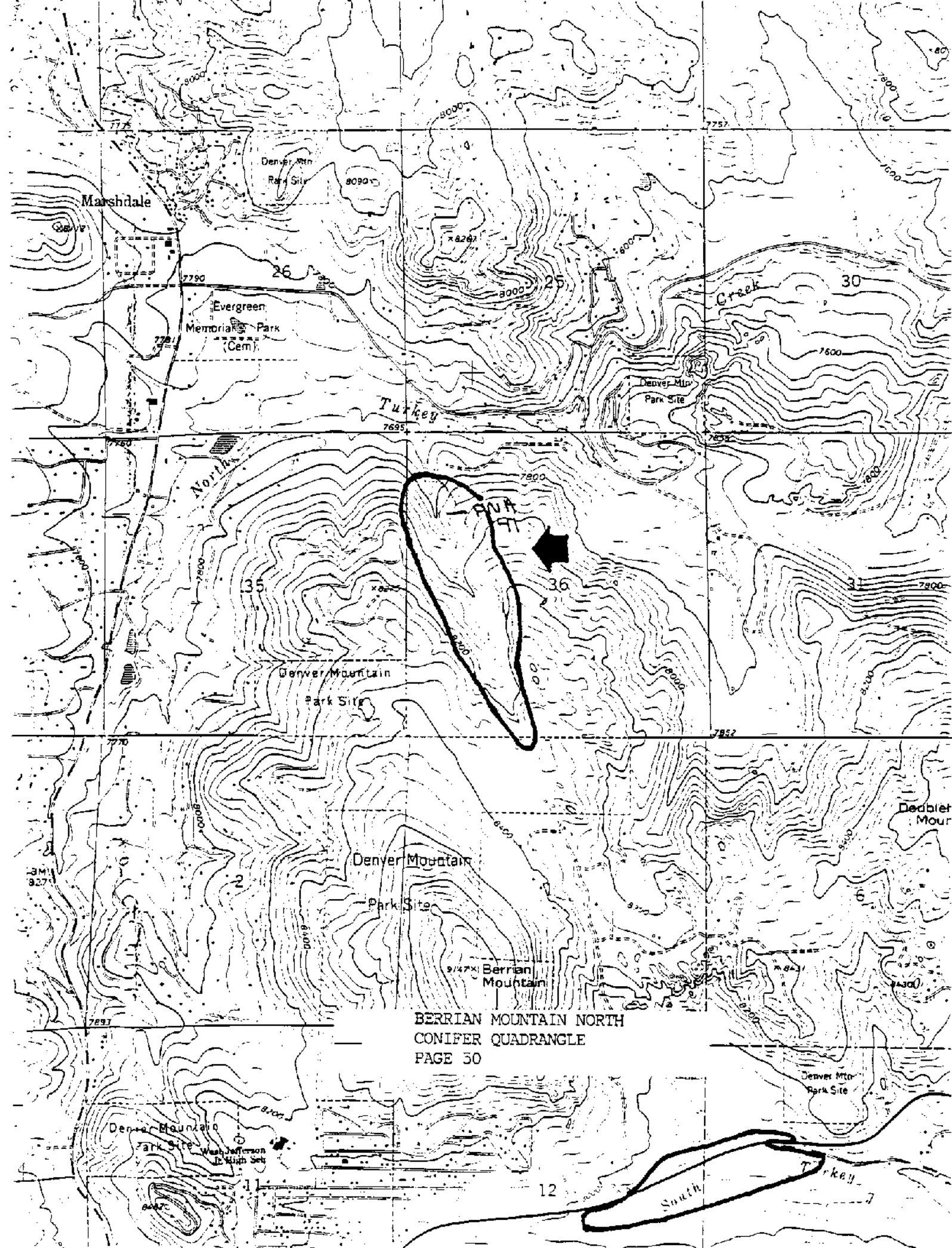
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Picea pungens/</u> <u>Alnus incana</u>	Montane riparian forest	B	G2	S2	-	-
<u>Accipiter gentilis</u>	Northern Goshawk	-	G4	S3S4	-	-

CURRENT STATUS: The area is currently unprotected and privately owned.

BOUNDARY JUSTIFICATION: The boundaries for this conservation site include the creek bottom and its adjacent slopes. The riparian corridor with the rare plant association, the goshawk nesting site, and the mountain lion den are all within this boundary. A forested buffer is included to protect the water source. The extent of buffer required for long term protection of the area as a Goshawk nesting site is unknown.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The area is threatened from the accelerated development currently taking place adjacent to this site. Protection will be needed to insure safety from development. Management requirements are minimal, although water quality and migration of exotic plants should be controlled. Elk populations should be kept in control to prevent overgrazing. The Goshawk is known to be sensitive to human disturbances and consideration should be given for this in any plans to develop the area.

Any trail development along the riparian corridor should be placed along the hillside and kept directly out of the streambed in order to minimize the effects upon the riparian zone.



BLACK HAWK MOUNTAIN-SOUTH

SIZE: 80 acres

BIODIVERSITY RANK: B5

LOCATION: Black Hawk Quadrangle (390574)

GENERAL DESCRIPTION: The Black Hawk Mountain Conservation Site is relatively small and includes two ridges and the valley in between. The area is primarily forested with aspen, although the west-facing slope has Douglas fir mixed in. A saddle between the two ridges supports a small montane grassland dominated by oatgrass (Danthonia parryi). Signs of heavy grazing exist, especially in the lower part of the site.

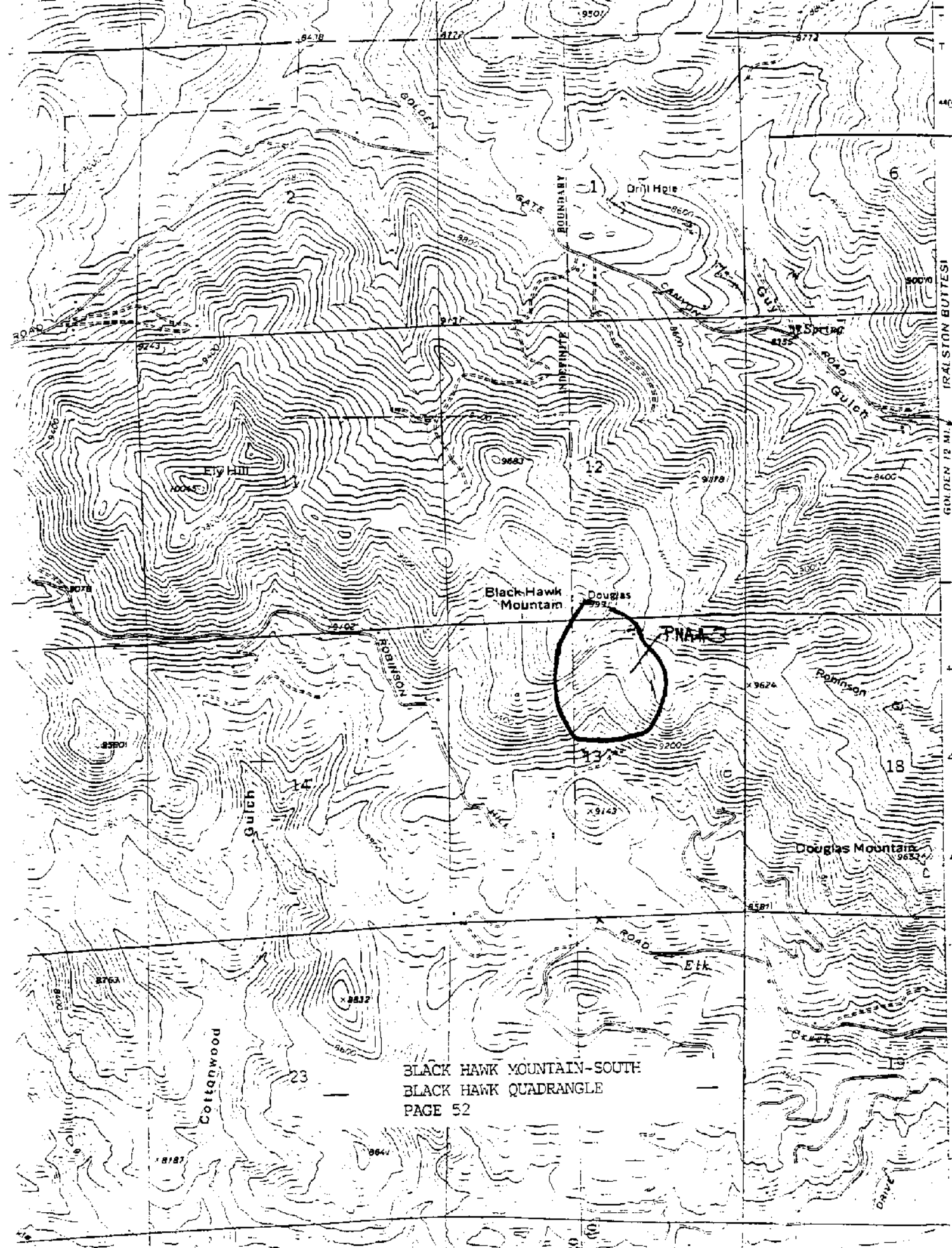
NATURAL HERITAGE RESOURCE SIGNIFICANCE: A small but nonetheless globally rare montane grassland is found in the saddle. These montane grasslands probably occurred more frequently before fire suppression. It is only one of two known occurrences for all of Jefferson County, however, due to its small size and degradation from grazing its quality is impaired. Adjacent meadows and saddles should be checked for this rare community.

CURRENT STATUS: This site has no special status. The site is privately owned.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Danthonia parryi</u>	Montane grasslands	C	G3	S2	-	-

BOUNDARY JUSTIFICATION: The preliminary conservation planning boundary of this site includes the globally rare plant community along with a forested buffer believed to be sufficient to protect the integrity of the natural community.

PROTECTION AND MANAGEMENT CONSIDERATIONS: It seems unlikely that the grassland will persist without active management practices. Grazing should be reduced, fires should be encouraged, and monitoring of the encroachment of the forest should occur. The owners of this property have indicated that they would be interested in seeing the quality of the land protected.



BLACK MOUNTAIN

SIZE: 841 acres

BIODIVERSITY RANK: B2

LOCATION: Meridian Hill Quadrangle (3910554)

GENERAL DESCRIPTION: The Black Mountain Conservation Site is a mid to upper montane forested site. Numerous granitic cliffs and boulder outcrops dot the landscape, providing excellent habitat for rock loving species. The slopes of the area are a mix of aspen, lodgepole pine, Douglas fir, and ponderosa pine, with some slopes only vegetated with shrubs and grasses. The area was logged approximately 75 years ago and the forest has regenerated in patches. In general, the steep and rocky south and southwest-facing slopes have not regenerated. These slopes are composed of a unique mixed shrub grassland community of oceanspray, raspberry, waxflower, and kinnikinnick, with various native grasses. Black Mountain Creek flows through the eastern part of the conservation site. The creek is dominated by Colorado blue spruce and willows. A hanging garden is situated along the creek and is a microhabitat for several rare species.

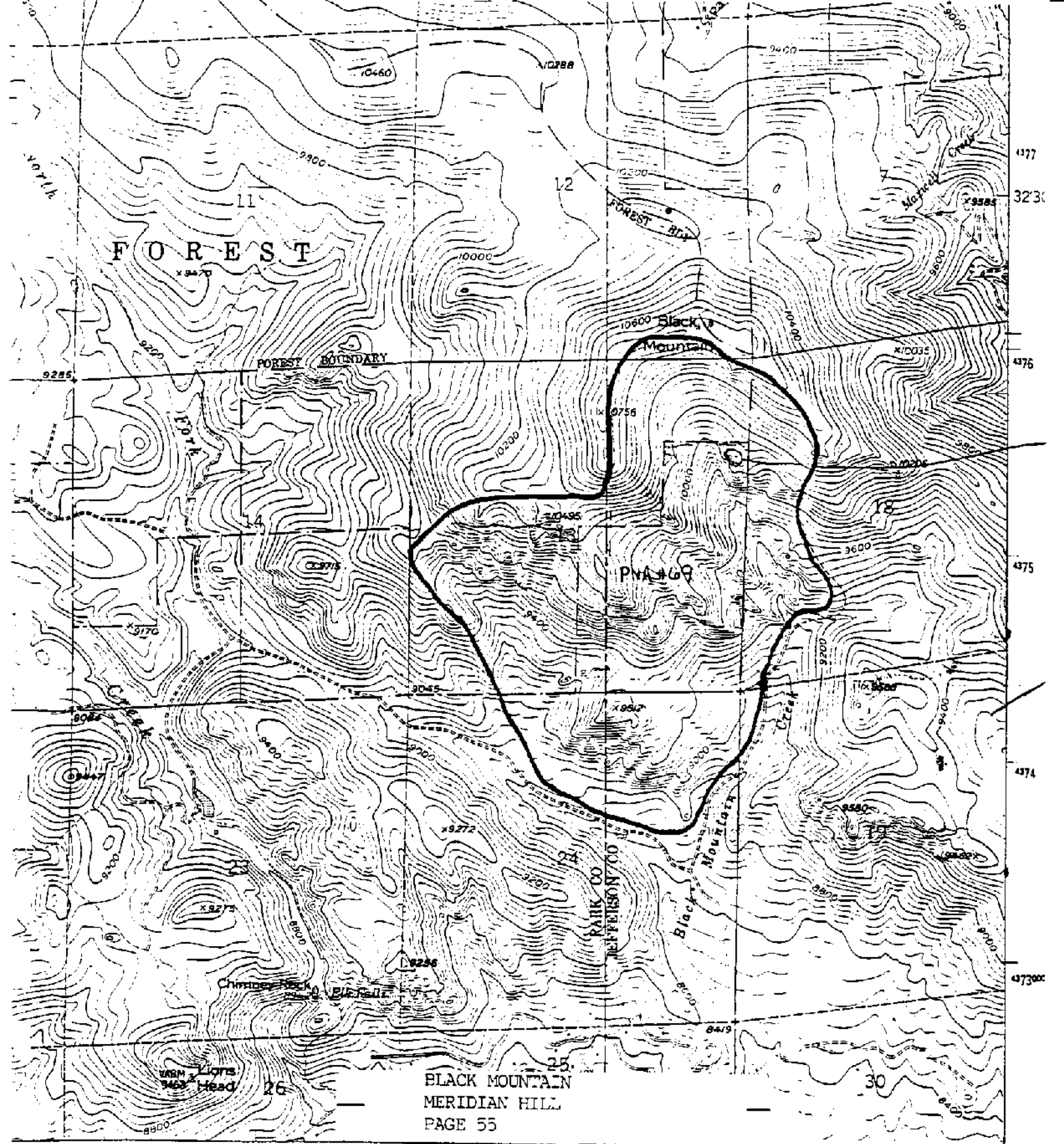
NATURAL HERITAGE RESOURCE SIGNIFICANCE: The Weber monkey-flower (Mimulus gemmiparus) was found at two rock outcrops near Black Mountain Creek. This globally rare plant (known from fewer than 10 sites worldwide) is endemic to the Front Range and is restricted to massive, smooth, sloping granitic outcrops provided with surface seepage water. It has been found at Rocky Mountain National Park and within Pike National Forest in Jefferson County, but this is the first record outside of the Park or Forest and within Jefferson County. A historical record for the yellow lady's slipper orchid (Cypripedium calceolus) exists for this area but the orchids were not visible during our survey.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Mimulus gemmiparus</u>	Weber monkey-flower	A	G2	S2	C2	1
<u>Cypripedium calceolus parviflorum</u>	Yellow lady's slipper	H	G5?	S?	-	2

CURRENT STATUS: Much of this site is part of the new Staunton State Park, a new addition to the Colorado State Parks system. Private and national forest lands surround the park. No special designation has been given the Conservation Site.

BOUNDARY JUSTIFICATION: The Conservation Site boundary includes the two known localities of the Weber monkey-flower and a buffer of adjacent habitat.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The two known subpopulations of the Weber monkey-flower are on state land, but adjacent land is private and should be considered for protective action so as to maintain the integrity of the Weber monkey-flower habitat. The hanging garden area with the Weber monkey-flower population is sensitive to human impact. Any trails near this area should avoid the hanging garden area or provide intense structure to visitor use. The hanging garden is an attractive site and will naturally attract people.



1929

0 1 MILE

0 1 KILOMETRE

0 1000 2000 FEET

INTERIOR GEOLOGICAL SURVEY, RESTON, VIRGINIA 22474

R 72 W R 21 W 4670000 E

39°3' 105°22'30"

4631 25 465

ROAD CLASSIFICATION

Primary highway, hard surface

Secondary highway, hard surface

Light-duty road, hard or improved surface

Unimproved road

Interstate Route

U. S. Route

State Route

1929

COLORADO

BLUE MOUNTAIN

SIZE: 1,590 acres

BIODIVERSITY RANK: B5

LOCATION: Eldorado Springs Quadrangle (3910583)
Ralston Buttes Quadrangle (3910573)

GENERAL DESCRIPTION: Blue Mountain consists of two distinct ridges running north-south, both with peaks above 9300'. The Mountain is called "blue" because of the bluish hues given off by the boulders. Both ridges have large lichen-covered granitic talus slopes that are distinct from a distance and unique in Jefferson County. Between the two ridges is an aspen grove with occasional dry meadows. The saddle gives way to a riparian corridor, unique in that the streambed is largely another talus slope with large lichen-covered boulders. The adjacent slopes are primarily aspen with maples and alders near the streambed. The western portion of the Conservation Site is forested with lodgepole pine on the upper slopes and aspen on the lower slopes. An artificial pond (dug in the late 1800's) surrounded by a dry meadow occurs at 8400' in the northwest corner. The pond supports an abundance of animals, including salamanders, waterfowl, frogs, and snakes. The meadow was seeded with smooth brome and timothy grass and no longer supports native communities. Logging of the area apparently occurred in the early 1900's with few large trees persisting, although it is densely forested today with Douglas fir, ponderosa pine, aspen, and lodgepole pine.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: One property owner reported having the rare wood lily growing amongst the aspen grove not far from the artificial pond. This plant was not observed by us, although it is not unusual for the plant to skip a year in flowering. The plant is distinctive and cannot easily be mistaken for any other species. The geology of this site is unique in Jefferson County and warrants a more thorough investigation of its significance.

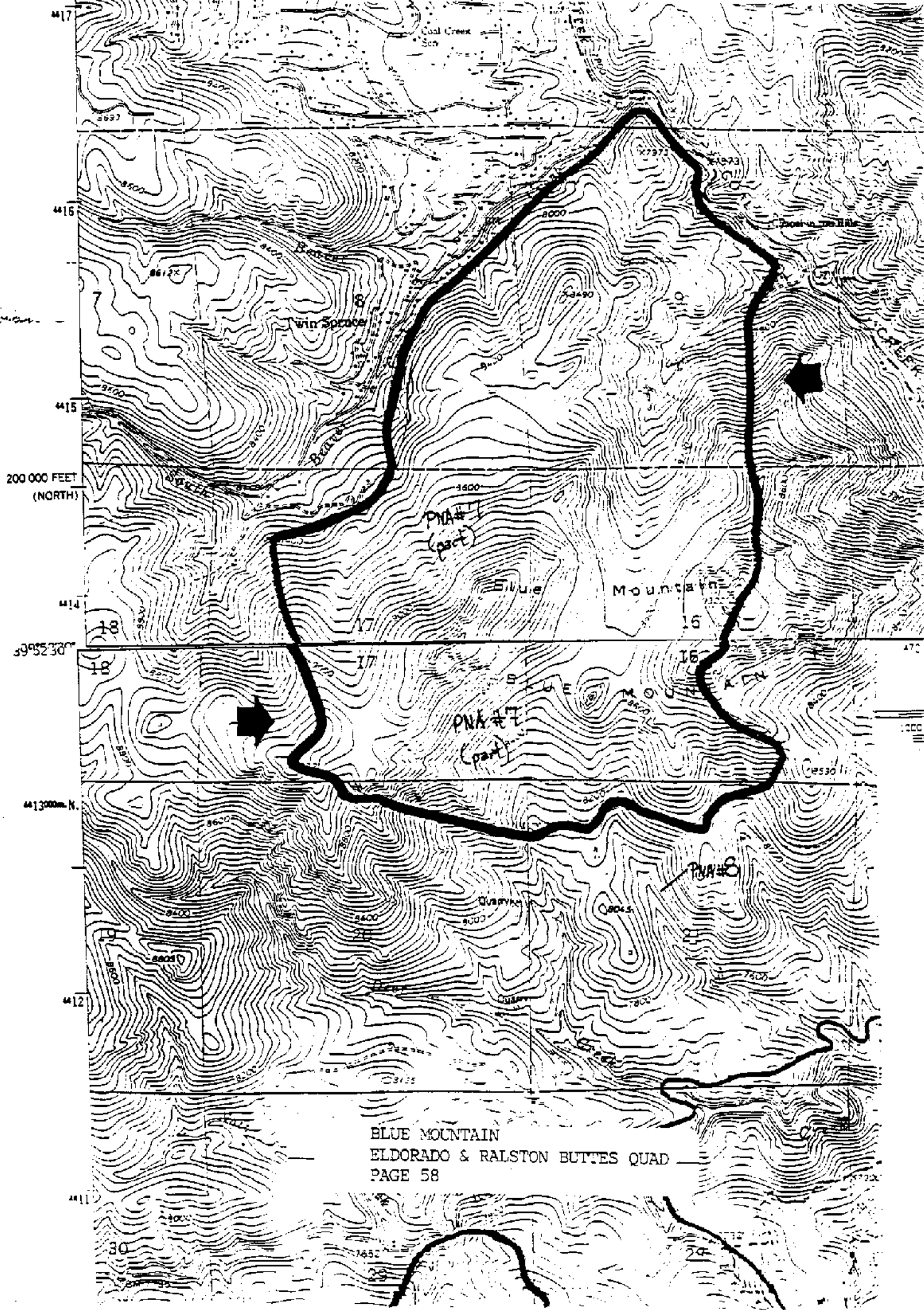
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Lilium philadelphicum</u>	Wood lily	-	G5	S2	-	S

CURRENT STATUS: Approximately half of the Conservation Site is publicly owned. The remainder of the area is in private hands.

BOUNDARY JUSTIFICATION: The Blue Mountain Conservation Site includes all the habitat that is known to support other populations of the Wood lily. A buffer is provided with the adjacent, unique lichen-covered talus.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The area that is in private ownership is recommended for protection. Management should be directed at

maintenance of the populations of the rare plants and the integrity of the riparian zone. The private land so protected would complement the existing public land, making a large recreation area that could adequately support hiking trails to the peaks and down the streambeds. Monitoring of the rare wood lily, a simple task, should take place on a yearly basis.



BLUEJAY GULCH

SIZE: 810 acres

BIODIVERSITY RANK: B5

LOCATION: Indian Hills Quadrangle (3910552)

GENERAL DESCRIPTION: Bluejay and Van Alderstien Creeks are two small perennial mountain streams that drain into Deer Creek Canyon. The highest elevation is at the headwaters of Bluejay Creek (8000') and the lowest elevation is where Van Alderstien Creek opens up (6800'). These two streams support a healthy riparian zone. The dominant upperstory trees are Douglas fir and ponderosa pine; mid-story trees are maple, aspen, and alder; while the lower layer is dominated by dogwood and thimbleberry. A few very large trees persist, especially along the creek bottom. The slopes of these creeks vary from grassland and oak woodlands on the south and southeast-facing slopes to Douglas fir and ponderosa pine on the north and northwest-facing slopes. On the ridge tops a mixture of pine and oak or Douglas fir and oak occur. The Bluejay Gulch and Van Alderstien Creek have a history of human use: intense logging in the early 1900's, some grazing, and a small christmas tree farm operation. The primary owner grows trees in a field and eventually plants them on old logging roads or in canopy openings. In a typical year he plants approximately 1000 trees and cuts approximately 500 during the Christmas season. All dead trees and snags are removed. This undoubtedly has a detrimental effect on bird and insect populations. However, the Christmas tree farming, at the current level, is a good example of subsistence agriculture with little apparent adverse effect on the land. Numerous signs of bear, elk, deer, and coyote were found in this area.

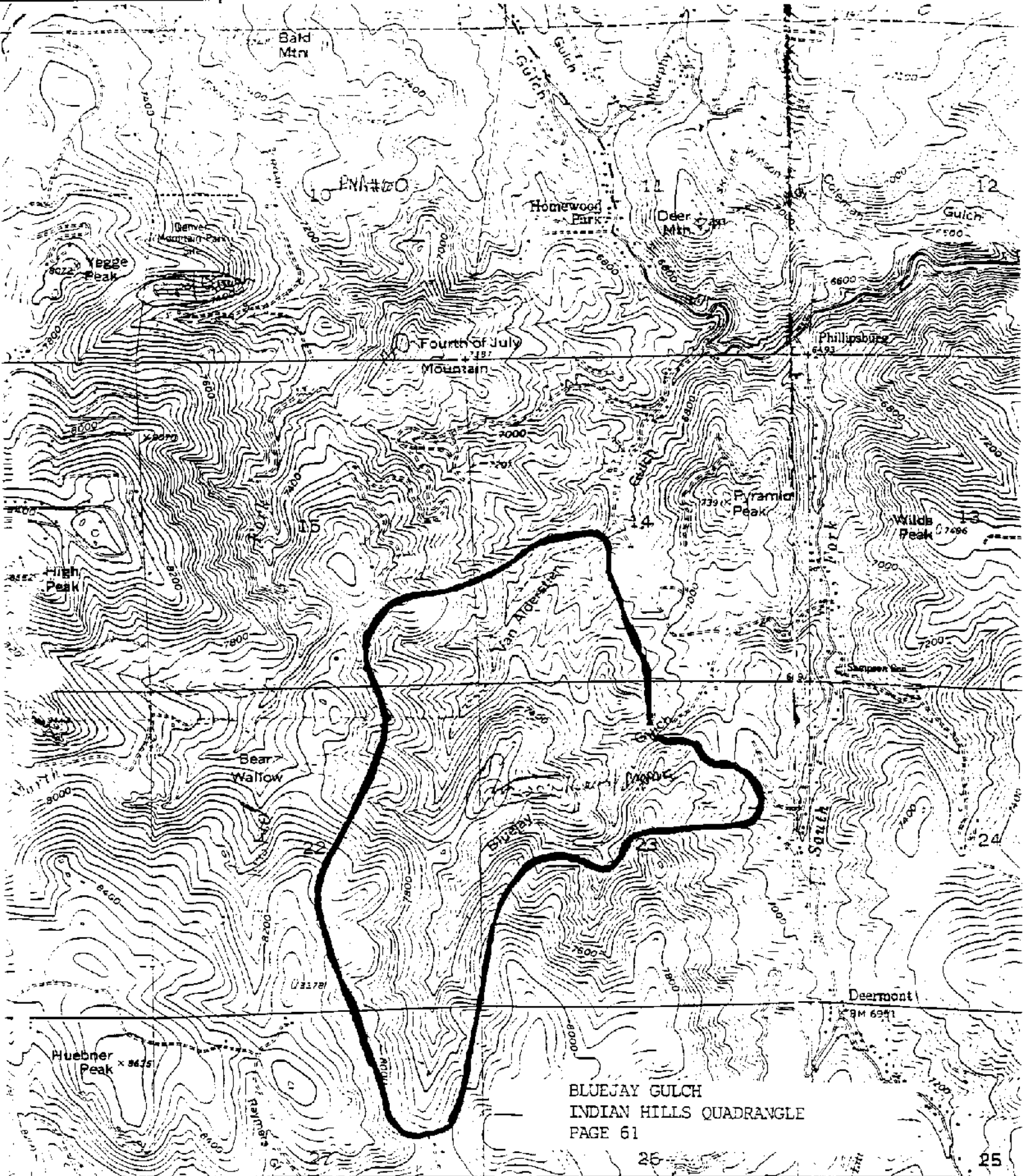
NATURAL HERITAGE RESOURCE SIGNIFICANCE: This area has a significant plant association of oak-mountain mahogany and mountain muhly found on south and southeast-facing slopes and ridges. An association of oak with either ponderosa pine or Douglas fir is also significant. Such communities are found on ridge tops.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Quercus gambelii-</u> <u>Cercocarpus montanus/</u> <u>Muhlenbergia montana</u>	Mesic oak thickets	B	G?	S?	-	-
<u>Pinus ponderosa/</u> <u>Quercus gambelii</u>	Foothills ponderosa pine scrub woodlands	B	G5	S4	-	-
<u>Pseudotsuga menziesii/</u> <u>Quercus gambelii</u>	Lower montane forests	B	G5	S3S4	-	-

CURRENT STATUS: No special status or protection is given this land. The land is privately owned.

BOUNDARY JUSTIFICATION: The boundaries for this conservation area include the two drainages, Bluejay and Van Alderstien, and their adjacent slopes. The slopes are necessary to protect the ecological processes that support the natural communities and their associated inhabitants. All known significant oak communities are included.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Protection of this area is recommended. Should such protection occur, management should include allowing dead trees to stand; this would increase the bird and insect diversity. Occasional controlled fires would help maintain natural communities in a more natural pattern and may be required in the long term. This site would accomodate recreational use in well-marked trails.



BLUEJAY GULCH
INDIAN HILLS QUADRANGLE
PAGE 61

25

25

SCALE 1:24,000

CONTROL INTERVAL 40 FEET

CATHEDRAL SPIRES AND BANNER PEAK

SIZE: 846 acres

BIODIVERSITY RANK: B4

LOCATION: Pine Quadrangle (3910543)

GENERAL DESCRIPTION: The Cathedral Spires-Banner Peak site is one of the most dramatic sites in Jefferson County. The scenery is one of sheer 200' granitic cliffs and boulders, surrounded by a dense evergreen forest. These peaks provide a striking view into the North Fork of the South Platte River and Pike National Forest. The vegetation of the area is predominately a Douglas fir-ponderosa pine forest with the understory species varying with aspect and openness. The richest areas are those with a more open canopy on gentle east and south-facing slopes. Several species of grasses dominate, including mountain muhly, little bluestem and June grass. The granitic boulders provide microhabitats for rock loving species. The more mesic of these niches support a rich fern, moss, and lichen community. These peaks have been recognized as a significant geological feature by the Colorado Natural Areas Program. The area has few exotic species and none are invasive. Although the area was apparently logged in the early to mid 1900's, general recovery has occurred and the forest is now composed of several age classes of trees. A pine beetle kill thinned out the forest and these trees were cut and removed by the landowner. Due to it's ruggedness the top of Cathedral Spires has never been logged. Although small, it is an example of an old growth stand which is rare in the Front Range. The area has a few horseback and hiking trails, along with a primitive dirt road. A few of the more accessible cliffs are used by rock climbers. Historically the area has been grazed although there were no signs of recent grazing. Bentley (1978) reported that Cathedral Spires has been used for a long time for its scenic values. In the early decades of the 20th century, summer moonlight hikes were made to the bluffs, ending at about sunrise. In general, the site remains relatively undisturbed and of very high quality.

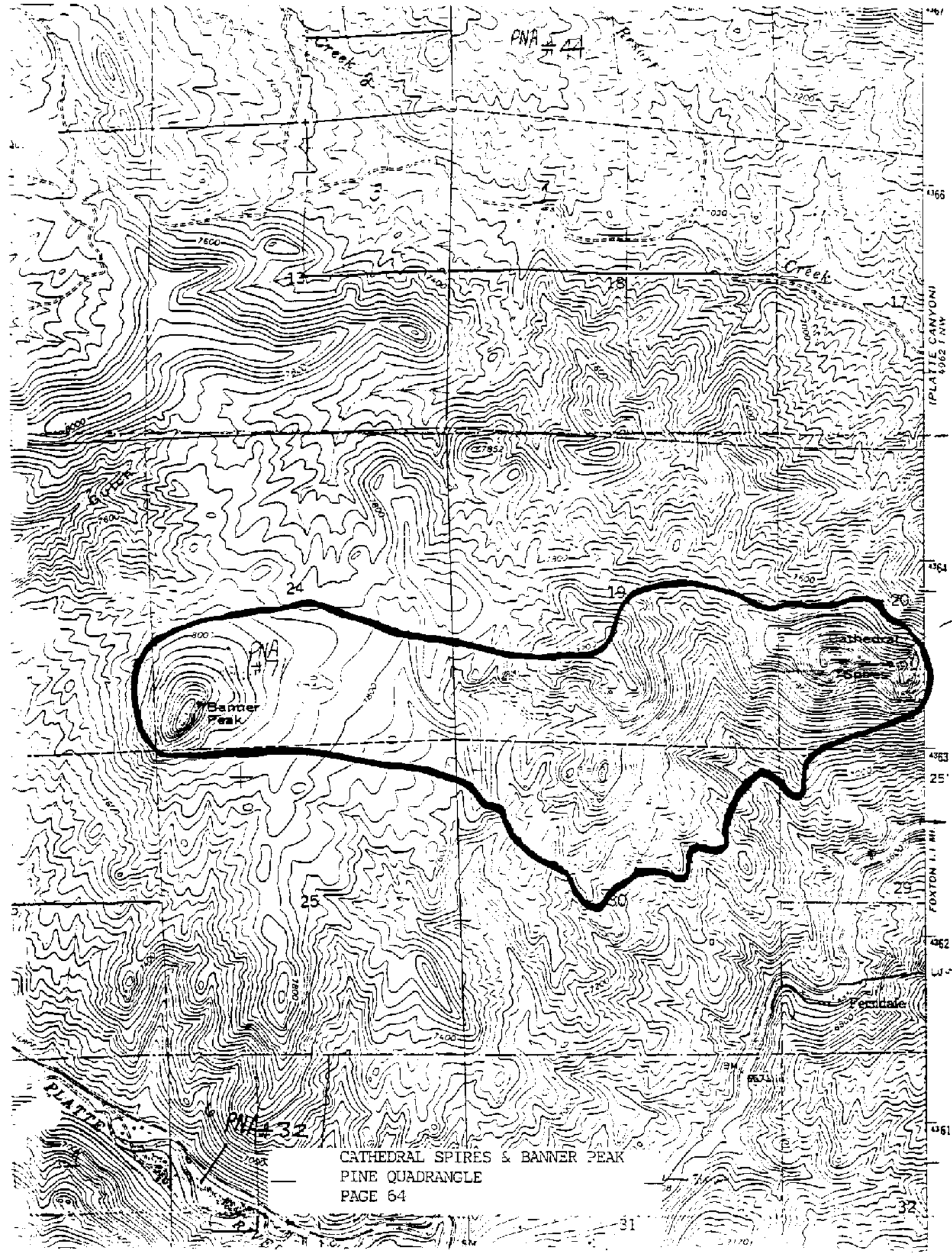
NATURAL HERITAGE RESOURCE SIGNIFICANCE: The geology of this site is the most striking feature. A small old growth timber stand is atop Cathedral Spires and a state-significant plant association covers approximately 80 acres between Cathedral Spires and Banner Peak. This area is also within the elevational range of the montane skipper (*Hesperia leonardus montanus*) habitat, and although no sightings were reported, we expect this area to be used by this globally rare subspecies of skipper. The Grass fern, *Asplenium septentrionale*, occurs in the cool, shaded rock crevices of the Spire.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Pinus ponderosa/</u> <u>Muhlenbergia montana</u>	Foothills ponderosa pine savannas	B	G5	S2S3	-	-

CURRENT STATUS: The ownership of the site is private and public. The area receives no special protection.

BOUNDARY JUSTIFICATION: The conservation planning boundaries include the geological features and the state rare plant associations of concern. What are believed to be adequate buffers are also included.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Protection of this site is recommended. The site can be managed to include other compatible recreational activities. Management of the area would only require periodic monitoring of the Foothills ponderosa pine savanna. The area should be surveyed for the presence of the Montane skipper. Additional monitoring should be conducted if that species is found within the Conservation Site.



CHATFIELD LAKE

SIZE: 118 acres

BIODIVERSITY RANK: B5

LOCATION: Littleton Quadrangle (3910551)

GENERAL DESCRIPTION: Chatfield Lake is a result of a dam on the South Platte River. At the southern part of the lake, where the effects of the dam are weakened, a wetland and groves of cottonwood trees are found. This area is known to harbor breeding colonies of Great blue herons and Double crested cormorants. The foraging adult Great blue herons utilize a large area, but concentrate in the marshes and shores of the Chatfield Lake area. The cormorants feed in the more open water of the reservoir.

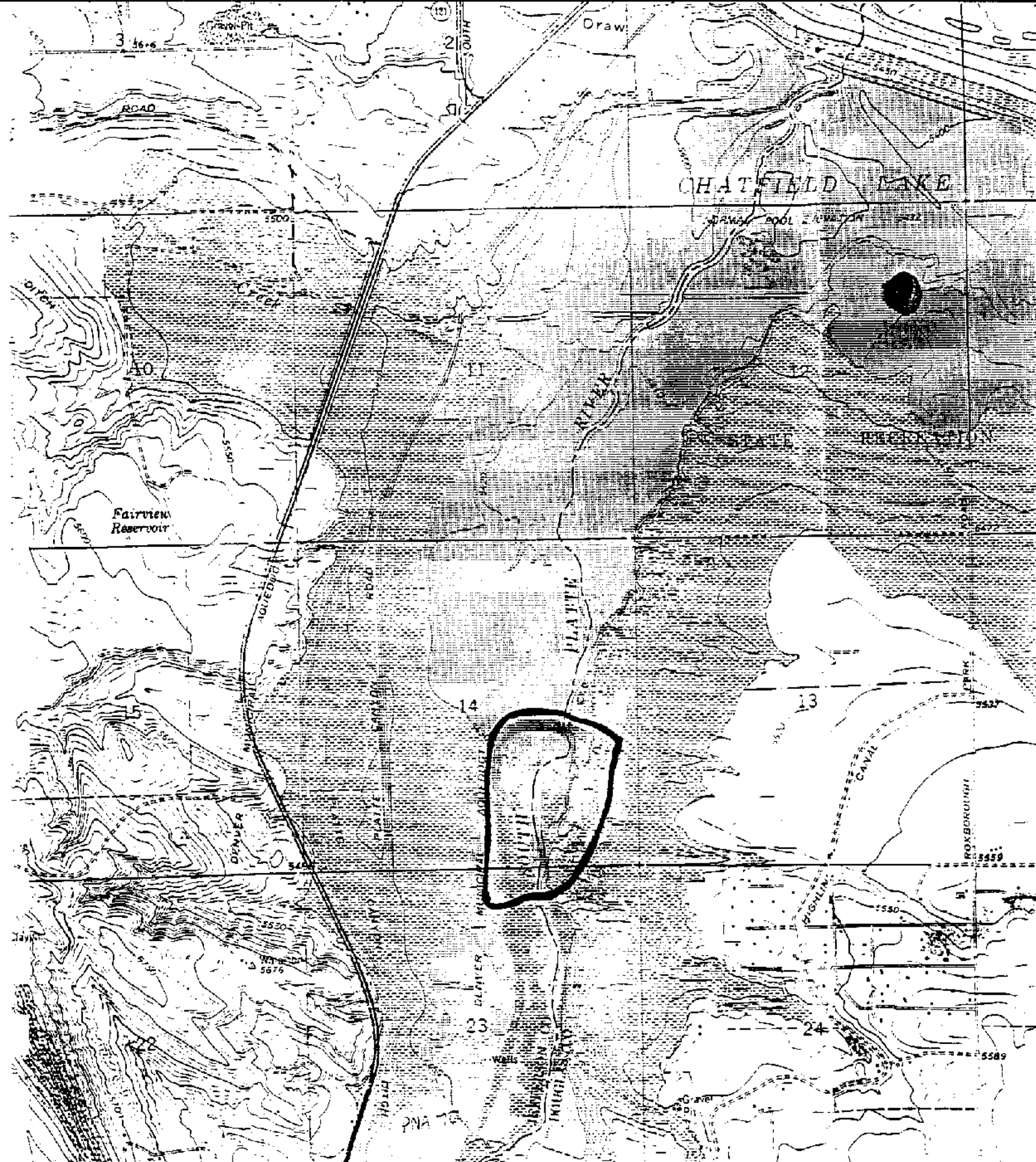
NATURAL HERITAGE RESOURCE SIGNIFICANCE: Colonies of Great blue herons and Double crested cormorants are of state significance. Both colonies were well known, but were revisited and mapped. Although the birds that make up heron rookeries are often not very rare, the fact that they gather in few sites during the highly sensitive breeding season makes the nesting areas of much higher significance. For example, the Great blue heron is known from nearly all of Colorado, but is known to breed in only 63 active colonies (Miller and Graul 1987). Double crested cormorants are known to breed in only 11 colonies throughout the state, but are also increasing in numbers (Andrews and Richter 1992). Various lake habitats support these populations and the adults wander throughout the vicinity to forage. This colony is well known and currently receiving the attention of the Colorado Division of Wildlife and the Department of Parks and Outdoor Recreation. Wildlife viewing areas have been established.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
	Colonial bird rookery	A	G5	S3	-	-
<u>Ardea herodias</u>	Great blue heron	A	G5	S3	-	-
<u>Phalacrocorax auritus</u>	Double crested cormorant	A	G5	S3B	-	-

CURRENT STATUS: State Parks and the Denver Water Board own the land.

BOUNDARY JUSTIFICATION: The Conservation Site boundary includes the known heron and cormorant nesting sites and allows for some shifting of the rookery over the years.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The Division of Parks and Outdoor Recreation and the Division of Wildlife are actively managing this colonial nesting bird rookery. Interpretive measures are taken to provide excellent viewing and educational opportunities while providing protection from disturbance by the nesting birds. Although these species have their numbers enhanced by the reservoir, they should receive continued protection. These rookeries are known to migrate up or downstream from year to year, hence the need for protecting an area larger than that used during a single season.



CHATFIELD LAKE
LITTLETON QUADRANGLE
PAGE 67

DEADMAN GULCH

SIZE: 118 acres

BIODIVERSITY RANK: B3

LOCATION: Morrison Quadrangle (3910562)

GENERAL DESCRIPTION: This gulch, the primary drainage from Lookout Mountain, has been extensively surveyed for moths and butterflies by state experts. The presence of a globally rare moth and other state rarities suggests its importance as a conservation site. Due to the already significant amount of survey, we incorporated existing information rather than duplicate effort.

NATURAL HERITAGE RESOURCE SIGNIFICANCE:

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
[verifying the sci name]	a moth	B	G1	S1	-	-

CURRENT STATUS: The site is currently partially owned by Jefferson County (in Apex Open Space Park) with the remainder in private ownership, and receives no special status.

BOUNDARY JUSTIFICATION: The boundary for this Conservation Site are generally the watershed boundaries. The rare species known to occur here are depend on the vegetation and hydrologic regime (in particular moisture availability).

PROTECTION AND MANAGEMENT CONSIDERATIONS: It is recommended that special status should be sought using available protection tools. Special concerns would be the ability to manage the vegetation to have a "natural" mosaic of openings and forest/shrubland. Tools such as fire and vegetation management may be considered. The application of pesticides should be carefully evaluated to assure that either vegetation or faunal components are not impacted negatively. Finally, there is some concern that high levels of night lighting in the vicinity of some moth communities may attract individuals of at least some species, preventing them from carrying out normal reproductive behavior. Whether or not this is already occurring with the proximity to Golden should be investigated.



T. 3 S.

T. 45.

4398

497

496

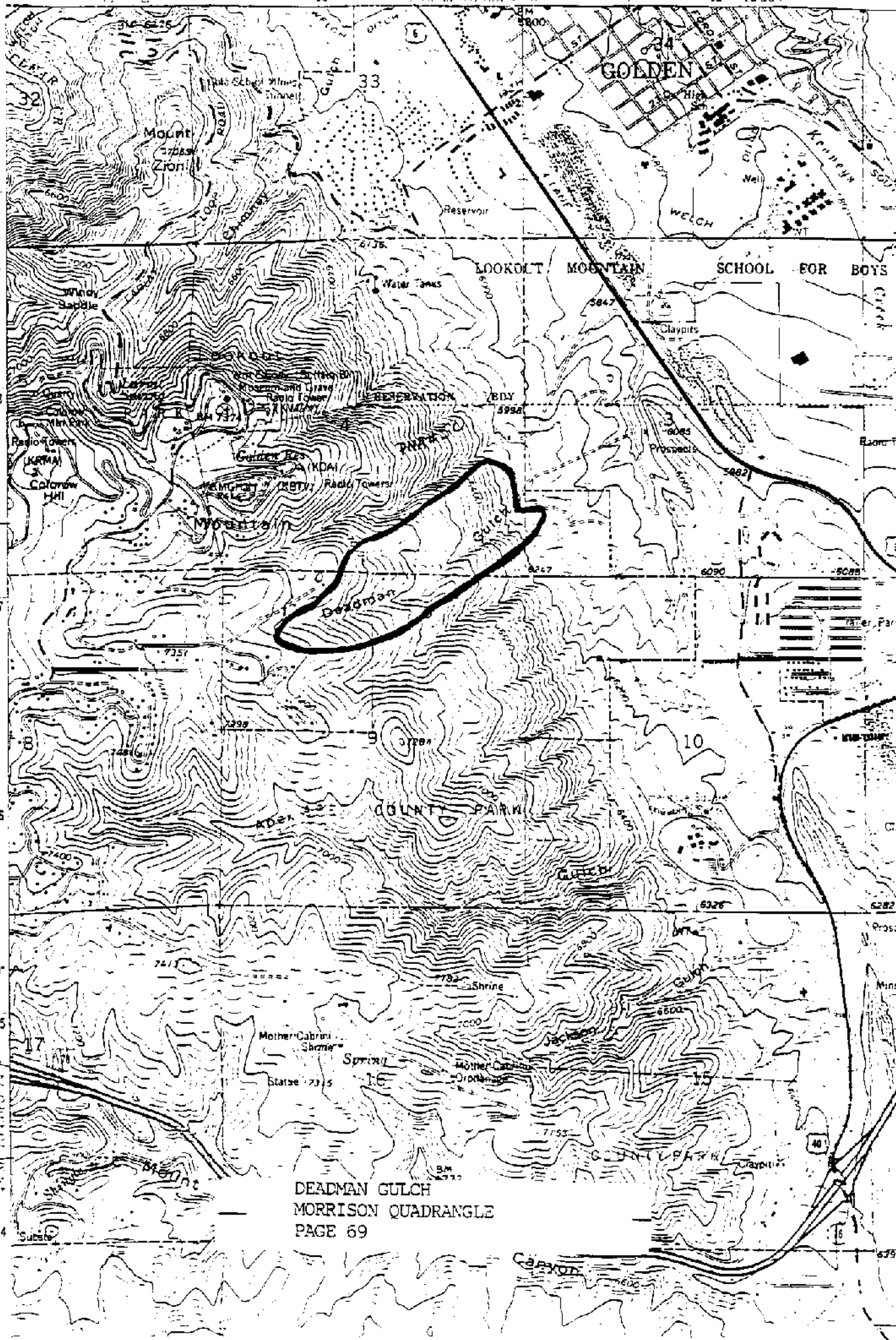
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[illegible]

DEADMAN GULCH
MORRISON QUADRANGLE
PAGE 69



INDIAN GULCH

SIZE: 1,154 acres

BIODIVERSITY RANK: B2

LOCATION: Golden Quadrangle (3910572)
Ralston Buttes Quadrangle (3910573)
Evergreen Quadrangle (3910563)

GENERAL DESCRIPTION: Indian Gulch drains into Clear Creek just above the City of Golden and provides an excellent example of the lower timberline transition zone. It is an area with extreme topography: Indian Gulch, itself, drops over 1400' in elevation in less than 1½ miles, producing steep slopes and occasional 100' cliffs. The dry low elevation slopes are dominated by needle grass, or more commonly a mountain mahogany/needle grass community with occasional patches of skunk bush. Towards the upper end of Indian Gulch (7000'), the slopes become less steep and gradually become rolling hills that change to flat topped ridges. Ponderosa pine and junipers become scattered amongst the mountain mahogany shrubs, with big blue stem, little blue stem, and needle grasses dominating the ground layer. Large patches of big blue stem dominate a few of the gentle slopes, while the ridge tops are forested with a mature ponderosa pine stand.

The drainages in this area support a narrow riparian zone dominated by plains cottonwood trees, although these trees are discontinuous as the moisture and substrate change. In general, the gulches are dry with occasional moist areas that persist throughout the summer. These moist areas provide a microhabitat for mesic plants such as orchids, Juncus, Carex, and other moisture loving species. Signs of black bear and mule deer were present throughout. Indian Gulch has a rich butterfly fauna and is the type locality for numerous butterflies described by in the earlier decades of this century (Miller and Brown 1981).

The area is not pristine, but neither has it been significantly degraded. Signs of past grazing are evident, although no recent grazing has occurred. Almost no trails or roads exist outside of the Crawford Peak area. Although the usual introduced grasses and herbs are present, none appear to be dominant in any one place.

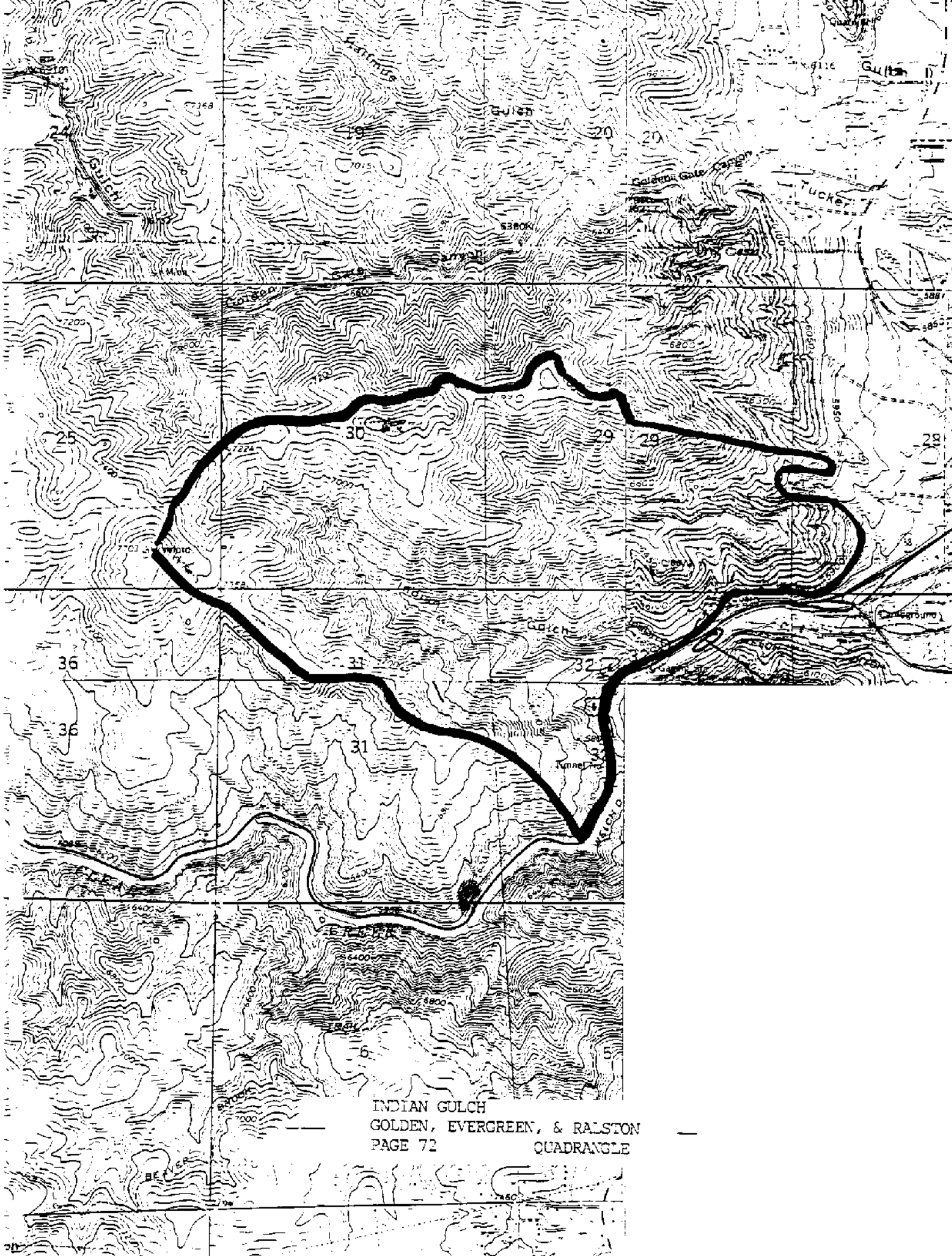
NATURAL HERITAGE RESOURCE SIGNIFICANCE: This site is host to several significant communities and a rare orchid; it is the best example in Jefferson County of a low elevation transition site; and displays a variety of habitats, including an unusual mature stand of ponderosa pine. Along with the diverse habitats, this conservation site has two globally significant plant associations: ponderosa pine/mountain mahogany/big blue stem, and mountain mahogany/needle grass. Two populations of the rare Ute's ladies tresses orchid was found in Indian Gulch and Clear Creek. The type locality for this orchid is the Clear Creek population.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Spiranthes diluvialis</u>	Ute ladies' tresses	C	G2	S1	T	1
<u>Cercocarpus montanus/</u> <u>Stipa comata</u>	Mixed montane shrublands	B	G2	S2	-	-
<u>Pinus ponderosa/</u> <u>Cercocarpus montanus/</u> <u>Andropogon gerardii</u>	Foothills ponderosa pine scrub woodland	C	G2	S2	-	-

CURRENT STATUS: The land is entirely within private ownership.

BOUNDARY JUSTIFICATION: The conservation site includes all the significant plant associations and rare plants plus the mature ponderosa pine forest. The watershed boundaries and slightly beyond are used as the best approximation of a means of assuring the protection of the integrity of the ecosystem. Zoological inventory was not conducted at this site, but is highly recommended.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The area appears to be stable and little management would be needed to maintain its current status. The rare orchid should be monitored as suggested by the U. S. Fish and Wildlife Service. Fires are a natural element in this environment and should be considered as a management tool. It's proximity to Golden makes this site highly vulnerable to alteration. To ensure the perpetuance of it's natural features this area is highly recommended for protection.



INDIAN GULCH
GOLDEN, EVERGREEN, & RALSTON
PAGE 72 QUADRANGLE

KEN CARYL HOGBACK COMPLEX

SIZE: 3,208 acres

BIODIVERSITY RANK: B3

LOCATION: Indian Hills Quadrangle (3910552)
Littleton Quadrangle (3910551)

GENERAL DESCRIPTION: The Ken Caryl hogback complex is a linear corridor formed by two parallel hogbacks running north-south, separated by a narrow valley. The valley and the lower slopes of the hogbacks are primarily a xeric tallgrass prairie, while the upper slopes and ridges are a shrub community of either Gambel oak, mountain mahogany, or skunk bush, with an occasional ponderosa pine and juniper. Several perennial streams dissect the hogbacks, although Dutch Creek is the only perennial stream not adjacent to a road. Two major roads, Ken Caryl Avenue and Deer Creek Canyon Road, also bisect the hogbacks. Excessive human encroachment threatens to consume much of this area as the Ken Caryl development to the west and Lakewood to the east expand.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: This hogback complex supports a fairly large and healthy xeric tallgrass prairie remnant. Although not continuous within the valley between the hogbacks, large patches of this grassland type exist, especially north of Ken Caryl Avenue and south of Deer Creek Canyon Road. A rare annual grass occurs on the hogback south of Deer Creek and two populations of Bell's twinpod were found on a slope near Dutch Creek and on the hills just east of I-470. The status of the Bell's twinpod populations is being investigated relative to its possible hybrid characters. Zoological survey on portions of this Conservation Site revealed no rare, threatened or endangered species; however, the effort needed to determine the presence of such species may need to be increased. The hogbacks are known to be used by Golden eagles. No active nests were located, but the eagles probably use the prairie dog town as a food source. Several state-rare butterfly species are associated with the tall grass prairie habitat and should continue to be sought.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Aristida basiramea</u>	Forktip three-awn	-	G5	S?	-	3
<u>Physaria bellii</u>	Bell's twinpod	B	G2	S2	C2	1
<u>Andropogon gerardii</u> - <u>Schizachyrium scoparium</u>	Xeric tallgrass prairie	B	G3	S2?	-	-

CURRENT STATUS: Ken Caryl Ranch owns a large portion of the northern end of this conservation site. Portions of the area are managed as open space by the Ken Caryl Homeowner's Association and contain some of the most significant portions of the area. The southern portion of the conservation site is primarily owned by Martin Marietta

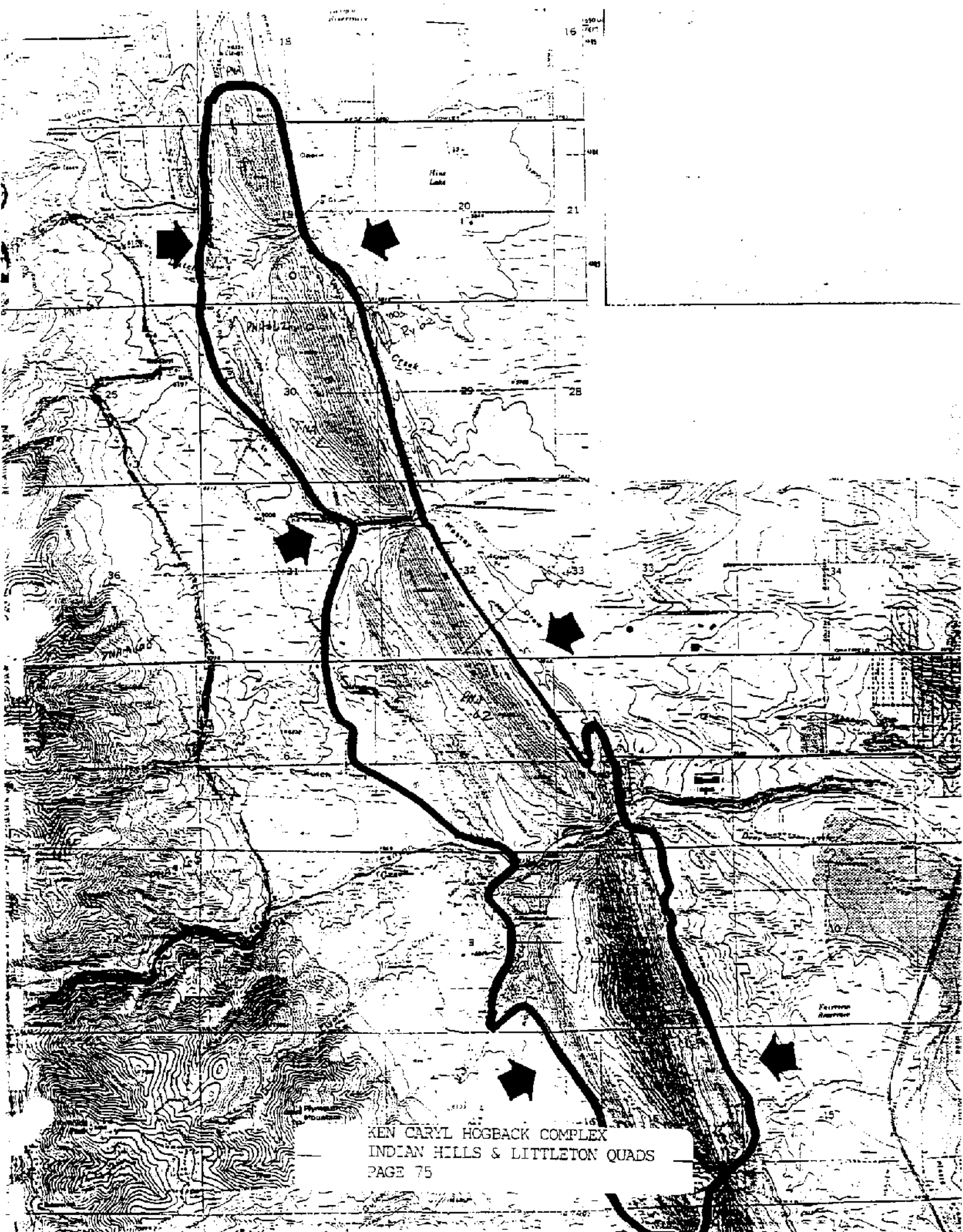
and Manville Sales Corporations. Private ownership also occurs throughout. The Jefferson County Open Space and Denver Mountain Parks manages a small portion in the southern half on the western hogback.

BOUNDARY JUSTIFICATION: The boundary for this conservation area include the parallel hogbacks and their slopes. It includes all the known xeric tallgrass prairie remnants located in the valley and on the lower slopes of the hogbacks and the known populations of rare plants. A disjunct group of hills to the east of the hogbacks, just east of I-470, is included because of a dense population of the rare Bell's twinpod. A buffer zone along the perimeter is necessary due to development pressures nearby.

PROTECTION AND MANAGEMENT CONSIDERATIONS: This large Conservation Site presents an excellent opportunity to combine land-use planning and conservation priorities. The hogbacks have already been identified as high priorities for open space in Jefferson County (BRW, Inc. 1989). With the results of this study, the area is known to be highly significant for the protection and enjoyment of Jefferson County's natural diversity. This area presents a now rare opportunity to conserve a large area of a vanishing ecosystem type and its associated fauna and flora. Management at this scale, although complex, would allow for the protection of the sensitive areas while providing high quality education and recreation opportunities.

The integrity of this ecosystem will require management. Past agricultural and other land uses introduced weeds into the site which should be controlled. Management of this grassland system will require (in the long term) mixed methods including weed control, possible browsing/grazing, and fire management. The latter will present challenges largely due to the proximity to human residences; however, modern fire management technology presents safe methods. If livestock grazing is seen to introduce too many non-native species, mowing could be used to emulate the actions of livestock. Deer herds, already abundant, will naturally assist in this activity.

It is known that the size of a Conservation Site is often related to its ability to sustain natural species diversity and the mosaic of habitats once found. The size of this Conservation Site could become a ecologically viable island within the urban area.



KEN CARL HOGBACK COMPLEX
INDIAN HILLS & LITTLETON QUADS
PAGE 75

LANDING STRIP WETLANDS

SIZE: 68 acres

BIODIVERSITY RANK: B5

LOCATION: Conifer Quadrangle (3910553)

GENERAL DESCRIPTION: The wetlands of concern are part of the Meyer Ranch Open Space owned by Jefferson County. The site is adjacent to US 285 and has one trail crossing it. The wet meadow of this site contains extensive Carex nebrascensis stands.

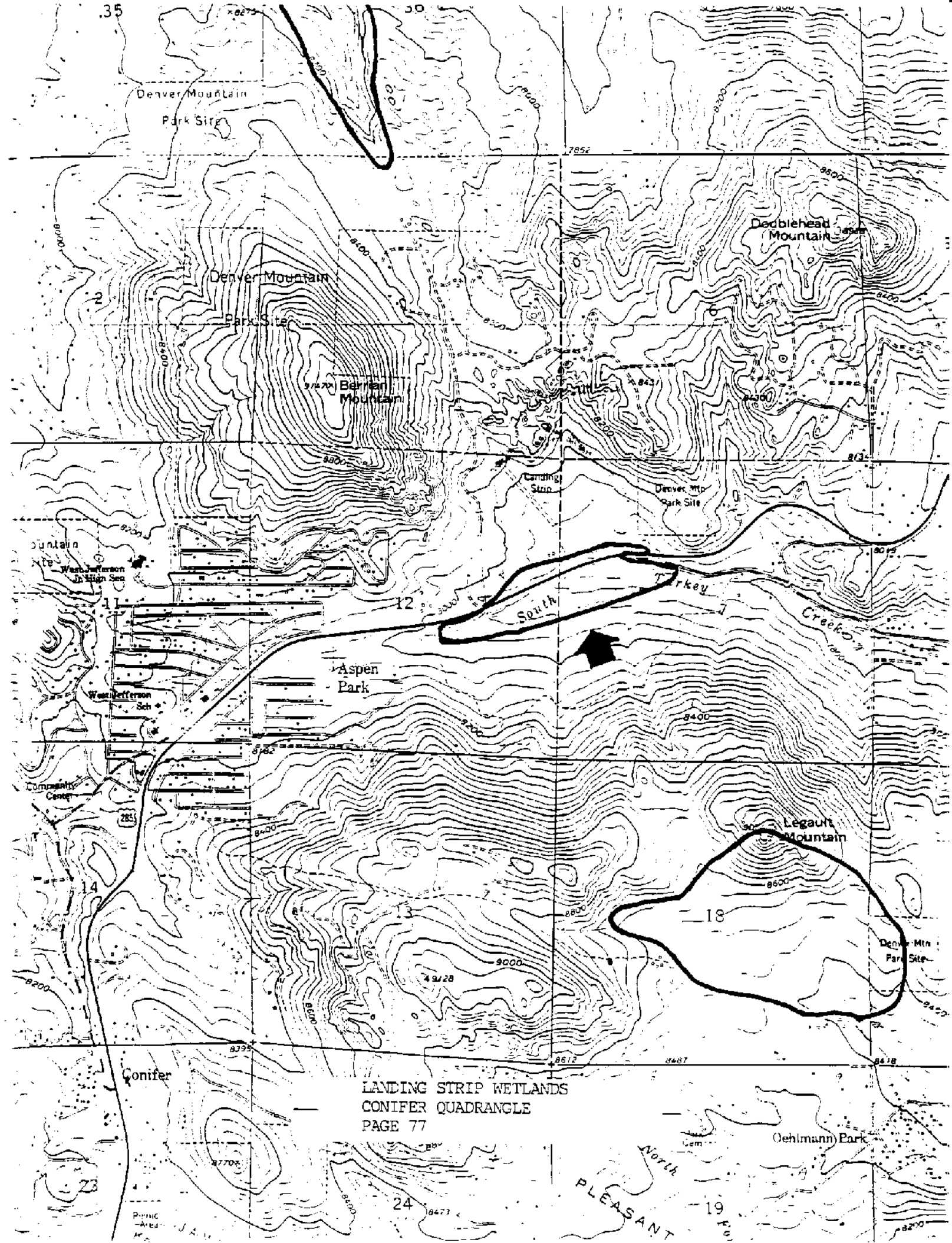
NATURAL HERITAGE RESOURCE SIGNIFICANCE: A good example of the Great Plains wet meadow community is found along side US 285. This plant association is, along with most wetland habitats, severely threatened. Public ownership provides an opportunity to restore the habitat to a higher quality. The edges have been invaded by non-native thistles and weedy grasses.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Carex nebrascensis</u>	Great Plains wet meadows	B	G4	S?	-	-

CURRENT STATUS: Jefferson County Meyer Ranch Open Space

BOUNDARY JUSTIFICATION: The boundary for this Conservation Site incorporates wetland and portions of the supporting drainage.

PROTECTION AND MANAGEMENT CONSIDERATIONS: While mowing will maintain the general structure of this community, consideration should be given to the use of periodic controlled fire for help in the elimination of exotic species.



LANDING STRIP WETLANDS
CONIFER QUADRANGLE
PAGE 77

North
PLEASANT

LEGAULT MOUNTAIN

SIZE: 262 acres

BIODIVERSITY RANK: B5

LOCATION: Conifer Quadrangle (3910553)

GENERAL DESCRIPTION: Legault Mountain overlooks a wet montane meadow on both the north and south side. The north side is already protected by Jefferson County Open Space (Meyer Ranch). The south side is the concern of this conservation site. Few unprotected intact wetlands exist in Jefferson County. The wetland is in good shape, with few introduced species and a mixture of wetland plants. Surrounding the wetlands are dry meadows which blend into steep slopes forested with ponderosa pine and Douglas fir. These slopes have been logged, but have regenerated. Legault Peak is a rocky crag with good habitat for rock-loving plants and animals. The entire area is good habitat for a variety of wildlife species. The wetland was identified as a priority for protection in the Jefferson County Open Space Master Plan (BRW, Inc. 1989). The wetland has yearly light cattle grazing from November to April and the grazing appears to do little harm to the integrity of the wetland. Offspring of the original 1867 homesteaders (Legaults) are still the primary owners of this wetland. Part of their modern house incorporates the original 1867 log cabin. Adjacent to this conservation site are two other protected areas: Meyer Ranch and a Denver Mountain Park Site.

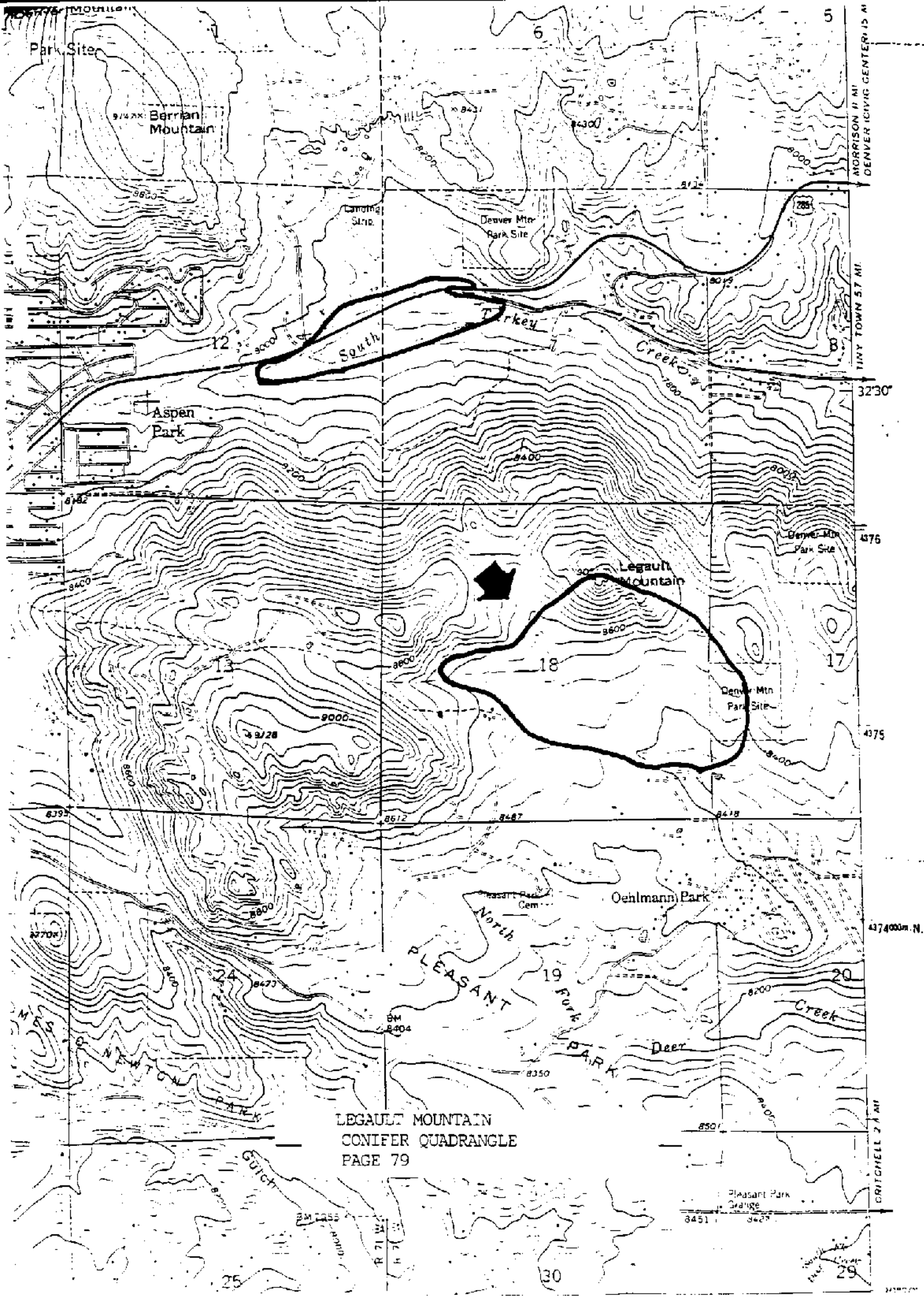
NATURAL HERITAGE RESOURCE SIGNIFICANCE: The wetlands are the major significant resource of this area, although the rock outcrops atop Legault Peak have the grass fern growing in and amongst the cracks. The wetlands should be considered of statewide significance.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Carex nebrascensis</u> wetlands	herbaceous wetlands	B	G4	S7	-	-

CURRENT STATUS: The land is in private ownership, having no special protective status.

BOUNDARY JUSTIFICATION: The conservation planning boundaries include the entire wetland and the surrounding slopes draining into the wetland. Watershed boundaries are especially important considerations in an area with the potential for urbanization.

PROTECTION AND MANAGEMENT CONSIDERATIONS: No immediate threats to the area were observed. Management which would maintain the integrity of this high quality wetland is recommended.



LITTLE PARK WEST

SIZE: 504 acres

BIODIVERSITY RANK: B4

LOCATION: Evergreen Quadrangle (3910563)

GENERAL DESCRIPTION: Little Park West is a low elevation mountainous site north of Beer Creek Canyon. The site includes two peaks (approximately 7600') and three drainages with intermittent streams. The area displays one of the best examples of ponderosa pine communities within Jefferson County. Although ponderosa pine is common throughout the foothills of the Front Range it is also one of the most sought after sites for alteration. High quality sites are becoming scarce. The lower elevations of this site support a ponderosa pine-Douglas fir/mountain mahogany/grass community. The upper elevations are more densely forested with ponderosa pine, while the ridge tops are more open. The ponderosa pine community is healthy, with several age classes of trees and shrubs along with good grass coverage, mainly mountain muhly. Signs of past logging and grazing persist, although there is no evidence of either occurring at present.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: This area includes one of the best examples of a ponderosa pine stand as well as a community of ponderosa pine with mountain mahogany. This community occurs in a mosaic pattern throughout the site. With current trends in land use and habitat management, this community could be considered one of the most threatened in the foothills region. The past history and threats to the site dictated a "B" occurrence rank, management and restoration could raise this to an "A" rank.

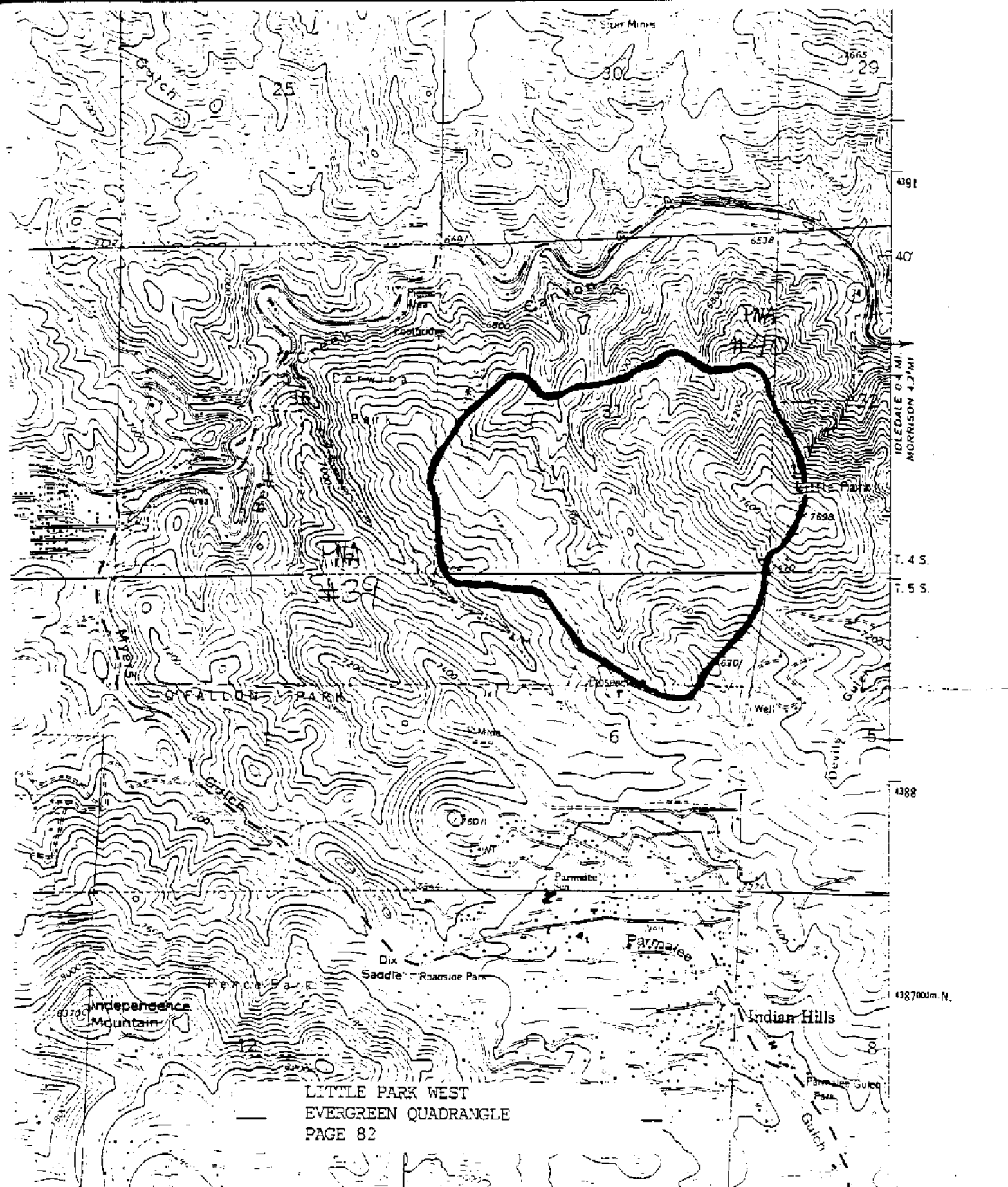
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Pinus ponderosa/</u> <u>Cercocarpus montanus</u>	Foothills ponderosa pine scrub woodlands	B	G4	S4	-	-

CURRENT STATUS: Lair O' The Bear County Park is directly adjacent to this conservation site. Also Little and Cowania Park are nearby. The conservation site is privately owned and has no special designation.

BOUNDARY JUSTIFICATION: The conservation site boundaries includes the mature stand of ponderosa pine and it's significant associations along with a buffer.

PROTECTION AND MANAGEMENT CONSIDERATIONS: We recommend that this site be protected. It's proximity to the Lair O' the Bear County Park presents attractive possibilities as a buffer or addition. The area should be managed to preserve the

quality of the ponderosa pine forest; controlled burns could enhance the natural succession of the site.



LITTLE PARK WEST
EVERGREEN QUADRANGLE
PAGE 82

R. 71 W. 47600m E. R. 72 W.

INTERIOR- GEOLOGICAL SURVEY RESTON, VIRGINIA-1980, 88

19 MI. TO U.S. 285 105°15'

39°37'30"

INDIAN HILLS
4962' 1.5W

1 MILE

1000 FEET
1000

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty - - - - -
Medium-duty - - - - - Unimproved dirt - - - - -
U.S. Route ——— State Route ———

MIRAMONTE POND

SIZE: 57 acres

BIODIVERSITY RANK: B5

LOCATION: Tungsten Quadrangle (3910584)

GENERAL DESCRIPTION: Miramonte Pond is the only large natural ephemeral pond in Jefferson County. It is situated at approximately 9300' and surrounded by a wet Carex meadow and an aspen forest. The pond supports a large population of tiger salamanders and chorus frogs. Dragonflies and damselflies are also abundant and represented by a large number of species. An old logging road crosses the southern end of the pond and was used in September by firewood gatherers. A residential area is less than 1/4 mile away.

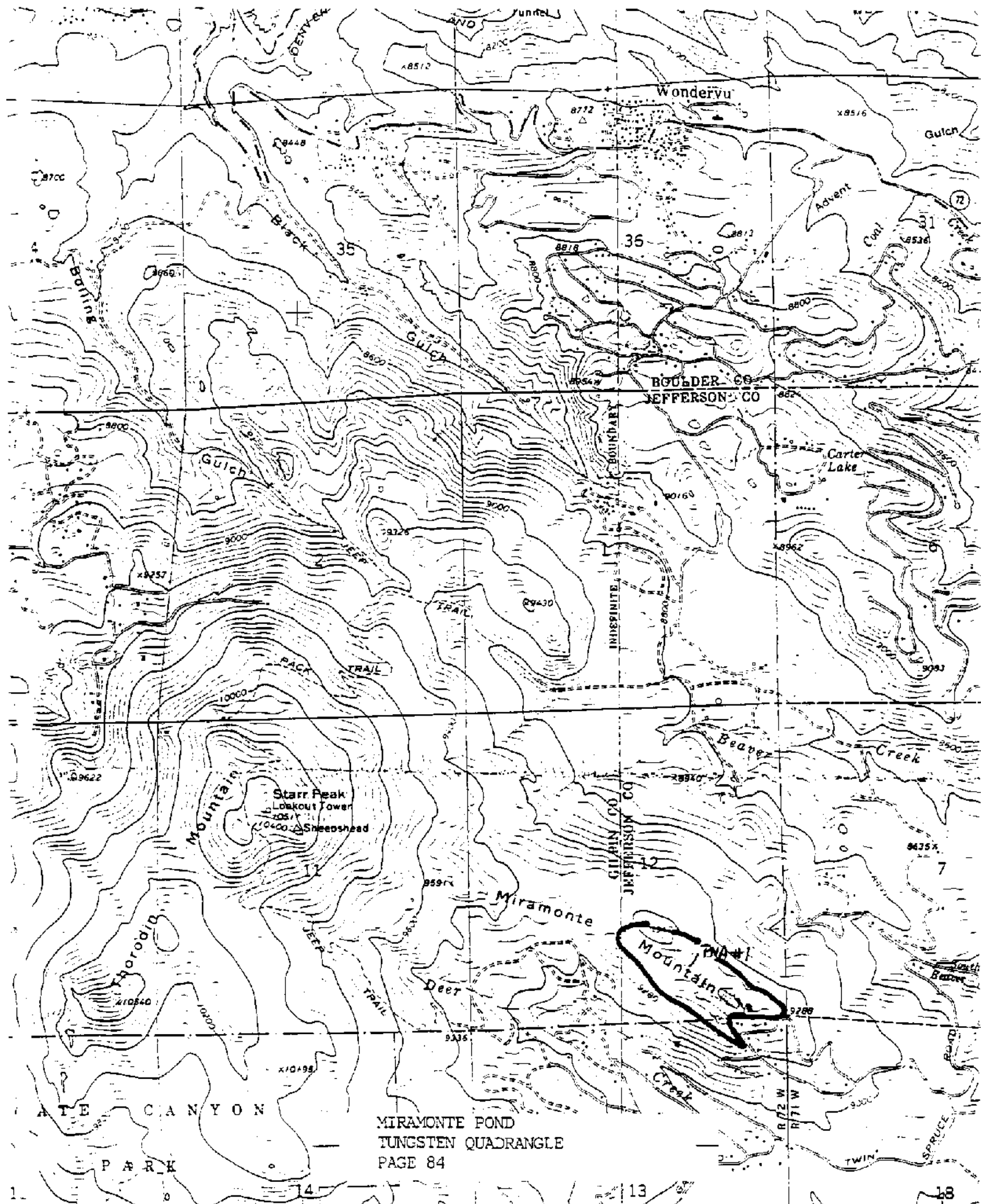
NATURAL HERITAGE RESOURCE SIGNIFICANCE: The pond itself is a state significant natural community and it supports a significant montane wet meadow plant association.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Carex</u> <u>rostrata</u> Wetland	Montane Wet Meadow	B	G3G4	S3	-	-

CURRENT STATUS: The pond and its immediate surroundings are on U.S. National Forest Service Land; however, the watershed and supporting habitats are on private property. No special designations have been provided. Occasional use by off-road vehicles (including bicycles) have impacted the area. Camping and aspen cutting have caused additional impacts.

BOUNDARY JUSTIFICATION: The boundary for this site includes the pond and a buffer zone surrounding it. The buffer includes the watershed within the saddle.

PROTECTION AND MANAGEMENT CONSIDERATIONS: This area is sensitive to trampling and the use of pesticides in adjacent habitats. It should be managed as a sensitive watershed area. It is recommended that the County consider joint action with the Roosevelt National Forest in ensuring that the wetland is protected.



MIRAMONTE POND
TUNGSTEN QUADRANGLE
PAGE 84

INTERIOR GEOLOGICAL SURVEY, WASHINGTON, D.C. 20515
1:62,500

ROAD CLASSIFICATION

Primary highway
Light-duty road, hard or

MOUNT FALCON-NORTH

SIZE: 494 acres

BIODIVERSITY RANK: B4

LOCATION: Morrison Quadrangle (3910562)

GENERAL DESCRIPTION: This area includes a northern drainage of Mt. Falcon from 6000' to 7600'. This canyon supports a xeric montane vegetation at the lower elevations and an evergreen forest at the upper elevations. South and east-facing slopes of the lower elevation are predominately mountain mahogany and needle grass or all needle grass. The north and west-facing slopes as well as the south-facing slopes of higher elevations are a ponderosa pine and Douglas fir mix. A small area has mature to very old Douglas fir trees with an abundant Carex geyeri understory. An abundance of bird species were observed in the diverse habitats: grasslands, shrublands, savanna, riparian forests, and evergreen forests.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: Two significant plant associations were found: Mixed montane shrublands and lower montane forest. The mixed montane shrubland, composed of mountain mahogany and needle grass, is rare both globally and within Colorado. This community occurs only on grassland to forest transition sites in the foothills. A B-ranked occurrence was found between 6200' to 6600' on south-facing slopes. The largest patch is approximately 15 acres. One other conservation site in Jefferson County has an example of this element, the Indian Gulch Conservation Site.

The lower montane forest plant association is dominated by Douglas fir and Carex geyeri. This association is not extremely rare, although this was the only example located within Jefferson County.

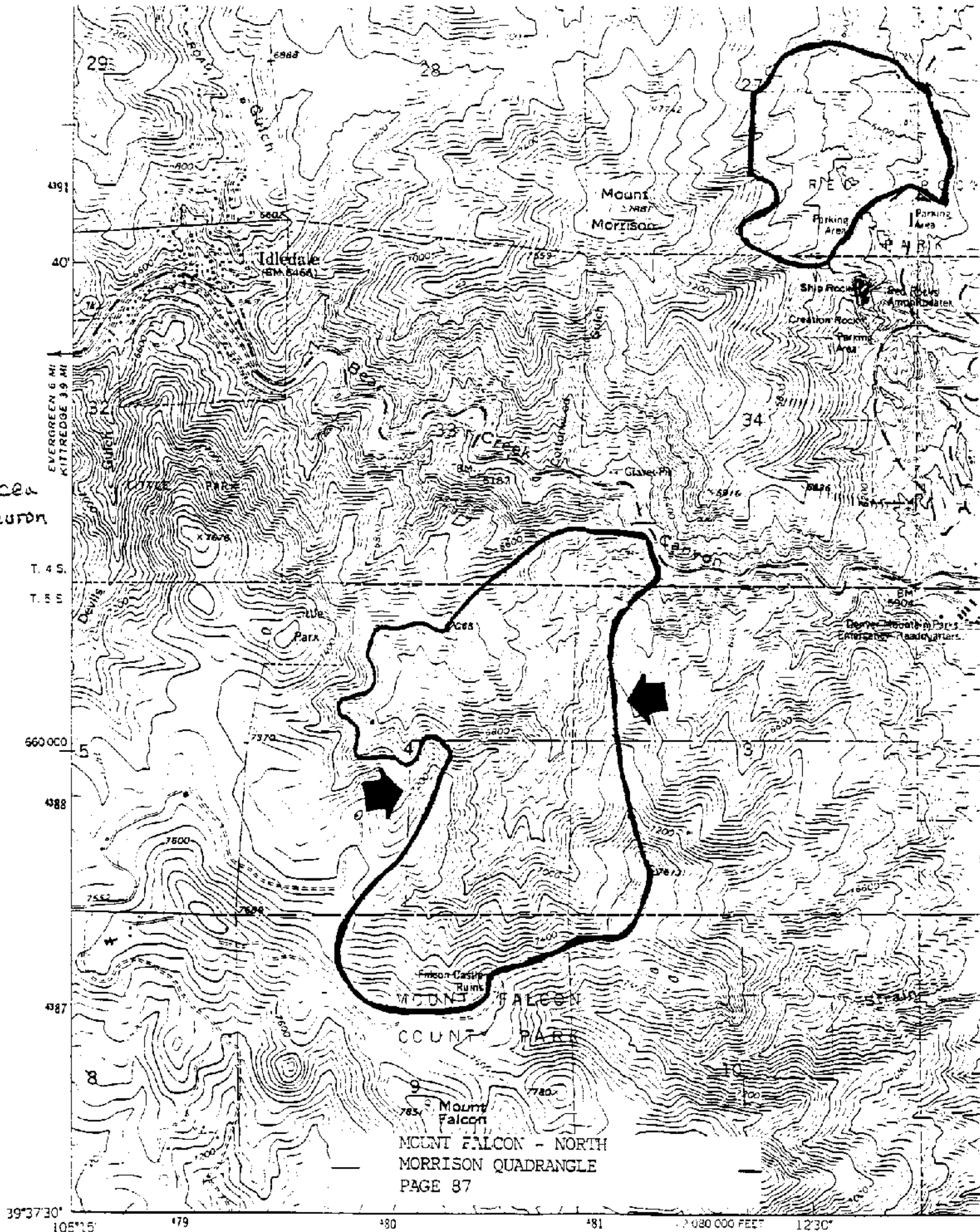
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Cercocarpus montanus</u> / <u>Stipa comata</u>	Mixed montane shrublands	B	G2	S2	-	-
<u>Pseudotsuga menziesii</u> / <u>Carex geyeri</u>	Lower montane forests	B	G50	S3	-	-

CURRENT STATUS: Most of this site is owned by Jefferson County Open Space, the remainder being privately owned.

BOUNDARY JUSTIFICATION: The conservation site boundaries include all element occurrences of the two plant associations and a buffer zone. The entire canyon is included and considered necessary to manage the vegetation. Weed patches, particularly thistle, were observed throughout the open habitats, including forest openings.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The area is at least partially in private ownership and should be considered as a potential for natural areas protection. The mixed montane shrublands require occasional burns to maintain adequate coverage of the grasses; otherwise the shrubs will become extremely dense. The Douglas fir-Carex forest will require little management, as this is a climax community. Excellent opportunities for recreation and education exist at this site. Some of the individual trees present in this forest are as large as any observed in the County.

UACCA
neuron



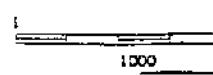
Mapped, edited and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs
taken 1954 and 1955. Field checked 1957

Revised from aerial photographs taken 1954. Field checked 1957

Revised from aerial photographs taken 1954. Field checked 1957



125'
225' MILES

MOUNT LINDO

SIZE: 966 acres

BIODIVERSITY RANK: B5

LOCATION: Indian Hills Quadrangle (3910552)

GENERAL DESCRIPTION: The Mt. Lindo conservation site is a low elevation site, starting at the base of the foothills (6400') and climbing to Mt. Chief (7965'). These low elevation but mountainous sites provide the most diverse habitats of any of Jefferson County, and this site is no exception. Grasslands, oak shrublands, juniper woodland, Douglas fir-ponderosa pine forest, aspen groves, and riparian corridors are all within this conservation site. Like most other foothills sites, it has steep slopes and high gradient streambeds. The water courses run west to east and the slopes are either north or south facing. In general, the vegetation reflects the aspect and elevation. The south-facing slopes are the more xeric of the two. These slopes support grasslands, oaks, and juniper woodlands at the lower elevations, while the higher elevations have a scattered ponderosa pine-juniper woodland. An unusual combination of oak, mountain mahogany, little blue stem, and bush muhly was found on a ridge at 7300'. The south-facing slope in mid section 23 is primarily a grassland with big blue stem, little bluestem, needle grass, and blue grama; this grassland consist of mostly natives, although Kentucky bluegrass is prevalent. This grassland site was unusual in Jefferson County. The north-facing slopes are vegetated with Douglas fir and ponderosa pine, with an extensive aspen grove occurring in the southern half. The riparian corridors varied in terms of vegetation and disturbance. Weaver Gulch and the gulch directly to the south have perennial streams. Both have horse and hiking trails. These two gulches have many invasive exotic species and show disturbance. In contrast, the gulch due north of Weaver is more or less dry with small pockets of moisture, very steep, and densely vegetated with native species.

This site has an active Golden Eagle nest, located on the south wall of the Turkey Creek Canyon. There are actually two nests at this site, the upper one being active and producing young in 1992.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site displays a variety of habitats, of which none is especially rare. The aspen grove near Weaver gulch has a population of wood lily.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Lilium philadelphicum</u>	Wood lily	?	G5	S2	-	-
<u>Aquila chrysaetos</u>	Golden eagle	A	G5	S3S4	-	-

CURRENT STATUS: The entire site is in private ownership with one owner admittedly managing the land as private open space.

BOUNDARY JUSTIFICATION: The conservation site boundaries include the eagle nesting site at the mouth of Turkey Creek canyon and all the good examples of some common communities. All known populations of the wood lily are included.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Management of the area will necessarily include protection of the Golden eagle nest from excessive disturbance. Assistance in this regard should be sought from the Division of Wildlife. The cliffs may tempt climbers into the area. The Wood lily is widespread in Colorado but is highly attractive. This has caused the species to be heavily collected for cut flowers or home gardening. Concern has been expressed over the decline of this species (The Colorado Native Plant Society 1989). Protection and monitoring of this species will be necessary. However, given appropriate restrictions, the rugged and scenic nature of this site offer possibilities for recreational use.

481

482

MORRISON

MORRISON

485

Denver Mountain Park Site

10

11

12

Creek

DITCH

BERGEN

Western Institute

13

14

Willow Springs Ranch

Gulch

Willowbrook Area

Water Tank

Well

Tiny Town

Park - Twin Parks

Grave

Spring

MOUNT LINDO
INDIAN HILLS QUADRANGLE
PAGE 90

Fenders 34

35

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MOUNT TOM

SIZE: 1,978 acres

BIODIVERSITY RANK: B4

LOCATION: Ralston Buttes Quadrangle (3910573)

GENERAL DESCRIPTION: The Mt. Tom conservation area includes Mt. Tom (9735') and the surrounding slopes, including Sawmill Gulch and Van Bibber Creek headwaters. The general character is that of several mid-montane communities intermingled with riparian zones. The peaks and ridges support a limber pine/kinnikinnick stand while the slopes support several different species of conifers: lodgepole pine, ponderosa pine, and Douglas fir. Due to spruce bud worm and pine beetle kills, a patchwork of meadows and raspberry stands are scattered on the slopes. Other microhabitats exist where either rock outcrops or moisture appears. Along the steep gulches are riparian zones supporting a rich flora, with alders, blue spruce, maple, and aspen as the primary upperstory trees. Small patches of aspen with a diverse understory can be found on the eastern portion of the conservation site. Logging was conducted in the early 1900's according to one landowner, although areas along rocky ridge tops appear not to have been logged. Aside from some old abandoned cabins and logging roads the area is in nearly pristine condition. Mountain lion and black bear sign are common.

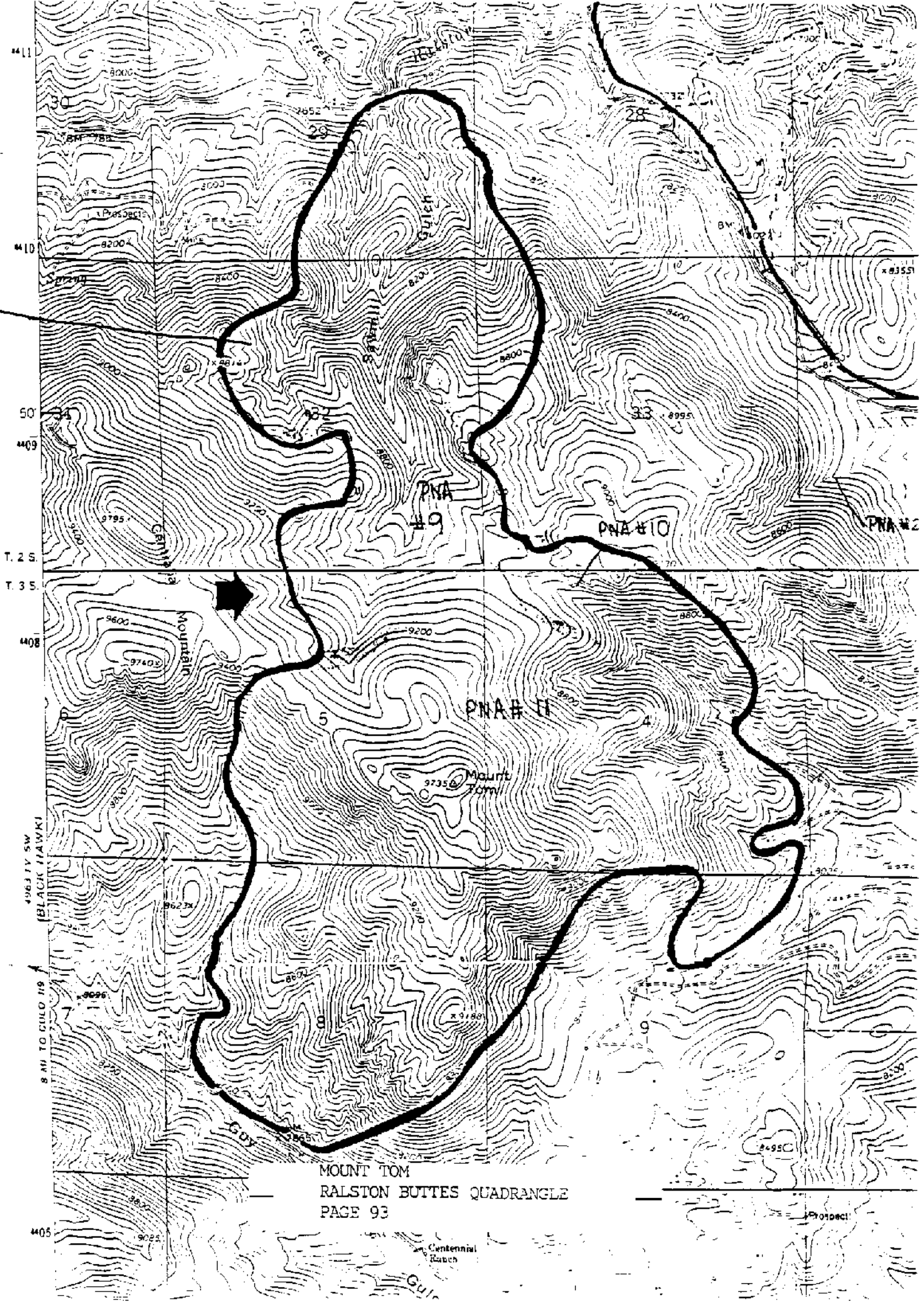
NATURAL HERITAGE RESOURCE SIGNIFICANCE: Two state-rare significant natural communities were found on the high ridges near Mt. Tom and the slopes near the Van Bibber Creek headwaters. The limber pine/kinnikinnick plant association is in good condition and was the only occurrence of this community found in Jefferson County.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Pinus ponderosa/</u> <u>Arctostaphylos uva-ursi</u>	Lower montane forests	B	G5	S3	-	-
<u>Pinus flexilis/</u> <u>Arctostaphylos uva-ursi</u>	Lower montane woodlands	B	G4?	S2?	-	-

CURRENT STATUS: The majority of this land is owned privately. Portions are owned by Golden Gate State Park (Sawmill Gulch area). No special designations are provided to this site.

BOUNDARY JUSTIFICATION: The conservation site planning boundary includes all known significant plant communities and what are believed to be adequate buffer zones. The rugged and large area deserves more inventory work to verify the exact boundaries of the rare communities.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The Sawmill Gulch area is provided some protection by Golden Gate State Park and should be managed by the park for significant plant communities. The areas outside the park are recommended as suitable sites for protection as open space. Management for the diversity of habitats, significant communities and plants. The view from Mt. Tom is panoramic and spectacular. Existing trails in Sawmill Gulch could be extended to incorporate this scenic view without significantly impacting the natural communities.



MOUNT TOM
RALSTON BUTTES QUADRANGLE
PAGE 93

NORTH TABLE MOUNTAIN

SIZE: 2,050 acres

BIODIVERSITY RANK: B4

LOCATION: Golden (3910572)

GENERAL DESCRIPTION: The North Table Mountain is a prominent landmark in the Denver-Golden area and has little development on the slopes or on top of the mesa. The mountain is a mesa that is surrounded by the great plains except for its counter part--South Mountain. North Table Mountain consists of rolling hills, extensive grasslands, shrublands, riparian areas, rock outcrops, and small ponds. The top of the mountain is primarily a grassland with several types of grass. Along the edges are a shrubland community occasionally mixed with grasses. The slopes are densely vegetated with shrubs on the upper slopes and grasses on the lower slopes. There are three ponds on the top, one of which is naturally formed. Cattle have compacted the soil around all ponds, although tiger salamanders continue to breed in the natural ponds. Historically the area has been used for homesteading, grazing, and mining. The current use is light grazing, although certain areas show intensive past grazing. Mineral extraction has affected a number of sites, including a noticeable area on the southwest corner of the mesa. Prairie falcons feed and probably breed on the cliffs of the mountain, although the nest could not be located. Two nests of Red-tailed hawks were observed, only one active. Other raptors use the area during migration. It is worthy of note that a large number of ground-nesting birds use the site, including some short-grass prairie species such as Lark buntings. The butterfly community contained no rare species; rather, it showed the effects of disturbance. Kilburn and White (1992) give extensive coverage to this area and should be consulted for additional information.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: Two natural community occurrences were located on the mesa. A Great Plains mixed grass prairie of approximately 30 acres occurs on the western side. Such grasslands are increasingly rare in Colorado and should be considered a priority for conservation. Another natural community found is undescribed, but related to a lichen rock garden. This community consists of approximately 25 acres and is in moderately good condition.

The top of the mesa is heavily utilized by ground-nesting birds, although no rare species were located. This is probably related to the lack of unnatural predators often associated with human habitation.

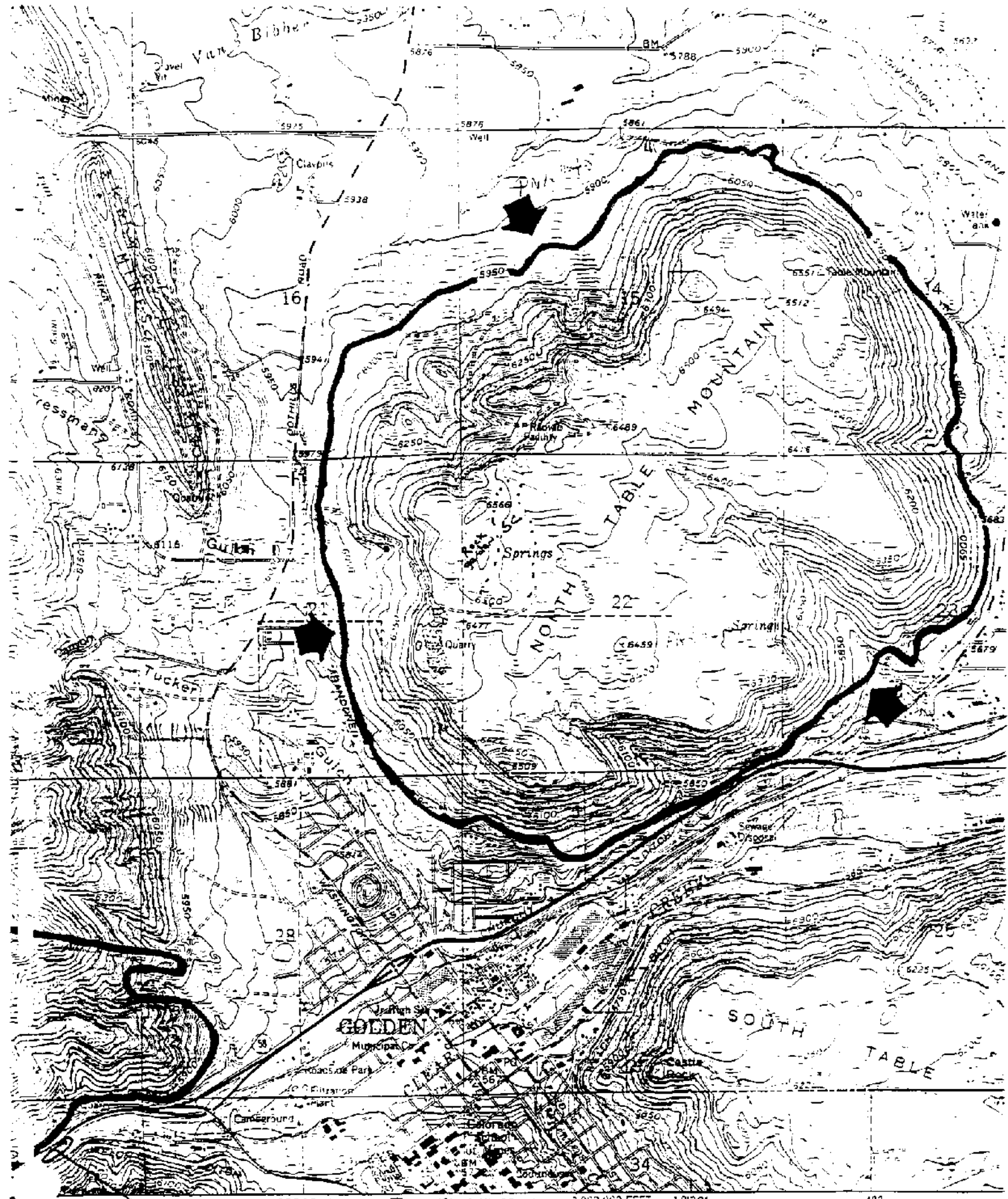
Other information regarding the floral, faunal, and geological significance of the area was provided by Kilburn and White (1992).

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Stipa comata</u>	Great Plains mixed grass prairies	B	G4	S2	-	-
	Lichen rock garden	B	G?	S?	-	-

CURRENT STATUS: The area is privately owned and receives not special designation or protection.

BOUNDARY JUSTIFICATION: The conservation site boundaries include the top of the mountain and the surrounding slopes. The slopes are included as habitat for important components of the North Table Mountain ecosystem, including large colonies of White-throated swifts, Violet-green swallows, and at least occasional raptors. In addition, the slopes provide a buffer from extensive transfers of invasive and weedy plants and animals.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The area could be developed for light recreational use, providing spectacular views of metropolitan Denver and the mountains to the west. Most intensive use should be limited to portions of the slopes. Limited access to the top and well-placed trails would provide needed protection. Management of the grasslands on top would be desirable and necessary for the significant communities. The top of the mountain has the potential for restoration to a high quality prairie habitat. Several springs and seepages should be considered high priorities for protection. Some portions of the mesa that have previously been mined may need to be restored to a relatively safe condition for any visitors.



Revised and published
1993 and NCS/NOAA

NORTH TABLE MOUNTAIN
GOLDEN QUADRANGLE
PAGE 96

SL = Stipes comata

1000 2000 3000

Copyright 1994 and 1995. Last checked 1997.
Data changed 1994 to 1995

PINE VALLEY

SIZE: 796 acres

BIODIVERSITY RANK: B2

LOCATION: Pine Quadrangle (3910543)

GENERAL DESCRIPTION: This Conservation Site, largely within the Pine Valley Open Space, is largely forested with Ponderosa pine. The understory is sparse and herbaceous, but dominated by Little blue stem. The soils are highly porous grus, originating from the Pikes Peak granite. The elevation of the site ranges from xxxx' to xxxx'. The lowest elevations are dissected by the North Fork South Platte River and its associated riparian zone. (We did not survey the riparian zone due to time restrictions.) The Montane skipper was abundant in several areas of forest, particularly where wildflowers were blooming. These flowers were used as nectar sources. Several other skippers and butterflies were present. Other individuals of the Montane skipper were observed at mud puddles along the access road. A dirt access road (gated) runs east-west through the Park to the old estate. Abert's squirrels, mule deer, and sign of fox were abundant.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The Montane skipper is a globally rare subspecies found only in the area of Platte Canyon from near South Platte up to approximately 7,400' elevation. Extensive surveys elsewhere have failed to reveal additional populations. Much of the habitat for the subspecies is owned by the U. S. Forest Service and managed by Pike National Forest. The skipper was proposed for and subsequently listed as a Threatened Species under the Endangered Species Act in response to threats that the Platte Canyon (North and South forks) would be flooded by the Two Forks Dam Project. Pine Valley Open Space Park provides excellent habitat for this subspecies.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Hesperia leonardus montana</u>	North Platte montane skipper	A	G4T1	S1	LT	-

CURRENT STATUS: Most of the southern half of this conservation site is in Jefferson County Pine Valley Open Space Park. The northern half is primarily privately owned.

BOUNDARY JUSTIFICATION: The conservation site boundaries include the known locations of the montane skipper as well as the potential nearby habitat. The montane skipper has not been found above 7500'.

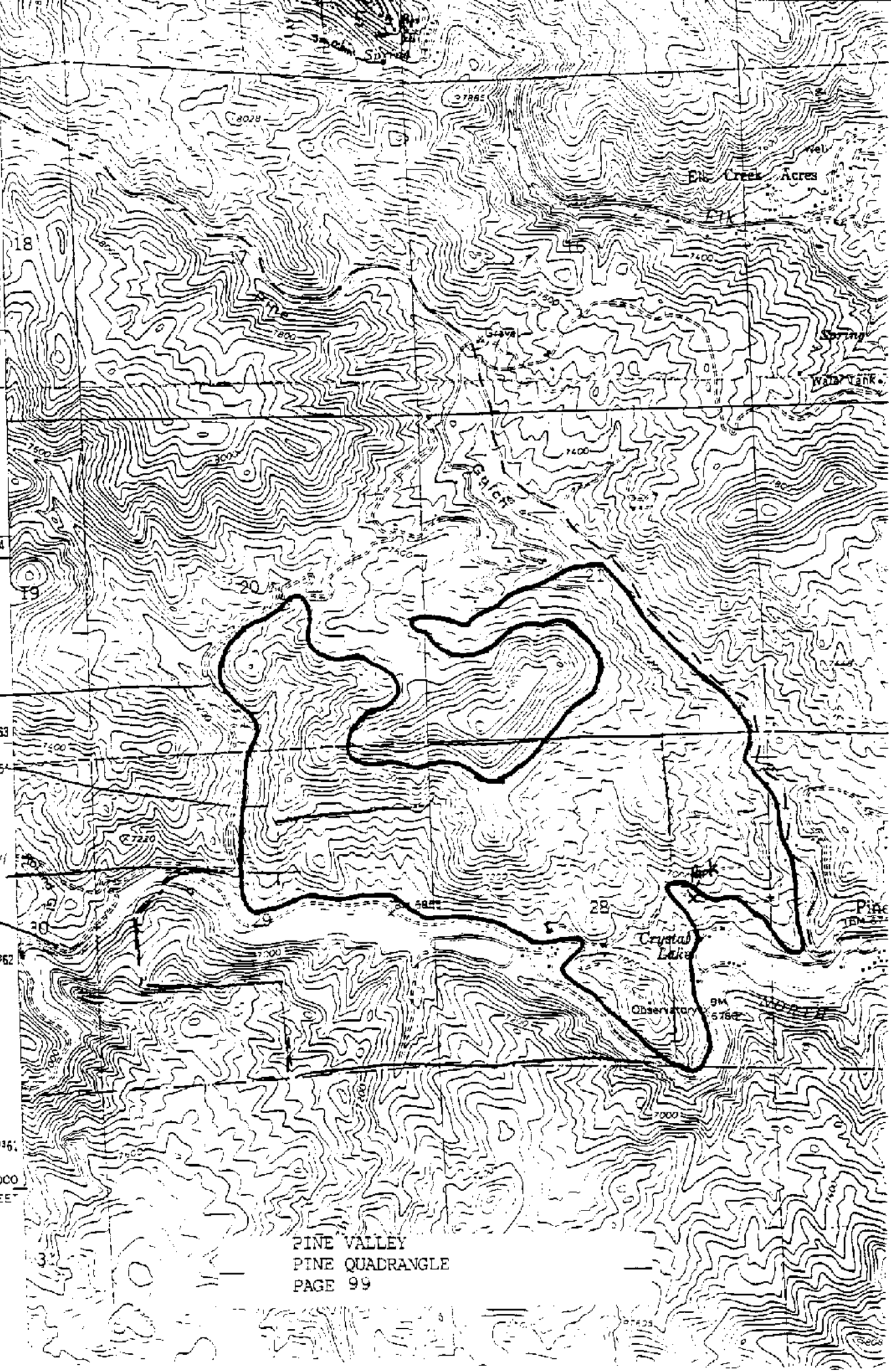
PROTECTION AND MANAGEMENT CONSIDERATIONS: Maintenance of the vegetation in a natural state will provide adequate habitat for the Montane skipper. However, monitoring of the skipper populations periodically, in consultation with the U. S. Fish and Wildlife Service, is recommended. Broadcast application of pesticides should be avoided. Additional survey work for other rare animals and plants should be conducted. The Montane skipper provides an excellent educational subject, illustrating the significance of historical biogeography and vegetation to the present distribution of rare animals.

1.8 MI. TO U.S. 20
4365
4362 IV NW
(BAILEY)
4365

Upper
10
Lower
Contour
Gulch
to ILLCO
fair
valley
space work
fish?

570 000
FEET

PINE VALLEY
PINE QUADRANGLE
PAGE 99



PORTER CIRCLE

SIZE: 344 acres

BIODIVERSITY RANK: B3

LOCATION: Eldorado Springs Quadrangle (3910583)

GENERAL DESCRIPTION: This site is located at the base of the foothills of the Front Range between Plainview and Hwy 92. This conservation site is a grassland site composed of several plains species. The dominate grasses are little blue stem and prairie dropseed, although a variety of other grasses also occur. Grazing has occurred in the past, although none has occurred in recent years. Adjacent land is grazed heavily and strongly contrasts this land.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: This type of grassland was found in no other part of Jefferson County. Although it was probably wide ranging prior to European human disturbance, it has been reduced in size to small scattered patches along the Front Range.

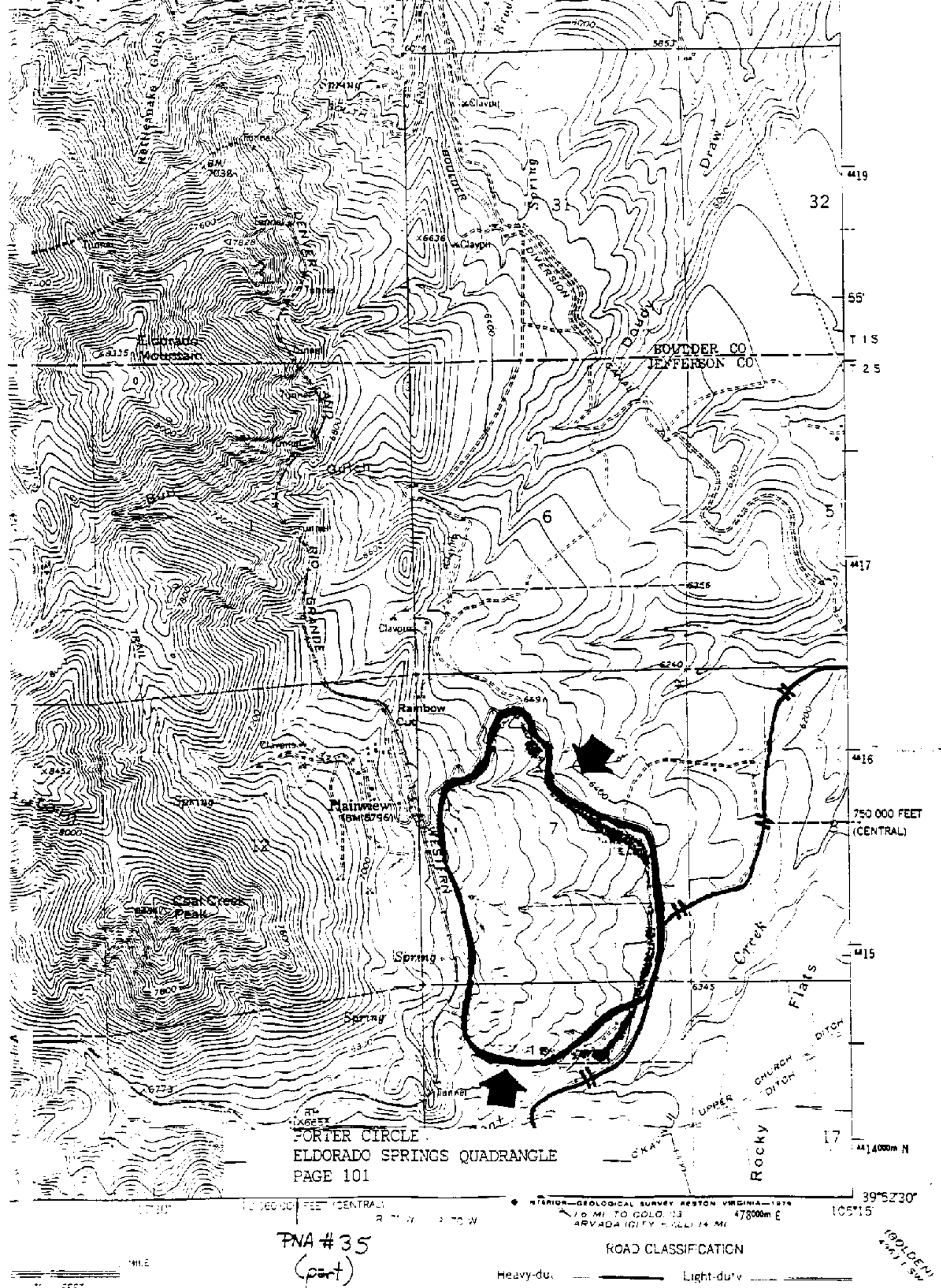
Approximately a 300 acre parcel has an A-ranked grassland community. The dominant grasses are dropseed and little blue stem. Few introduced species are present and none are abundant.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Schizachyrium scoparium</u> - <u>Sporobolus heterolepis</u>	Mixed prairie	A	G?	S?	-	-

CURRENT STATUS: The land is under private ownership. No protective status is given.

BOUNDARY JUSTIFICATION: The site includes the entire A-ranked grassland and approximately a 20 acre section of big blue and little blue stem. The center of section 7 is overgrazed, but could be recovered with a compatible cattle grazing plan.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The Conservation Site is recommended as an example of our rare grassland heritage. Grazing at the right time of year and for an appropriate amount of time should allow both grazing and a healthy grassland. Burns are a natural part of this ecosystem and are encouraged. These fires will discourage exotic species and enrich the native ones.



RALSTON BUTTES

SIZE: 490 acres

BIODIVERSITY RANK: B5

LOCATION: Ralston Buttes Quadrangle (3910573)

GENERAL DESCRIPTION: The Buttes are composed of rugged rock formations with towering cliffs. An abundance of rock outcrop bird species were present. A stand of limber pine occurs in the dry, rocky saddle of the buttes, a rather low elevation for this natural community. The vegetation on the peak is virtually free of non-natives although no rare species were found. The north facing side of the mountain is composed of mesic Douglas fir with an abundant herbaceous understory. Red squirrels were abundant as were the Hermit thrush, Western wood peewee, and Olive-sided flycatcher. Golden eagles, Turkey vultures, and Common ravens were observed around the cliffs and the peak and probably breed there.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: Peregrine falcons have historically used the site as an aerie, although they were not seen this year. Within the past decade attempts were made to hack birds from the site. Golden eagles use the cliffs above Ralston Creek as nesting habitat. The stand of limber pine at such a low elevation is noteworthy.

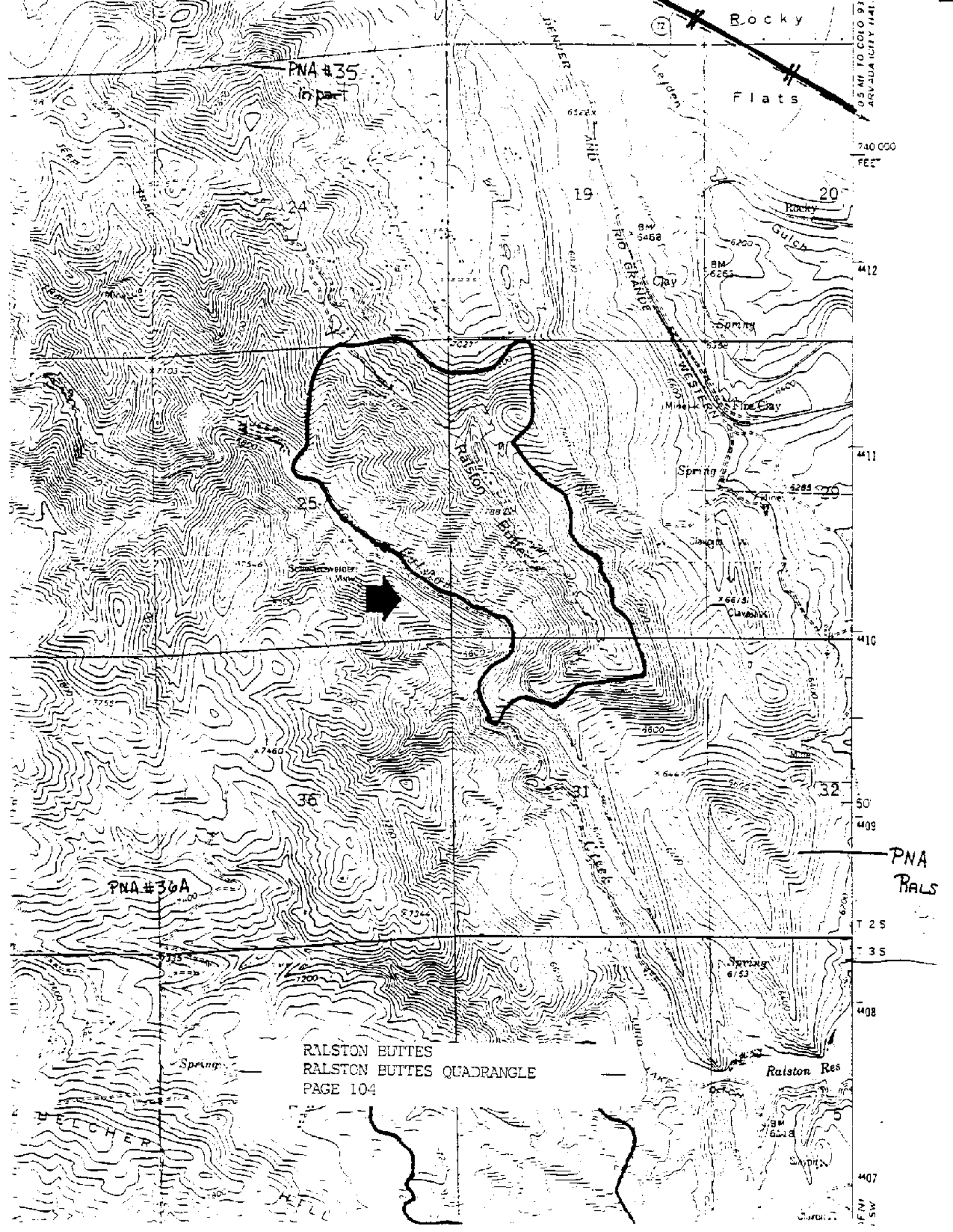
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Falco peregrinus</u>	Peregrine falcon	H	G3	S1	LE	LE
<u>Aquila chrysaetos</u>	Golden eagle	?	G5	S3&4	-	-

CURRENT STATUS: The ownership for this conservation site is a mixture of private and public entities. Firewood cutting is occurring within the Limber pine community. No formal protection is given the land.

BOUNDARY JUSTIFICATION: The boundary for this site includes the geological formations and the surrounding habitat known to provide habitat for the Golden eagles and any Peregrine falcons.

PROTECTION AND MANAGEMENT CONSIDERATIONS: This conservation site is a spectacular geological formation providing excellent views of Denver and the surrounding landscape. The steep and difficult to access rock formations provide habitat for eagles and falcons along with other bird species.

Management of the site would consist of monitoring the habitat for use by falcons and eagles. When these species are found, protection of the breeding activity areas would be necessary so as not to cause nest abandonment. The Colorado Division of Wildlife should be consulted for specific management recommendations. This would be particularly important in view of the expressed interest in the area by rock climbers. At times of the year when raptors were not using the area, unexcelled recreational opportunities exist.



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RALSTON BUTTES
RALSTON BUTTES QUADRANGLE
PAGE 104

Ralston Res

407

SW

RED ROCKS PARK

SIZE: 152 acres

BIODIVERSITY RANK: B5

LOCATION: Morrison Quadrangle (391062)

GENERAL DESCRIPTION: This scenic area of sculpted red sandstone known as Red Rocks Park was a historical home for the Mexican spotted owl. The area has an amphitheater for musical performances and is also used recreationally, with numerous trails throughout.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: Several searches of the area found no evidence of use by the rare birds reported here in past years. A historic record of the Mexican spotted owl exists. The owls have only been known to occur widely in Colorado for about a decade. Surveys continue but have not been conducted in Jefferson County to date. A breeding bird was located just south of Colorado Springs in 1992 (John Verner, personal communication). The possibility that pairs occur in Jefferson County is real. Whether or not Red Rocks Park would be suitable habitat today is questionable.

A population of Carrion flower was recently found in Red Rocks Park by Carolyn Crawford (personal communication). This state rare species has been found in several new sites during 1992 and its status may be considered more common in the near future.

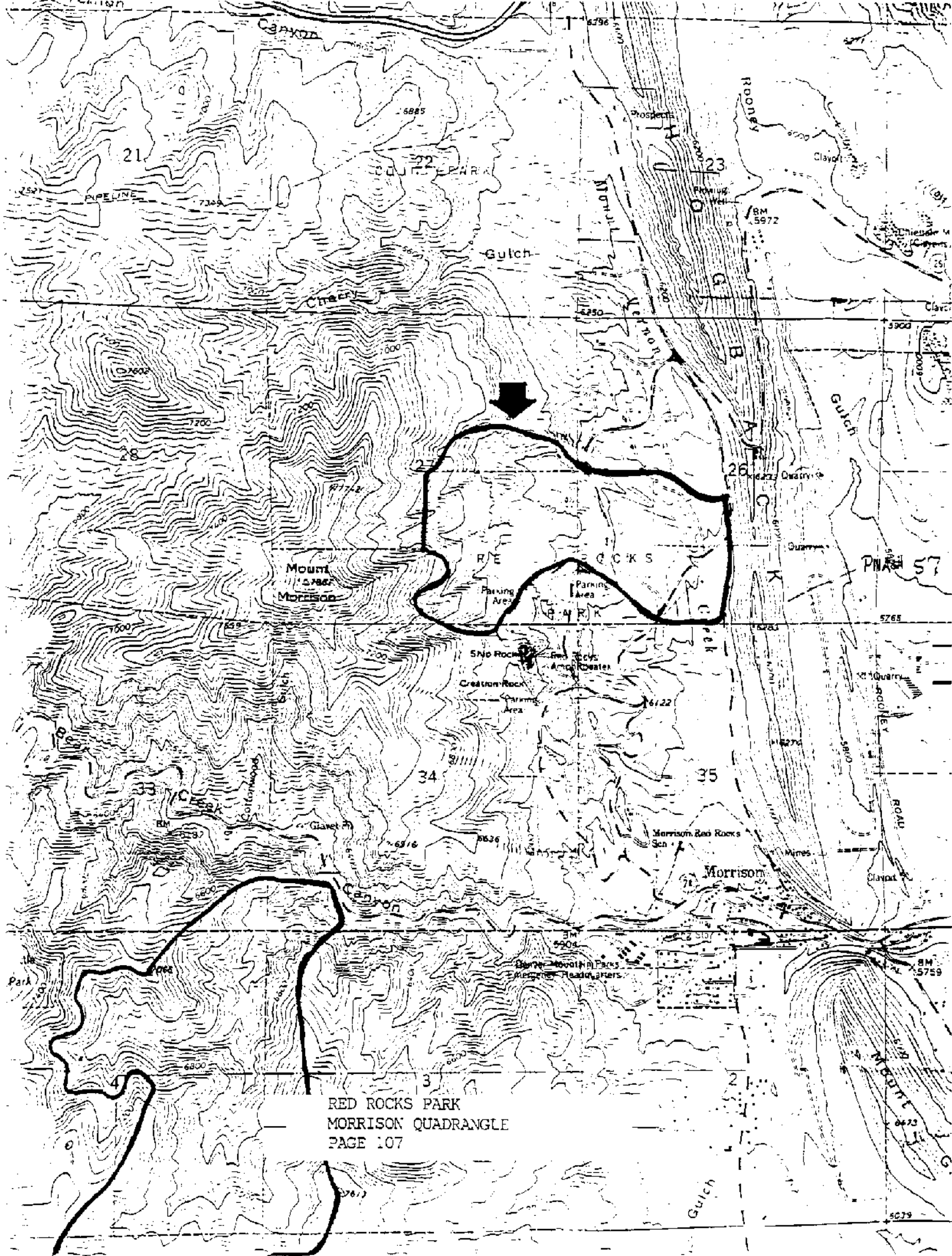
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Smilax lasioneura</u>	Carrion flower	B	G4	S2	-	-
<u>Strix occidentalis</u>	Spotted owl	H	G3T2	S1	PT	-

CURRENT STATUS: This area is publically owned by Jefferson County Open Space and the City and County of Denver.

BOUNDARY JUSTIFICATION: Boundaries could not be justified for a historic record; therefore, the boundary presented is exclusively for the Carrion flower. Note that Prairie falcons occasionally utilize the Park and may nest there. It is apparent that the Park's existing boundaries are sufficient to attract the birds.

PROTECTION AND MANAGEMENT CONSIDERATIONS: As surveys for the Spotted owl are conducted in Jefferson County, efforts should be made to relocate the owls in or near the Red Rocks Park. Nesting sites of any other raptors should be protected and monitored. The latter should be done in cooperation with the Colorado Division of

Wildlife. The high recreation use this area may be detrimental to the bird nesting community, but there is little evidence to date. The Carrion flower population should be monitored annually, but this species is hardy and expected not to be threatened by existing use within the Park.



RED ROCKS PARK
MORRISON QUADRANGLE
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ROCKY FLATS

SIZE: 310 acres

BIODIVERSITY RANK: B3

LOCATION: Golden Quadrangle (3910572)
Louisville Quadrangle (3910582)

GENERAL DESCRIPTION: Rocky Flats is appropriately named: the area is extremely rocky and flat. This site is just east of Hwy 93. The site is a text book example of a tall grass prairie with a rich grass flora. Over twenty species of grasses and 36 species of forbs and shrubs have been documented from this site (White correspondence). The dominant grasses are big and little blue stem, but other common grasses include indiagrass, buffalograss, sideoats grama, hairy grama, mountain muhly, and prairie dropseed. This site is grazed on a yearly spring/fall grazing regime, thus allowing the grassland to remain more or less intact. Numerous roads, diversion ditches, and gravel mining all are found within the site or nearby. Department of Energy owns much of Rocky Flats and has conducted environmental studies of the area. Our inventory was exclusively done on private land surrounding the power plant.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: Xeric tallgrass prairies have become extremely rare, due to building, mining, and grazing. This type of grassland once occupied expansive areas on the Great Plains but has been whittled down to tiny remnants. The Rocky Flats prairie occupies some 300 acres and is in surprisingly good condition. Although this site isn't in the most scenic area, we recommend it as a conservation site due to it's good condition and rarity. The true significance of this site is best viewed from the perspective of the remaining patches of this and associated grasslands in Jefferson County (and perhaps southern Boulder County).

The xeric tallgrass prairie ecosystem is now fractured into remnants. The placement of several to many remnants such that genetic exchange of the associated organisms is facilitated can aid in the long term persistence of the community. This may happen even though all of the individual components are insufficient. In this light the setting aside of the Rocky Flats area would fill a major gap between the City of Boulder Open Space prairies (the nearest at the junction of 72 and 93) and the smaller patches near White Ranch. The next closest patches are in the vicinity of Ken Caryl Ranch as described previously in this document.

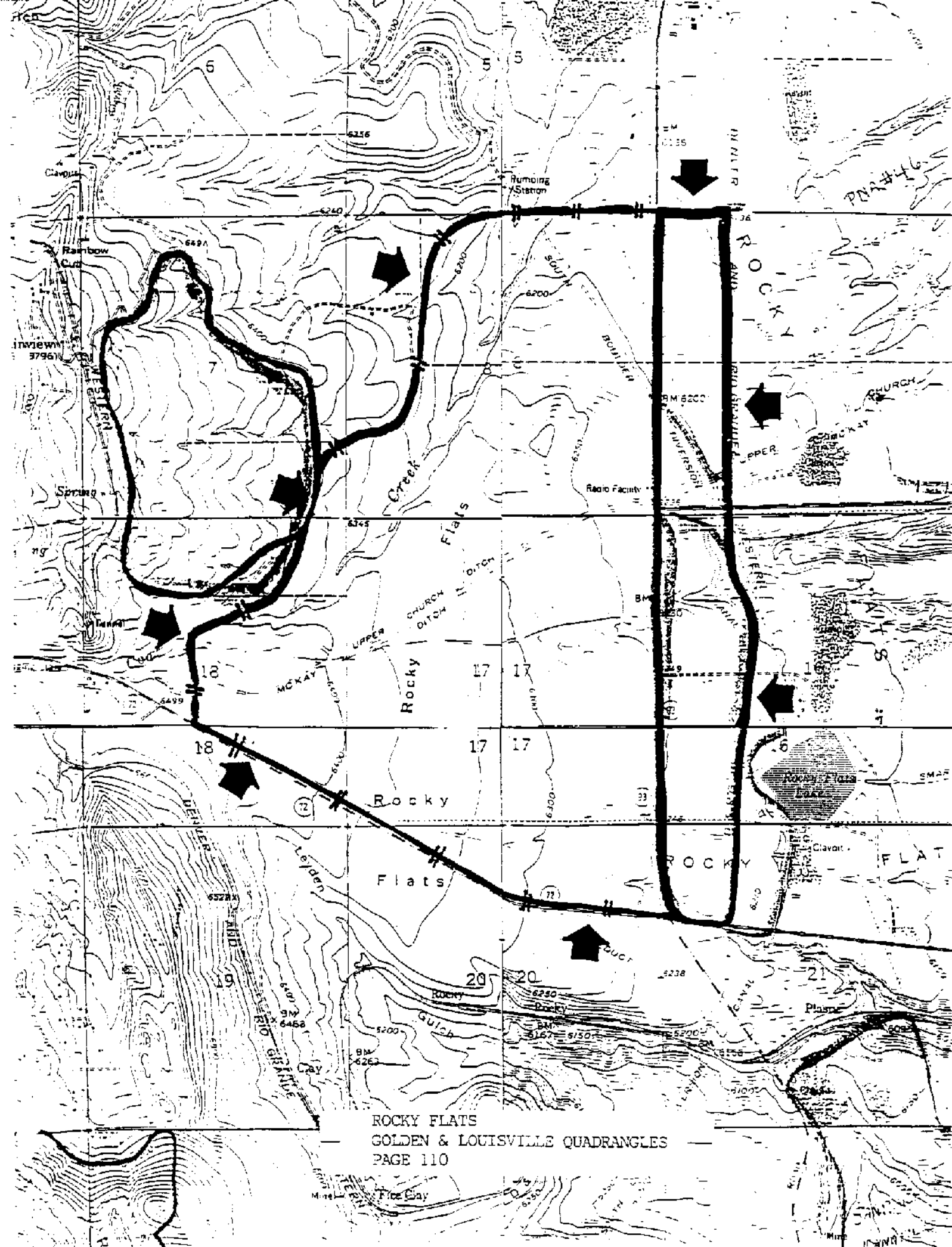
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Andropogon gerardii</u> - <u>Schizachyrium scoparium</u>	Xeric tallgrass prairies	A	G3	S2?	-	-

CURRENT STATUS: Most of the land is privately owned.

BOUNDARY JUSTIFICATION: The conservation site boundaries for Rocky Flats include all examples of xeric tallgrass prairies found on private land. A secondary boundary is presented in this case based on information provided by Rick Brune (Jefferson County Nature Association). The area on the west side of highway 93 is grazed, occasionally heavy in the winter, spring, and early summer. The quality of the habitat, is low compared to the Rocky Flats site described above. Nonetheless, in 1991, with some heavy rains, the big blue stem on this degraded property flourished. Such an observation suggests that the restoration of the west side is possible. Not only would this provide a larger ecosystem for ecological sustainability, but would also protect the viewshed along Highway 93 (BRW, Inc. 1989). Such a consideration would expand the acreage to approximately 1,100.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The existence of this increasingly rare prairie vegetation as a natural area could be a valuable education tool while contributing to conservation.

The area should be managed as a tall grass prairie site, including some grazing and prescribed burning. The urgency may be high for this site since a portion of it is currently for sale. With the disposition of some lands at the Rocky Flats Plant under discussion, Jefferson County may want to consider an even larger area. Viewing the adjacent lands from the fence row, it is evident that high quality prairie vegetation continues for an unknown distance into the Plant property.



UPPER RALSTON CREEK

SIZE: 1,058 acres

BIODIVERSITY RANK: B5

LOCATION: Ralston Buttes Quadrangle (3910573)

GENERAL DESCRIPTION: The Upper Ralston Creek site, adjacent to Golden Gate State Park, includes a very rugged and remote section of Ralston Creek and the surrounding hillsides. The riparian vegetation is dominated by a mixture of birch, alder, blue spruce, maple, and aspen. This riparian area is in good condition and shows little sign of human interference. The adjacent slopes are steep near the creek but become more gentle with distance. A Douglas fir-ponderosa pine forest dominates the hillsides with occasional large patches of mountain mahogany and grasses. The forest can be extremely dense in places (a sign of past logging), but has been thinned out in others due to spruce bud worm and pine beetle kills. The areas that are less densely forested have a more diverse understory and herbaceous layer. Two small patches of wetlands exist, one in the southwest and the other in the southeast, both dominated by Carex spp. Due to the variety of habitats, this area has a high species richness in both plants and butterflies. Eighteen species of butterflies were observed (none were rare) hilltopping just upslope from the foothill ponderosa pine savanna location.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: Two state-significant plant associations were located on this site. Also the excellent condition of the Ralston Creek riparian corridor is important. The season was late when the creek was surveyed and it is recommended that additional survey occur there.

Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Pinus ponderosa/</u> <u>Leucopoa kingii</u>	Foothill ponderosa pine savannas	C	G3	S2	-	-
<u>Stipa comata</u>	Great Plains mixed grass prairies	C	G4	S2	-	-

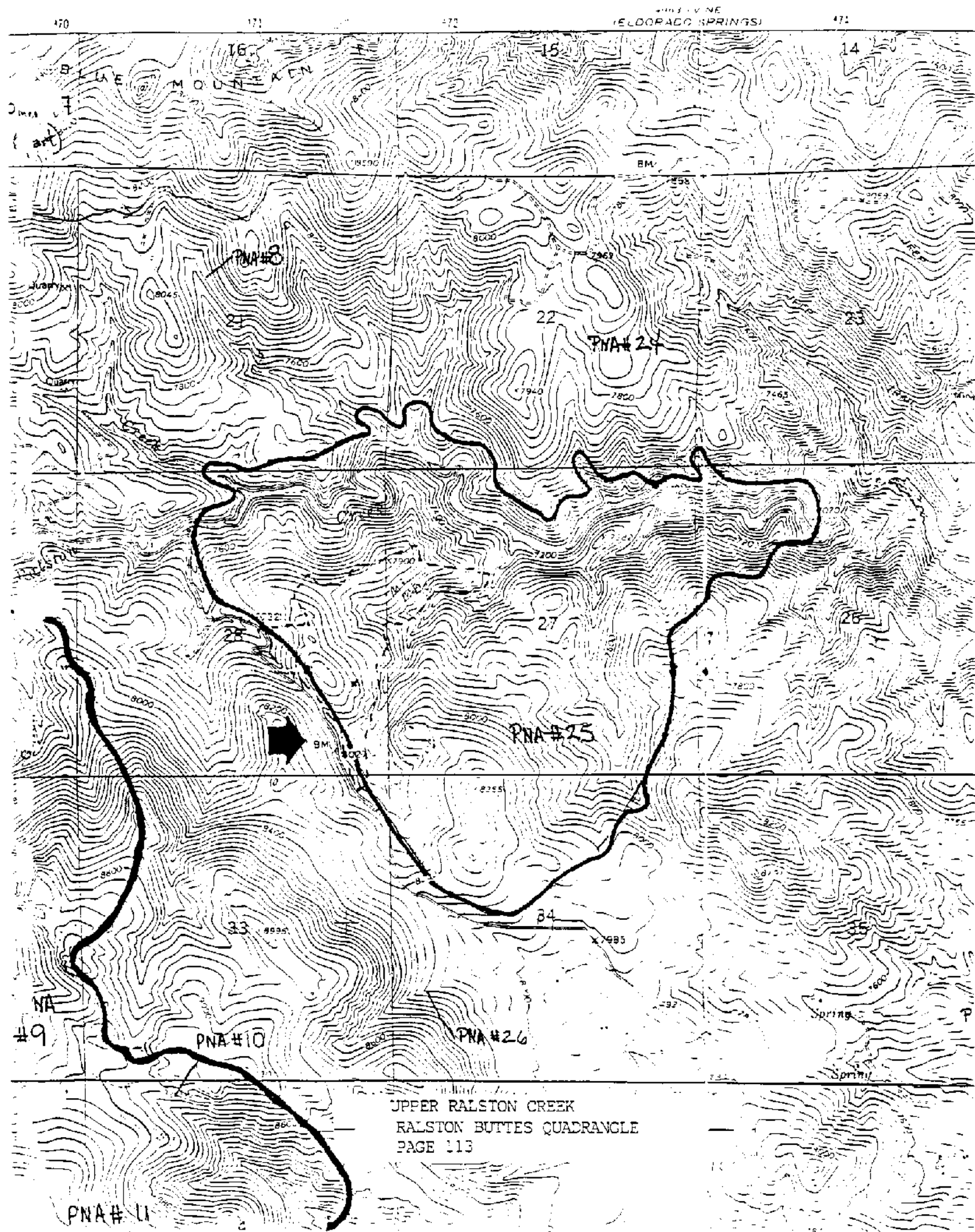
CURRENT STATUS: The land is privately owned by six different parties. Golden Gate State Park is adjacent to the northern portion of the conservation site.

BOUNDARY JUSTIFICATION: The boundaries for this conservation site include the pristine section of Ralston Creek, the adjacent slopes, and all known areas with significant plant associations.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The Upper Ralston Creek Conservation Site is recommended to Jefferson County Open Space as a candidate open space. Suburbanization is encroaching on the site rapidly. The protection of this site

would provide a corridor with nearby Golden Gate State Park and White Ranch County Park. This could provide an an extensive trail system.

Management of the area should consider the ecological processes dominating the area. At this time it appears that the insect outbreaks are creating openings in the forest, allowing the grass, including Leucopoa kingii to dominate the understory. This was presumably a natural state prior to the decades of fire suppression we have had. Emulation of these natural processes should be followed. The use of pesticides in the area is not recommended given the high butterfly diversity (usually indicating a healthy ecosystem).



WHITE RANCH OPEN SPACE PARK

SIZE: 287 acres BIODIVERSITY RANK: B5

LOCATION: Ralston Buttes Quadrangle (3910573)

GENERAL DESCRIPTION: White Ranch County Open Space has an occurrence of a significant natural community: ponderosa pine/mountain mahogany/big blue stem. This natural community was probably much more extensive prehistorically, when fires and natural grazing levels dominated the ecology of the foothills. This plant association is currently considered quite rare. Evidence of past disturbance exists in the presence of cheat grass, non-native thistles, and other weeds. Still, this occurrence, with proper management, could be restored and protected. The potential area of this occurrence is much larger than its current area.

We searched for this association on private lands adjacent to White Ranch Open Space, but no other occurrence was located.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: Many of the variants of the Ponderosa pine series are suffering from a lack of natural disturbances, particularly fire (Veblen and Lorenz 1990). As more and more habitat is taken up by housing and other uses the ability to have fire do its ecological job is reduced. Therefore, it appears as if some of the early to mid-successional community types may remain of high priority. Most of the grasses or shrubs involved are shade intolerant and disappear through time when trees develop a sufficient density. White Ranch has at least one stand of each of the two plant associations listed below. Each is now rare, one globally so.

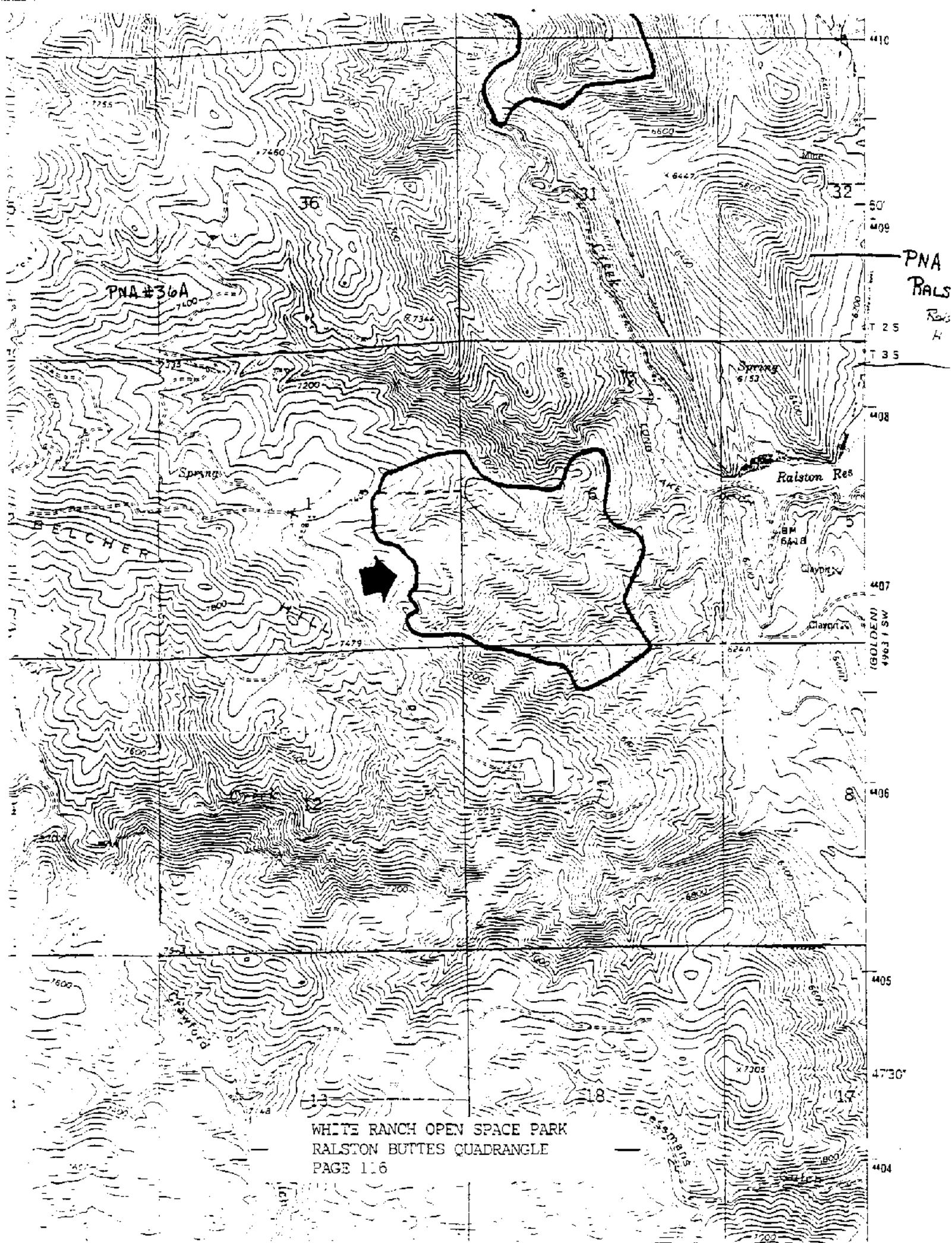
Element	Common Name	Occurrence Rank	Global Rank	State Rank	Federal Status	State Status
<u>Pinus ponderosa/</u> <u>Schizachyrium scoparium</u>		B	G?	S?	-	-
<u>Pinus ponderosa/</u> <u>Cercocarpus montanus/</u> <u>Andropogon gerardii</u>	Foothills ponderosa pine scrub woodlands	B	G2	S2?	-	-

CURRENT STATUS: The area is within White Ranch County Park. Trails in the area are used by mountain biker, horseback riders, and hikers.

BOUNDARY JUSTIFICATION: The conservation site boundaries include all foothills ponderosa pine scrub woodland habitat. Within these boundaries, management could replicate the natural succession of vegetation patches (see below).

PROTECTION AND MANAGEMENT CONSIDERATIONS: Lack of fires are probably one reason we see so little of the foothills ponderosa pine scrub woodlands community. The paucity of fires allows the trees and shrubs to become dense and therefore

eliminating the grassland. Controlled burns should be considered a part of the management for this park. This could be used as an important educational tool and would benefit many of the common native wildlife species of the area.



APPENDIX C:

Potential Natural Areas identified during the Jefferson County natural heritage inventory.

<u>PNA#</u>	<u>PNA NAME</u>
4	<p>Horse Creek:</p> <p>A rugged narrow canyon with a diversity of vegetation. Many species of invasive weeds and other exotics are present. Excellent, rugged scenery and light recreational potential.</p>
10	<p>Mount Tom Trib North:</p> <p>This area was of high quality, but with no occurrences of significant element. The riparian habitat and wetland areas are worthy of conservation attention. The area would accommodate light recreation with careful management.</p>
12	<p>Beaver Brook:</p> <p>This area is dominated by Ponderosa pine and Douglas fir. It is rugged (along the creek) with spectacular views from higher places. The woodland is in good condition. The area could sustain light recreational use. Area of steep slopes presents some hazards.</p>
17	<p>Mason Creek:</p> <p>This higher elevation mesic forest was logged but still retains some very large trees. The highest portions are reasonably high quality. The area could sustain light to moderate recreational use. The creek is perennial and scenic. Portions of the stream course are narrow-walled small gorges.</p>
18	<p>Gooseberry Gulch:</p> <p>This area is lightly developed residential. A mixture of scenic meadows and forest with at least one artificial lake. A small stand of oat grass dwells in a forest opening. The area has been disturbed and could sustain recreational use.</p>
19	<p>Shattuck Gulch:</p> <p>Only a portion of this area was accessed. The area is large and open with scenic views of the surrounding mountains. Some areas are savanna-like. Recreational use could be sustained.</p>

- 21 Buffalo Peak:
Beautiful scenery and high forests. This is the only mountain in the county that reaches alpine ecosystems. The area is contained in the Pike National Forest.
- 23 Coal Creek Talus:
Within the scenic portions of Coal Creek Canyon. The area of talus is very steep and dangerous. The slopes of the canyon are very rugged and would, where trails could be safely constructed, provide exceptional recreational activities. On the rims of the canyon are variously developed rock outcrops and dry forests. The scenery into the high mountains of the Front Range are of high quality. The area is serene with an abundance of wildlife. Although impacted, the area would provide exceptional open space.
- 27 Guy Hill East:
Viewed from a distance using binoculars and scopes, the area provides access to some of the most rugged country in Jefferson County. Overlooking Guy Gulch the area is heavily grazed, but the scenic vistas are impressive. The area could sustain recreation. Wildlife values are moderate in the grazed areas, but higher in the ravines and canyons.
- 28 Guy Gulch/Elk Creek:
This area is extensive, scenic, and rugged. Much of the area is apparently recovering from once intensive grazing. Wildlife and butterflies were abundant. The scenery into the higher country to the west was beautiful. This area would provide exceptional open space and general purpose natural areas.
- 32 Buffalo Creek-Northwest:
This portion of the N. Fk. South Platte River is heavily grazed and used for haying. The area is pleasant with some riparian vegetation. Recreational use would be compatible with the conservation needs.
- 45 Little Scraggy Peaks:
Exceptionally rugged area within the Pike National Forest, this area would be a high quality recreational experience.
- 51 Gilmore Chapel:
A riparian habitat is contained here, but vegetatively is in poor condition. Still the primary elements of a function system are

intact. The area would provide high quality recreational experience. Wildlife watching would be desirable.

- 55 South Table Mountain:
This well known mesa provides scenic views of Denver and the Front Range. High cliffs on the northern, eastern and western portions of the mesa are spectacular. The area is heavily invaded by weeds except on the steepest slopes. The cliffs are used by various birds, including some raptors. The area would sustain heavy recreation (since it is already weedy). Some care would be necessary for breeding birds on cliffs.
- 57 Morrison Hogback-North:
Portions of this area are already owned by Jefferson County. The views from the hogbacks are always good, but there is considerable disturbance on the east side of the area. In addition, traffic noise is high, detracting from the experience. On the positive side, the area can provide recreational opportunities.
- 58 Mount Glennon:
The natural communities on Mount Glennon are in reasonably good shape. The eastern slopes are particularly interesting. Rattlesnakes are common in some areas, birds abundant. Traffic noise from 470 is a distraction. Access is currently difficult. Some of the terrain is hazardous. Views are good. Golden eagles use the rocks on the hogback ridges as perches.
- 76 Bald Mountain Canyon:
Very rugged terrain with a good cover of vegetation. The steepness of the area present some hazards. The experience can be of high quality. Views from certain vantage points are also good. Some development occurring on the rim of the canyon.
- 77 Bull Gulch:
Another very rugged area with high recreational values. Light recreation would be only acceptable amount. Steep areas and cliffs present some significant hazards.
- Other areas: Clear Creek Canyon:
This area provides a highly scenic vista while driving through the area. The remote cliffs and rock outcrops are inaccessible to all but the most hardy persons. Recreational opportunities would

be extensive, but restricted by serious hazards. Views from the rim of the canyon are usually of very high quality. In the upper reaches of the canyon, the bighorn sheep commonly occur during the winter. Due to the vastness of the area the canyon would provide valuable wildlife habitat. Active Golden eagle nests are known within the canyon. The grasslands and talus are used by these birds as feeding areas. The canyon is too steep to provide much riparian habitat. Some side canyons and gulches are wonderfully remote.

Crescent Mountain:

This Mountain and surrounding area provide some of the most rugged terrain in Jefferson County. Remote recreational opportunities would be appropriate. Wildlife recreation opportunities exist.

Wah Keeney Park:

Approximately one square mile of land south of this named park is rugged terrain and remains open. It could provide some excellent recreational opportunities for the Evergreen area.

Conifer Southwest:

An area just southwest of Conifer showed as open and fairly rugged on the aerial photos. The area is largely forested with some past mining activity. As far as hazards can be removed, the area would appear to make a good recreational land. Some wildlife values are likely.