

# Staunton State Park Biological Inventory



*Prepared by:*

Susan Spackman, David Anderson,  
Jeremy Siemers, Phyllis Pineda, and Jill Handwerk  
Colorado Natural Heritage Program, Colorado State University  
College of Natural Resources, 254 General Services Building  
Fort Collins, Colorado 80523

*Prepared for:*

Colorado State Parks,  
Jefferson and Park Counties, Colorado

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## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>RECOMMENDATIONS .....</b>	<b>3</b>
<b>OVERVIEW OF THE STUDY AREA.....</b>	<b>6</b>
<b>THE NATURAL HERITAGE NETWORK AND BIODIVERSITY .....</b>	<b>8</b>
WHAT IS BIOLOGICAL DIVERSITY?.....	8
COLORADO’S NATURAL HERITAGE PROGRAM .....	10
THE NATURAL HERITAGE RANKING SYSTEM.....	11
TABLE 1. DEFINITION OF COLORADO NATURAL HERITAGE IMPERILMENT RANKS.....	12
LEGAL DESIGNATIONS.....	13
TABLE 2. FEDERAL AND STATE AGENCY SPECIAL DESIGNATIONS.....	13
ELEMENT OCCURRENCE RANKING .....	14
POTENTIAL CONSERVATION AREAS .....	15
POTENTIAL CONSERVATION PLANNING BOUNDARIES .....	15
OFF-SITE CONSIDERATIONS .....	16
RANKING OF POTENTIAL CONSERVATION AREAS.....	16
PROTECTION URGENCY RANKS .....	17
MANAGEMENT URGENCY RANKS.....	17
<b>INVENTORY METHODS .....</b>	<b>19</b>
COLLECT INFORMATION.....	19
IDENTIFY TARGETED ELEMENTS OF GLOBAL AND STATE-WIDE CONCERN.....	19
TABLE 3. TARGETED ELEMENTS OF GLOBAL OR STATE-WIDE CONCERN .....	20
IDENTIFY TARGETED INVENTORY AREAS.....	22
CONDUCT FIELD SURVEYS .....	22
DELINEATE POTENTIAL CONSERVATION AREAS .....	23
<b>RESULTS.....</b>	<b>24</b>
TABLE 4. ELEMENTS OF GLOBAL OR STATE-WIDE CONCERN DOCUMENTED IN THE STAUNTON STATE PARK POTENTIAL CONSERVATION AREAS .....	24
TABLE 5. STAUNTON STATE PARK POTENTIAL CONSERVATION AREAS .....	25
FIGURE 1. STAUNTON STATE PARK POTENTIAL CONSERVATION AREAS.....	26
PCA PROFILE EXPLANATION .....	27
STAUNTON STATE PARK POTENTIAL CONSERVATION AREAS .....	28
<i>Black Mountain Creek</i> .....	28
<i>Black Mountain</i> .....	33
<i>Elk Falls</i> .....	38
<i>North Elk Creek</i> .....	42
<i>Rock Outcrop West of Mason Creek</i> .....	47
<b>BIRDS OBSERVED IN STAUNTON STATE PARK DURING INVENTORY.....</b>	<b>51</b>
<b>WEED LIST FOR STAUNTON STATE PARK.....</b>	<b>52</b>
MAP OF WEED OCCURRENCES IN STAUNTON STATE PARK .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
<b>REFERENCES .....</b>	<b>54</b>

## Executive Summary

In 1999, the Colorado Natural Heritage Program (CNHP) was contracted by Colorado State Parks to assess the natural heritage values of lands in Staunton State Park. This project was completed during the summer and fall of 1999.

The primary goal of the project was to identify the locations in Staunton State Park with natural heritage significance. These locations were identified by 1) examining existing biological data, 2) accumulating additional information from other sources on rare or imperiled plant species, animal species, and significant plant communities (collectively called **elements**), and 3) conducting field surveys.

Five rare or imperiled plant or animal species and significant plant communities (elements) have been documented in Staunton State Park. Three of these natural heritage elements are globally significant. Two other elements found in the park have state-wide significance. Overall, the concentration of elements indicates that conservation in Staunton State Park will have state-wide as well as global consequences.

Locations in the park with natural heritage significance (places where elements have been documented) are presented in this report as **potential conservation areas (PCA)**. **The potential conservation area boundaries designated in this report do not confer any regulatory protection on the area.** These boundaries were based on our best estimate of the ecological processes needed to support the elements within that area. Five PCAs are described and prioritized. The PCAs are prioritized according to their **biodiversity significance rank**, which ranges from B1 (outstanding biodiversity significance) to B5 (general or state-wide biodiversity significance). The highest ranking PCAs (B2 in Black Mountain Creek and Black Mountain) are the highest priorities for conservation action. The sum of all the PCAs in this report represents the area CNHP believes needs to be protected to ensure the park's natural heritage is not lost. Recommendations for protection and management of each PCA are presented.

The new information gathered during this inventory was placed in the Natural Heritage Program's database, the Biological and Conservation Data System (BCD). The BCD is used throughout the entire Natural Heritage network (which consists of eighty five offices throughout North America, Latin America, and South America) to maintain species and community information and to assess each element's degree of imperilment. By incorporating new information into the BCD we can refine our conservation priorities. The new information becomes part of a permanent record of Colorado's natural heritage. It is important to keep in mind that the BCD is a very active database, continually being updated as we gather new data.

The Natural Heritage Biological Inventory was conducted in several steps:

1. **Identify rare or imperiled species and significant plant communities with potential to occur in Staunton State Park.** Using known range and life history information, 32 natural heritage elements potentially occurring in Staunton State Park were identified.
2. **Collect existing information.** CNHP databases were updated with information about both species' biology and locations within Staunton State Park. Sources included museum collections, scientific literature, and a prior CNHP biological inventory in Jefferson County.
3. **Identify targeted inventory areas.** Using the information collected in step 2 and aerial photography, targeted inventory areas were identified based on several factors including the presence of potential habitat for rare or imperiled species and evidence of little human disturbance.
4. **Conduct field surveys.** Targeted inventory areas were surveyed on site. Data on the presence of elements were recorded, and an estimate of overall biological quality of the location was made.
5. **Delineate and prioritize potential conservation areas.** Preliminary conservation planning boundaries were identified based on our best estimate of the ecological processes that support the Natural Heritage elements at the site.

## Recommendations

- 1. Develop and implement a plan for protecting the Potential Conservation Areas (PCAs) profiled in this report, with the most attention directed toward PCAs with biodiversity rank (B-rank) B2 and B3.** The PCAs in this report provide Staunton State Park with a basic framework for implementing a comprehensive conservation program. The B2 and B3 PCAs (four of the five delineated in this inventory) should receive the most attention as they have the highest global and statewide significance. The sum of all the PCAs in this report represents the area CNHP believes needs to be protected to ensure that the natural heritage of Staunton State Park is not lost.
- 2. Consider open space acquisition, conservation easements and/or voluntary management agreements such as Natural Area designation for potential conservation areas where appropriate and necessary to protect their ecological values.**

Three PCAs delineated in this inventory contain significant natural heritage resources that lie on private land outside the park. The addition of these areas to the park would add additional protection to the elements within those PCAs, and augment the park's existing natural heritage resources. A possible source of funds to protect these PCAs as open space is Great Outdoors Colorado, which supports open space grants to protect natural areas of state-wide significance.
- 3. Incorporate the information included in this report in the review of proposed park activities in or near PCAs so that the activities do not adversely affect natural heritage elements.** All of the PCAs presented contain natural heritage elements of state or global significance. Development activities in or near a PCA may affect the element(s) present. Wetland and riparian PCAs are particularly susceptible to impacts from off-site activities if the activities affect water quality or hydrologic regimes. In addition, cumulative impacts from many small changes can have effects as profound and far-reaching as one large impact. As proposed activities within Staunton State Park are considered, they should be compared to the PCA maps presented herein. If a proposed project would potentially impact a PCA, planning personnel should contact persons, organizations, or agencies with expertise to get detailed comments. The Colorado Natural Heritage Program, Colorado Natural Areas Program, and Colorado Division of Wildlife routinely conduct environmental reviews state-wide and should be considered available resources.
- 4. Increase public awareness of the benefits of protecting significant natural areas.**

Natural lands are becoming ever more scarce, especially those near densely populated areas. Rare and imperiled species will continue to decline if not given appropriate protection. This will result not only in the loss of our natural heritage, but may also lead to additional conflicts between developers and natural resource managers. Increasing the public's knowledge of the remaining significant areas will build support for the programmatic initiatives necessary to protect them. Some visitor awareness activities to consider for Staunton are natural heritage slideshows, talks ("fireside chats") by park personnel and guest

speakers, and short nature walks with educational signs. Trails that have an accompanying brochure and numbers that correspond to trail markers at interesting natural features could be constructed.

5. **A conservation action plan should be developed to ensure the protection of the population of Weber monkeyflower (*Mimulus gemmiparus*) in Staunton State Park.** One small occurrence of this globally rare plant is known within the park in a highly vulnerable place. The population in the park is probably only extant currently because the area has been closed to the public for so long. Without a concerted effort to protect this occurrence, it will likely be extirpated by hikers visiting the waterfall and seep where it is found. Because the plant is quite small and innocuous, even well intentioned, careful hikers could trample it through no fault of their own. Two children playing under this waterfall for half an hour would be capable of destroying all of one year's viable plants. One recommendation for managing this population is to not build a trail through the valley of upper Black Mountain Creek. It is also recommended that signs warning hikers about the plant be installed in the area of the occurrence. Park educational efforts should inform visitors about this rare and interesting plant.
  
6. **Manage rock climbing in the vicinity of Peregrine Falcon nests and boykinia populations.** Because of the numerous potential areas for climbing and close proximity to major metropolitan areas, Staunton State Park is likely to receive heavy use from the rock climbing community. Issues concerning rock climbing should be a high priority in the near future in order to preserve the park's natural heritage resources. Climbing should be discouraged in areas where boykinia (*Telesonix jamesii*) grows in abundance. Climbing routes should not pass through boykinia populations. Climbing routes should also avoid the Peregrine Falcon nesting site in the Elk Falls PCA. Human encroachment within ½ mile of the nesting area should be restricted from March 15 to July 31 (Craig 1997). Cliff-roosting bats (*Myotis lucifugus* and *Myotis evotis*) were also documented in the park. Park personnel should be informed and able to explain to climbers what they should avoid when climbing. Educational signage and brochures regarding park climbing ethics and regulations should be distributed and maintained in climbing areas. These resources should include pictures of boykinia and of peregrine nests. Climbers who are able to identify boykinia and the nests of peregrines could provide valuable locational information about these occurrences in the park.
  
7. **Develop a weed eradication strategy for Staunton State Park.** Several weedy areas were identified within the park. To prevent further infestation when visitation of the park begins, eradication and containment of existing populations should begin as soon as possible. One option to consider is to organize volunteers to do weed pulls. This can be a highly effective strategy. Often these must continue for several years in earnest, until the seed bank is exhausted. Because the Davis Ranch area is very weedy, early efforts should focus there. Weed propagules could easily be transported to the rest of the park if it is allowed to remain weedy when the park is opened. Heavy equipment moving through the area during any construction projects or road improvements would also disperse weed seeds. Two other problematic sites were identified within the park. One is the large meadow on lower Mason



Creek. The other is an area near the current park entrance, south of the junction of the Black Mountain Creek road with the main road through the park (Please see map on page 52).

8. **Roads that heavily impact the element occurrences in the park should be closed, moved, or converted to trails (see "Staunton State Park Potential Conservation Areas" on page 28 for site-specific recommendations).** Several areas within the park boundary are accessed by roads that have already seriously impacted element occurrences within the park. Other areas have roads that will become more problematic when the park is opened to the public. Roads that access weedy areas, such as the Davis Ranch, will act as corridors for weed dispersal to the rest of the park. A park management plan should place a high priority on addressing these problems.

## Overview of the Study Area

Though Staunton State Park is relatively small, it encompasses an area of great landscape heterogeneity. Elevation within the park ranges from 8040 feet near the Mason Creek- Elk Creek confluence to 10,120 feet near the summit of Black Mountain on the north side of the park. Broad lowlands and riparian areas contrast sharply with the steep slopes and cliffs of granite in the park's uplands. This has resulted in a broad range of habitat types, and has endowed Staunton with a diverse flora and fauna.

Three major creek drainages, North Elk Creek, Black Mountain Creek, and Mason Creek, flow through the park in a more or less north to south direction. The creeks support riparian forests, wetlands, and wet meadows in the valley bottoms. The uplands within the park support montane forests dominated by ponderosa pine, Douglas fir, and lodgepole pine. Subalpine forests of Engelmann spruce, limber pine, and subalpine fir are found at higher elevations, particularly in the northern part of the park. Granite cliffs and rock outcrops throughout the park support populations of lithophilic (rock loving) plants.

The findings of this inventory show that Staunton State Park contains a wealth of natural heritage resources. The valley bottoms of the park support important riparian forests, such as the globally imperiled montane riparian woodland community (*Picea pungens/Betula occidentalis*) on Black Mountain Creek. The broad valleys of North Elk Creek support lush wetlands including an occurrence of a *Carex nebrascensis* wet slope meadow. This wetland is a fen, which is a very uncommon wetland type at low elevations in Colorado. Many rock outcrops and cliffs within the park were found to support boykinia (*Telesonix jamesii*), a state imperiled plant. Cliffs within the park provide nesting habitat for peregrine falcons (*Falco peregrinus anatum*). The park has six known locations of granite seeps, one of which supports a population of a globally rare Colorado endemic plant, Weber monkeyflower (*Mimulus gemmiparus*).

The former 1600 acre Staunton Ranch makes up the majority of what is now Staunton State Park. It was donated to the State by Francis Staunton in the late 1960's on the condition that it would one day be developed into a state park. In 1999 the state closed on the purchase of two additional properties adjacent to the Staunton Ranch. These are the 1200 acre Elk Falls Ranch to the west, and the 700 acre Davis Ranch to the southeast. These three properties together account for the total area of the park at 3500 acres (Bob Bruce, pers. com. with CNHP 1999).

The land use history of the three ranches differs, with the Davis property evidently having been most heavily impacted. It was run as a working cattle ranch until recently when it was acquired by the state. There was also a logging mill on the property and the surrounding forests were cut while this mill was in operation. The Staunton Ranch was also logged and another mill was located on this property on Black Mountain Creek. The remains of this mill, a mess hall, and a cable system for carrying logs over the canyon of Black Mountain Creek are still on the site. Timber from these mills was probably used for railroad ties during the construction of the

railroad. The Elk Falls Ranch, particularly the more rugged southern part of the property, was not as intensively used. A small reservoir on North Elk Creek has been stocked and used as a fishing camp for many years (pers. com. Bob Bruce 1999 with CNHP).

Some areas of the park have become weedy as a result of historical land use practices, and from roadside invasions. Proximity to heavily urbanized areas and increased use of the park are likely to exacerbate weed problems in the future and will require the development of invasive species control strategies. Numerous noxious weed species were found in the park in various locations (see the Weed List for Staunton State Park, page 52). They could have a serious impact on the park's natural heritage resources if they are not contained and eradicated.

Rapid development in the area surrounding Staunton State Park has resulted in much of the park becoming insularized from natural areas to the south, east and west. The north boundary of the park is contiguous with the Pike National Forest.

## **The Natural Heritage Network and Biodiversity**

Colorado is well known for its rich diversity of geography, wildlife, plants, and plant communities. However, like many other states, it is experiencing a loss of much of its flora and fauna. This decline in biodiversity is a global trend resulting from human population growth, land development, and subsequent habitat loss. Globally, the loss in species diversity has become so rapid and severe that Wilson (1988) has compared the phenomenon to the great natural catastrophes at the end of the Paleozoic and Mesozoic eras.

The need to address this loss in biodiversity has been recognized for decades in the scientific community. However, many conservation efforts made in this country were not based upon preserving biodiversity; instead, they primarily focused on preserving game animals, striking scenery, and locally favorite open spaces. To address the absence of a methodical, scientifically-based approach to preserving biodiversity, Robert Jenkins, in association with The Nature Conservancy, developed the Natural Heritage Methodology in 1978.

Recognizing that rare and imperiled species are more likely to become extinct than common ones, the Natural Heritage Methodology ranks species according to their rarity or degree of imperilment. The ranking system is scientifically based upon the number of known locations of the species as well as its biology and known threats. By ranking the relative rareness or imperilment of a species, the quality of its populations, and the importance of associated conservation sites, the methodology can facilitate the prioritization of conservation efforts so the most rare and imperiled species may be preserved first. As the scientific community began to realize that plant communities are equally important as individual species, this methodology has also been applied to ranking and preserving rare plant communities, as well as the best examples of common communities.

The Natural Heritage Methodology is used by Natural Heritage Programs throughout North, Central, and South America, forming an international database network. Natural Heritage Network data centers are located in each of the 50 U.S. states, five provinces of Canada, and 13 countries in South and Central America and the Caribbean. This network enables scientists to monitor the status of species from a state, national, and global perspective. It also enables conservationists and natural resource managers to make informed, objective decisions in prioritizing and focusing conservation efforts.

### **What is Biological Diversity?**

Protecting biological diversity has become an important management issue for many natural resource professionals. Biological diversity at its most basic level includes the full range of species on Earth, from species such as bacteria, and protists, through multicellular kingdoms of plants, animals, and fungi. At finer levels of organization, biological diversity includes the genetic variation within species, both among geographically separated populations and among

individuals within a single population. On a wider scale, diversity includes variations in the biological communities in which species live, the ecosystems in which communities exist, and the interactions between these levels. All levels are necessary for the continued survival of species and plant communities, and all are important for the well-being of humans. It stands to reason that biological diversity should be of concern to all people.

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 within its geographic range. Loss of a population results in a loss of genetic diversity for that species and a reduction of total biological diversity for the region. This unique genetic information cannot be reclaimed.
2. **Species Diversity** -- the total number and abundance of plant and animal species and subspecies in an area.
3. **Community Diversity** -- the variety of plant communities within an area that represent the range of species relationships and inter-dependence. These communities may be diagnostic or even restricted to an area. It is within communities that all life dwells.
4. **Landscape Diversity** -- the type, condition, pattern, and connectedness of natural communities. A landscape consisting of a mosaic of natural communities may contain one multifaceted ecosystem, such as a wetland ecosystem. A landscape also may contain several distinct ecosystems, such as a riparian corridor meandering through shortgrass prairie. Fragmentation of 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.

The conservation of biological diversity must include all levels of diversity: genetic, species, community, and landscape. Each level is dependent on the other levels and inextricably linked. In addition, and all too often omitted, humans are also linked to all levels of this hierarchy. We at the Colorado Natural Heritage Program believe that a healthy natural environment and human environment go hand in hand, and that recognition of the most imperiled elements is an important step in comprehensive conservation planning.

## **Colorado's Natural Heritage Program**

To place this document in context, it is useful to understand the history and functions of the Colorado Natural Heritage Program (CNHP).

CNHP is the state's primary comprehensive biological diversity data center, gathering information and field observations to help develop state-wide conservation priorities. After operating in Colorado for 14 years, the Program was relocated from the State Division of Parks and Outdoor Recreation to the University of Colorado Museum in 1992, and more recently to the College of Natural Resources at Colorado State University.

The multi-disciplinary team of scientists and information managers at CNHP gathers comprehensive information on the rare, threatened, and endangered species and significant plant communities of Colorado. Life history, status, and locational data are incorporated into a continually updated data system. Sources include published and unpublished literature, museum and herbaria labels, and field surveys conducted by knowledgeable naturalists, experts, agency personnel, and our own staff of botanists, ecologists, and zoologists. Information management staff carefully plot the data on 1:24,000 scale U.S.G.S. maps and enter it into the Biological and Conservation Data System. This locational information is incorporated into a GIS system (Arcview and Arcinfo). The Element Occurrence database can be accessed from a variety of angles, including taxonomic group, global and state rarity rank, federal and state legal status, source, observation date, county, quadrangle map, watershed, management area, township, range, and section, precision, and conservation unit.

CNHP is part of an international network of conservation data centers that use the Biological and Conservation Data System developed by The Nature Conservancy. CNHP has effective relationships with several state and federal agencies, including the Colorado Natural Areas Program, Colorado Department of Natural Resources and the Colorado Division of Wildlife, the U.S. Environmental Protection Agency, and the U.S. Forest Service. Numerous local governments and private entities also work closely with CNHP. Use of the data by many different individuals and organizations, including Great Outdoors Colorado, encourages a proactive approach to development and conservation thereby reducing the potential for conflict. Information collected by the Natural Heritage Programs around the globe provides a means to protect species before the need for legal endangerment status arises.

Concentrating on site-specific data for each element of natural diversity enables us to evaluate the significance of each location to the conservation of natural biological diversity in Colorado and in the nation. By using species imperilment ranks and quality ratings for each location, priorities can be established for the protection of the most sensitive or imperiled PCAs. A continually updated locational database and priority-setting system such as that maintained by CNHP provides an effective, proactive land-planning tool.

## The Natural Heritage Ranking System

Information is gathered by CNHP on Colorado's plants, animals, and plant communities. Each of these species and plant communities is considered an **element of natural diversity**, or simply an **element**. Each element is assigned a rank that indicates its relative degree of imperilment on a five-point scale (e.g., 1 = extremely rare/imperiled, 5 = abundant/secure). The primary criterion for ranking elements is the number of occurrences, i.e., the number of known distinct localities or populations. This factor is weighted more heavily because an element found in one place is more imperiled than something found in twenty-one places. Also of importance are the size of the geographic range, the number of individuals, trends in both population and distribution, identifiable threats, and the number of already protected occurrences.

Element imperilment ranks are assigned both in terms of the element's degree of imperilment within Colorado (its State or S-rank) and the element's imperilment over its entire range (its Global or G-rank). Taken together, these two ranks give an instant picture of the degree of imperilment of an element. For example, the lynx, which is thought to be secure in northern North America but is known from less than 5 current locations in Colorado, is ranked G5S1. The Rocky Mountain Columbine which is known only from Colorado, from about 30 locations, is ranked a G3S3. Further, a tiger beetle that is only known from one location in the world at the Great Sand Dunes National Monument is ranked G1S1. CNHP actively collects, maps, and electronically processes specific occurrence information for elements considered extremely imperiled to vulnerable (S1 - S3). Those with a ranking of S3S4 are "watchlisted," meaning that specific occurrence data are collected and periodically analyzed to determine whether more active tracking is warranted. A complete description of each of the Natural Heritage ranks is provided in Table 1.

This single rank system works readily for all species except those that are migratory. Those animals that migrate may spend only a portion of their life cycles within the state. In these cases, it is necessary to distinguish between breeding, non-breeding, and resident species. As noted in Table 1, ranks followed by a "B", e.g., S1B, indicate that the rank applies only to the status of breeding occurrences. Similarly, ranks followed by an "N", e.g., S4N, refer to non-breeding status, typically during migration and winter. Elements without this notation are believed to be year-round residents within the state.

**Table 1. Definition of Colorado Natural Heritage Imperilment Ranks.**

Global imperilment ranks are based on the range-wide status of a species. State imperilment ranks are based on the status of a species in an individual state. State and Global ranks are denoted, respectively, with an "S" or a "G" followed by a character. **These ranks should not be interpreted as legal**

**G/S1** Critically imperiled globally/state because of rarity (5 or fewer occurrences in the world/state; or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction.

**G/S2** Imperiled globally/state because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extinction throughout its range.

**G/S3** Vulnerable through its range or found locally in a restricted range (21 to 100 occurrences).

**G/S4** Apparently secure globally/state, though it might be quite rare in parts of its range, especially at the periphery.

**G/S5** Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

**GX** Presumed extinct.

**G#?** Indicates uncertainty about an assigned global rank.

**G/SU** Unable to assign rank due to lack of available information.

**GQ** Indicates uncertainty about taxonomic status.

**G/SH** Historically known, but not verified for an extended period, usually.

**G#T#** Trinomial rank (T) is used for subspecies or varieties. These taxa are ranked on the same criteria as G1-G5.

**S#B** Refers to the breeding season imperilment of elements that are not permanent residents.

**S#N** Refers to the non-breeding season imperilment of elements that are not permanent residents.

Where no consistent location can be discerned for migrants or non-breeding populations, a rank of SZN is used.

**SZ** Migrant whose occurrences are too irregular, transitory, and/or dispersed to be reliably identified, mapped, and protected.

**SA** Accidental in the state.

**SR** Reported to occur in the state, but unverified.

**S?** Unranked. Some evidence that species may be imperiled, but awaiting formal rarity ranking.

Notes: Where two numbers appear in a state or global rank (e.g., S2S3), the actual rank of the element falls between the two numbers.



## Legal Designations

### **Natural Heritage imperilment ranks should not be interpreted as legal designations.**

Although most species protected under state or federal endangered species laws are extremely rare, not all rare species receive legal protection. Legal status is designated by either the U.S. Fish and Wildlife Service under the Endangered Species Act or by the Colorado Division of Wildlife under Colorado Statutes 33-2-105 Article 2. In addition, the U.S. Forest Service recognizes some species as "Sensitive," as does the Bureau of Land Management. Table 2 defines the special status assigned by these agencies and provides a key to the abbreviations used by CNHP.

**Table 2. Federal and State Agency Special Designations.**

#### **Federal Status:**

1. U.S. Fish and Wildlife Service (58 Federal Register 51147, 1993) and (61 Federal Register 7598, 1996)

**LE** Endangered; taxa formally listed as endangered.

**E(S/A)** Endangered due to similarity of appearance with listed species.

**LT** Threatened; taxa formally listed as threatened.

**P** Proposed E or T; taxa formally proposed for listing as endangered or threatened.

**C** Candidate: taxa for which the Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened.

2. U.S. Forest Service (Forest Service Manual 2670.5) (noted by the Forest Service as "S")

**FS** Sensitive: those plant and animal species identified by the Regional Forester for which population viability is a concern as evidenced by:

a. Significant current or predicted downward trends in population numbers or density.

b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

3. Bureau of Land Management (BLM Manual 6840.06D) (noted by BLM as "S")

**BLM** Sensitive: those species found on public lands, designated by a State Director, that could easily become endangered or extinct in a state. The protection provided for sensitive species is the same as that provided for C (candidate) species.

#### **State Status:**

1. Colorado Division of Wildlife

**E** Endangered

**T** Threatened

**SC** Special Concern

## Element Occurrence Ranking

Actual locations of elements, whether they be single organisms, populations, or plant communities, are referred to as **element occurrences**. The element occurrence is considered the most fundamental unit of conservation interest and is at the heart of the Natural Heritage Methodology. In order to prioritize element occurrences for a given species, an element occurrence rank (EO-Rank) is assigned according to their ecological quality whenever sufficient information is available. This ranking system is designed to indicate which occurrences are the healthiest and ecologically the most viable, thus focusing conservation efforts where they will be most successful. The EO-Rank is based on 3 factors:

**Size** – a quantitative measure of the area and/or abundance of an occurrence such as area of occupancy, population abundance, population density, or population fluctuation.

**Condition** – an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Components may include reproduction and health, development/maturity for communities, ecological processes, species composition and structure, and abiotic, physical or chemical factors.

**Viability** – an integrated measure of the quality of biotic and abiotic factors, and processes surrounding the occurrence, and the degree to which they affect the continued existence of the occurrence. Components may include landscape structure and extent, genetic connectivity, and condition of the surrounding landscape.

Each of these factors is rated on a scale of A through D, with A representing an excellent grade and D representing a poor grade. These grades are then averaged to determine an appropriate EO-Rank for the occurrence. If there is insufficient information available to rank an element occurrence, an EO-Rank of E is assigned. Possible EO-Ranks and their appropriate definitions are as follows:

- A** The occurrence is relatively large, pristine, defensible, and viable.
- B** The occurrence is small but in good condition, or large but removed from its natural condition and/or not viable and defensible.
- C** The occurrence is small, in poor condition, and possibly of questionable viability.
- D** The occurrence does not merit conservation efforts because it is too degraded or not viable.
- H** Historically known, but not verified for an extended period of time.
- X** Extirpated.
- E** The occurrence does not contain enough information to rank using the above ranks.
- F** The occurrence was not relocated; failed to find.

## Potential Conservation Areas

In order to successfully protect populations or occurrences, it is helpful to delineate Potential Conservation Areas. These PCAs focus on capturing the ecological processes that are necessary to support the continued existence of a particular element occurrence of natural heritage significance. Potential Conservation Areas may include a single occurrence of a rare element or a suite of rare element occurrences or significant features.

The goal of the process is to identify a land area that can provide the habitat and ecological processes upon which a particular element occurrence, or suite of element occurrences, depends for their continued existence. The best available knowledge of each species' life history is used in conjunction with information about topographic, geomorphic, and hydrologic features, vegetative cover, as well as current and potential land uses. **The proposed boundary does not automatically exclude all activity.** It is hypothesized that some activities will prove degrading to the element or the process on which they depend, while others will not. Consideration of specific activities or land use changes proposed within or adjacent to the preliminary conservation planning boundary should be carefully considered and evaluated for their consequences to the element on which the conservation unit is based.

## Potential Conservation Planning Boundaries

Once the presence of rare or imperiled species or significant plant communities has been confirmed, the first step towards their protection is the delineation of a **preliminary** conservation planning boundary. In general, the potential conservation area boundary is our best estimate of the primary area supporting the long-term survival of targeted species and plant communities. In developing such boundaries, CNHP staff considered a number of factors that include, but are not limited to:

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

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. **Please note that these boundaries are based primarily on our understanding of the ecological systems. A thorough analysis of the human context and potential stresses was not conducted. 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.**

### **Off-Site Considerations**

Furthermore, it is often the case that all relevant ecological processes cannot be contained within a PCA of reasonable size. Taken to the extreme, the threat of ozone depletion could expand every PCA to include the whole globe. The boundaries illustrated in this report signify the immediate, and therefore most important, area in need of protection. Continued landscape level conservation efforts are needed. This will involve county-wide efforts as well as coordination and cooperation with private landowners, neighboring land planners, and state and federal agencies.

### **Ranking of Potential Conservation Areas**

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

- B1**    Outstanding Significance: only location 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 or Regional Significance: good example of a community type, excellent or good occurrence of state-rare species.
- B5**    General or State-wide Biodiversity Significance: good or marginal occurrence of a community type, S1, or S2 species.

If an element occurrence is unranked due to a lack of information the element occurrence rank is considered a C rank. Similarly, if an element is a GU or G? it is treated as a G4.

## Protection Urgency Ranks

Protection urgency ranks (P-ranks) refer to the time frame in which conservation protection should occur. In most cases, this rank refers to the need for a major change of protective status (e.g., agency special area designations or ownership). The urgency for protection rating reflects the need to take legal, political, or other administrative measures to alleviate threats that are related to land ownership or designation. The following codes are used to indicate the rating which best describes the urgency to **protect** the area:

- P1** Immediately threatened by severely destructive forces, within 1 year of rank date; protect now or never!
- P2** Threat expected within 5 years.
- P3** Definable threat but not in the next 5 years.
- P4** No threat known for foreseeable future.
- P5** Land protection complete or adequate reasons exists not to protect the PCA; do not act on this PCA.

A protection action involves increasing the current level of legal protection accorded one or more tracts within a potential conservation area. It may also include activities such as educational or public relations campaigns or collaborative planning efforts with public or private entities to minimize adverse impacts to element occurrences at a site. It does not include management actions. Threats that may require a protection action are as follows:

- 1) Anthropogenic forces that threaten the existence of one or more element occurrences at a PCA; e.g., development that would destroy, degrade or seriously compromise the long-term viability of an element occurrence and timber, range, recreational, or hydrologic management that is incompatible with an element occurrence's existence;
- 2) The inability to undertake a management action in the absence of a protection action; e.g., obtaining a management agreement;
- 3) In extraordinary circumstances, a prospective change in ownership or management that will make future protection actions more difficult.

## Management Urgency Ranks

Management urgency ranks (M-ranks) indicate the time frame in which a change in management of the element or PCA should occur. This rank refers to the need for management in contrast to protection (e.g., increased fire frequency, decreased herbivory, weed control, etc.). The urgency for management rating focuses on land use management or land stewardship action required to maintain element occurrences at the potential conservation area.

A management action may include biological management (prescribed burning, removal of exotics, mowing, etc.) or people and site management (building barriers, rerouting trails, patrolling for collectors, hunters, or trespassers, etc.). Management action does not include

legal, political, or administrative measures taken to protect a potential conservation area. The following codes are used to indicate the action needed to be taken at the area:

- M1** Management action required immediately or element occurrences could be lost or irretrievably degraded within one year.
- M2** New management action will be needed within 5 years to prevent the loss of element occurrences.
- M3** New management action will be needed within 5 years to maintain current quality of element occurrences.
- M4** Although not currently threatened, management may be needed in the future to maintain the current quality of element occurrences.
- M5** No serious management needs known or anticipated at the PCA.

## **Inventory Methods**

The methods for assessing and prioritizing conservation needs over a large area are necessarily diverse. The Colorado Natural Heritage Program follows a general method which is continuously being developed specifically for this purpose. The Natural Heritage Inventory was conducted in several steps summarized below. Additionally, input from a committee of individuals representing local public and private interests was sought at all stages.

### **Collect Information**

CNHP databases were updated with information regarding the known locations of species and significant plant communities within Staunton State Park. A variety of information sources were searched for this information. The Colorado State University museums and herbarium were searched, as were plant and animal collections at the University of Colorado, Western State, Rocky Mountain Herbarium, and local private collections. Both general and specific literature sources were incorporated into CNHP databases, either in the form of locational information or as biological data pertaining to a species in general. Other information was gathered to help locate additional occurrences of natural heritage resources. Such information covers basic species and community biology including range, habitat, phenology (reproductive timing), food sources, and substrates. This information was entered into CNHP databases.

### **Identify Targeted Elements of Global and State-wide Concern**

The information collected in the previous step was used to refine a potential element list and to refine our search areas. In general, species and plant communities that have been recorded from Staunton State Park, or from adjacent areas, are included in this list. Species or plant communities which prefer habitats that are not included in this study area were removed from the list.

The following list of elements includes those elements currently monitored by CNHP that were thought to potentially occur in Staunton State Park, and were therefore targeted in CNHP field inventories. 32 rare species were targeted in these surveys. Any high quality examples of common plant communities or examples of rare plant communities were also sought during the field inventories; thus the targeted plant communities are not listed here.

The amount of effort given to the inventory for each of these elements is prioritized according to the element's rank. Globally-rare (G1 - G3) elements are given highest priority; state-rare elements are second.

**Table 3. Targeted Elements of Global or State-wide Concern**

List of targeted elements, organized by taxonomic group, identified for the Staunton State Park Inventory in 1999. Please see Table 1 for rank explanations.

Scientific Name	Common Name	Global Rank	State Rank	Fed Status	State Status	Fed Sens
<b>AMPHIBIANS</b>						
<i>Bufo boreas</i> pop. 1	boreal toad	G5T2Q	S1	C	E	FS
<i>Rana pipiens</i>	northern leopard frog	G5	S3		SC	FS
<b>BIRDS</b>						
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	G4T3	S2B, SZN	LE	T	
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	G3T3	S1B	LT	T	
<i>Butorides virescens</i>	Green Heron	G5	S3B			
<i>Cypseloides niger</i>	Black Swift		S3B			FS
<i>Accipiter gentilis</i>	Northern Goshawk	G5	S3B, SZN			FS
<i>Accipiter cooperii</i>	Cooper's Hawk	G5	S3S4B, S4N			
<i>Accipiter striatus</i>	Sharp-shinned Hawk	G5	S3S4B, S4N			
<b>MAMMALS</b>						
<i>Plecotus townsendii</i>	Townsend's big-eared bat	G4	S2			FS
<i>Lasiurus borealis</i>	eastern red bat	G4	S2			
<i>Myotis thysanodes</i>	fringed myotis	G5	S3			
<i>Sorex nanus</i>	dwarf shrew	G4	S2S3			FS
<i>Sorex hoyi</i>	pygmy shrew	G5T2T3	S2			FS
<b>FISH</b>						
none targeted						
<b>REPTILES</b>						
none targeted						
<b>INVERTEBRATES</b>						
<i>Paratrytone snowi</i>	snow skipper	G4/S3				
<i>Somotachlora hudsonica</i>	Hudsonian emerald	G5/S2S3				



**Table 3 (continued)**

Element Name	Element Common Name	Global Rank	State Rank	Fed Status	State Status	Fed Sens
<b>PLANTS</b>						
<i>Mimulus gemmiparus</i>	Weber monkeyflower	G2	S2			FS
<i>Potentilla effusa</i> var. <i>rupicola</i>	Rocky Mountain cinquefoil	G5?T2	S2			FS
<i>Botrychium campestre</i>	prairie moonwort	G3	S1			FS
<i>Potentilla ambigens</i>	southern Rocky Mountain cinquefoil	G3	S1S2			
<i>Botrychium hesperium</i>	western moonwort	G3	S2			
<i>Botrychium minganese</i>	Mingan moonwort	G4	S1			
<i>Pyrola picta</i>	pictureleaf wintergreen	G4G5	S2			
<i>Botrychium lanceolatum</i> var. <i>lanceolatum</i>	lance-leaved moonwort	G5T4	S2			
<i>Carex saximontana</i>	Rocky Mountain sedge	G5	S1			
<i>Goodyera repens</i>	dwarf rattlesnake plantain	G5	S2			
<i>Cypripedium pubescens</i>	yellow lady's slipper	G5	S2			
<i>Botrychium lunaria</i>	moonwort	G5	S3			
<i>Lilium philadelphicum</i>	wood lily	G5	S3			
<i>Listera convallarioides</i>	broad-leaved twayblade	G5	S2			
<i>Liatris ligulistylis</i>	gay-feather	G5?	S1S2			
<i>Lycopodium annotinum</i> var. <i>pungens</i>	stiff clubmoss	G5TU	SU			
<i>Telesonix jamesii</i>	boykinia	G4	S2?			

## **Identify Targeted Inventory Areas**

Survey sites were chosen based on their likelihood of harboring rare or imperiled species or significant plant communities. Previously documented locations were targeted, and additional potential areas were chosen using available information sources. Precisely known element locations were always included so that they could be verified and updated. Areas with potentially high natural values were chosen using aerial photographs, geology maps, and vegetation surveys. Aerial photography is perhaps the most useful tool in this step of the process. High resolution color aerial photographs at 1 inch= 400 feet scale (Ternary Spatial Research) were used for this project and are well suited for assessing vegetation types and, to some extent, natural conditions on the ground.

Using the biological information stored in the CNHP databases, these information sources were analyzed for areas having the highest potential for supporting specific elements. General habitat types can be discerned from aerial photographs. Those chosen for survey sites appeared to be in the most natural condition. In general, this means those sites that are the largest, least fragmented, and relatively free of visible disturbances, such as roads, trails, fences, quarries, etc.

The above information was used to delineate 13 survey areas that were believed to have relatively high probability of harboring natural heritage resources. These areas vary in size from 15 to 400 acres and include all major habitat types in the study area.

## **Conduct Field Surveys**

Survey sites where access could be obtained were visited at the appropriate time as dictated by the phenology of the individual elements. It is essential that surveys take place during a time when the targeted elements are detectable. For instance, breeding birds cannot be surveyed outside of the breeding season, and plants are often not identifiable without flowers or fruit which are only present during certain times of the year.

The methods used in the surveys vary according to the elements that were being targeted. In most cases, the appropriate habitats were visually searched in a systematic fashion that would attempt to cover the area as thoroughly as possible in the given time. Some types of organisms require special technique in order to capture and document their presence. These are summarized below:

**Amphibians:** visual or with aquatic nets

**Reptiles:** visual

**Mammals:** shrews, pitfall traps; bats, mist nets

**Birds:** visual or by song/call, evidence of breeding sought

**Insects:** aerial net

**Plants:** visual

**Plant communities:** visual, collect qualitative or quantitative composition data

When necessary and permitted, voucher specimens were collected and deposited in local university museums and herbaria.

When a rare species or significant plant community was discovered, its precise location and known extent was recorded on 1:24,000 scale topographic maps. Other data recorded at each occurrence included numbers observed, breeding status, habitat description, disturbance features, observable threats, and potential protection and management needs. The overall significance of each occurrence, relative to others of the same element, was estimated by rating the quality (size, vigor, etc.) of the population or community, the condition or naturalness of the habitat, and the long-term viability of the population or community. These factors are combined into an element occurrence rank, useful in refining conservation priorities. See the section on Natural Heritage Methodology for more about element occurrence ranking.

### **Delineate Potential Conservation Areas**

Finally, since the objective for this inventory is to prioritize specific areas for conservation efforts, Potential Conservation Area (PCA) boundaries were delineated. Such a boundary is an estimation of the minimum area needed to ensure persistence of the element. In order to ensure the preservation of an element, the ecological processes that support that occurrence must be preserved. The preliminary conservation planning boundary is meant to include features on the surrounding landscape that provide these functions. Data collected in the field are essential to delineating such a boundary, but other sources of information such as aerial photography are also used. These boundaries are considered preliminary and additional information about the PCA or the element may call for alterations to the boundaries.

## Results

Two of the targeted plant species, one of the targeted animal species, and two significant plant communities have been found in Staunton State Park (Please see table 4). These occurrences provide the foundation for a total of five Potential Conservation Areas that follow (please see table 5 for a summary of these PCAs). All of the data collected are housed and maintained in the Biological and Conservation Data System (BCD).

**Table 4. Elements of Global or State-wide Concern Documented in the Staunton State Park Potential Conservation Areas**

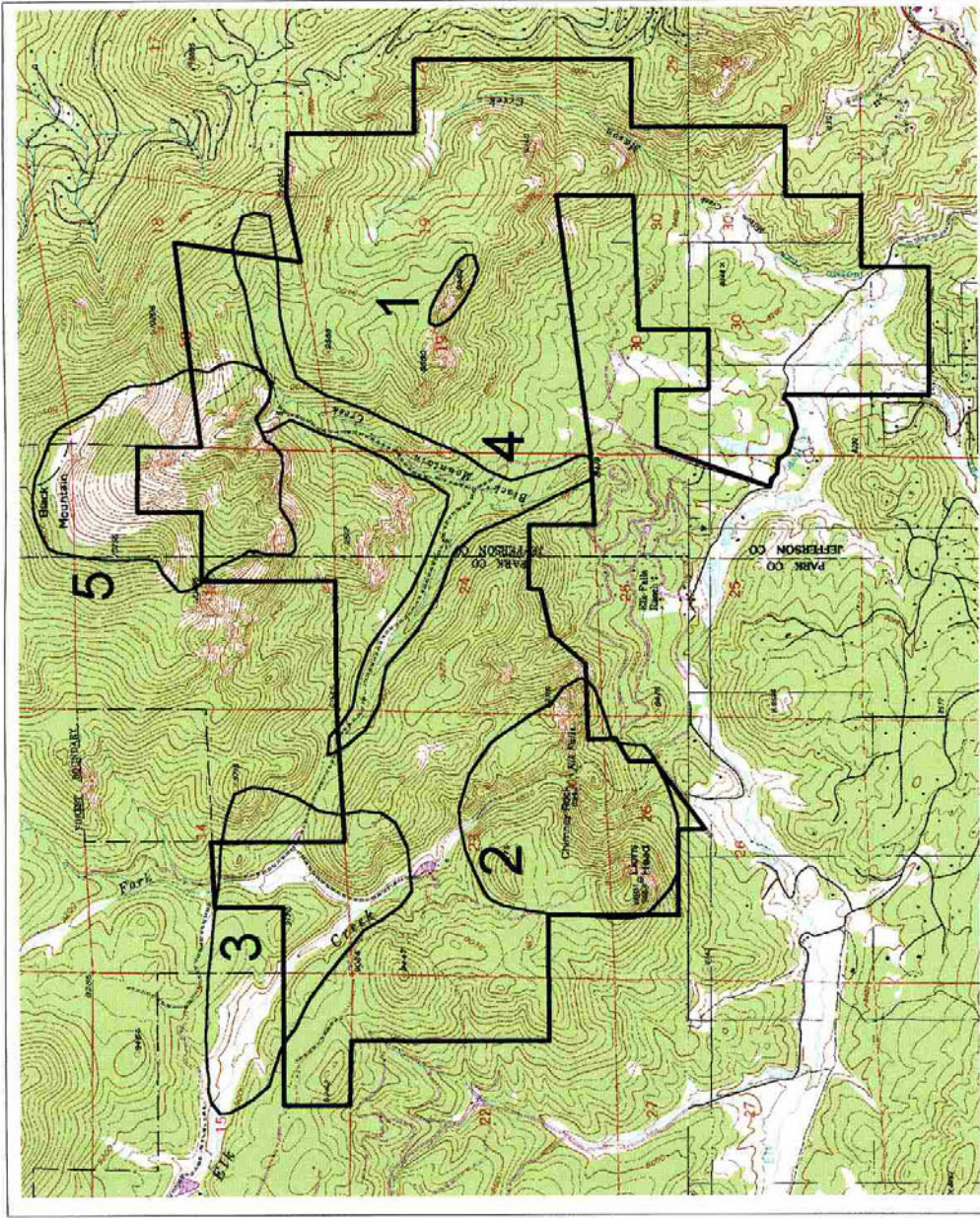
The following elements, organized by taxonomic group, have been documented in the Staunton State Park Potential Conservation Areas identified during the 1999 Staunton State Park Biological Inventory. Please see Tables 1 and 2 for rank and status definitions.

Scientific Name	Common Name	Global Rank	State Rank	Fed Status	State Status	Fed Sens
<b>AMPHIBIANS</b>						
none documented						
<b>BIRDS</b>						
<i>Falco peregrinus anatum</i>	Peregrine falcon	G4T3	S2B, SZN	LE		
<b>MAMMALS</b>						
none documented						
<b>FISH</b>						
none documented						
<b>REPTILES</b>						
none documented						
<b>PLANTS</b>						
<i>Mimulus gemmiparus</i>	Weber monkeyflower	G2	S2			FS
<i>Telesonix jamesii</i>	Boykinia	G4	S2?			
<b>INVERTEBRATES</b>						
none documented						
<b>PLANT COMMUNITIES</b>						
<i>Carex nebraskensis</i>	wet meadows	GU	S3?			
<i>Picea pungens/Betula occidentalis</i>	montane riparian woodland	G2	S2			

**Table 5. Staunton State Park Potential Conservation Areas**

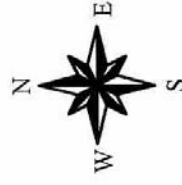
The following PCAs were identified during the 1999 Staunton State Park Biological Inventory. The Biodiversity Significance, Protection Urgency, and Management Urgency Ranks are included (see pages 11-18 for rank definitions). PCAs are listed in approximate order of priority for conservation attention.

<b>PCA Name</b>	<b>Biodiversity Rank</b>	<b>Protection Urgency Rank</b>	<b>Management Urgency Rank</b>
<b>Black Mountain Creek</b>	B2	P3	M2
<b>Black Mountain</b>	B2	P3	M2
<b>Elk Falls</b>	B3	P4	M2
<b>North Elk Creek</b>	B3	P3	M3
<b>Rock Outcrop West of Mason Creek</b>	B4	P4	M4



Location of Staunton State Park in Colorado

- Staunton State Park
- 1. Rock Outcrop PCA
- 2. Elk Falls PCA
- 3. North Elk Creek
- 4. Black Mountain Creek
- 5. Black Mountain



## Potential Conservation Areas in Staunton State Park

## PCA Profile Explanation

Each potential conservation area is described in a standard PCA report which reflects data fields in CNHP's Biological and Conservation Data System (BCD), used to track rare and imperiled elements. The sections of this report and the contents are outlined and explained below.

**Biodiversity Rank (B-rank):** The overall significance of the PCA in terms of rarity or imperilment of the natural heritage resources and the quality (condition, abundance, etc.) of the occurrences. Please see pages 11-18 for the definitions of the ranks.

**Protection Urgency Rank (P-rank):** An estimate of the time frame in which conservation protection should occur. This rank generally refers to the need for a major change of protective status (e.g., ownership or designation as a natural area). Please see pages 11- 18 for the definitions of the ranks.

**Management Urgency Rank (M-rank):** An estimate of the time frame in which conservation management should occur. Using the best available estimates, this rank refers to the need for management in contrast to protection (legal, political, or administrative measures). See pages 11- 18 for the definitions of the ranks.

**Location:** General location and specific road/trail directions.

**Legal Description:** U.S.G.S. 7.5 minute Quadrangle name and Township, Range, and Section(s).

**General Description:** A brief narrative picture of the topography, vegetation, current use, and size of the potential conservation area. Common names are used along with the scientific names.

**Biodiversity Rank Justification:** A synopsis of the rare species and significant plant communities that occur in the PCA. A table within the PCA profile lists the element occurrences found within the PCA, their ranks, the occurrence ranks, and federal and state agency designations. The species or community that is the primary element of concern is bolded within the table. See Table 1 for explanations of ranks and Table 2 for legal designations.

**Boundary Justification:** Justification for the location of the preliminary conservation planning boundary delineated in this report, which includes all known occurrences of natural heritage resources and, in some cases, adjacent lands required for their protection.

**Protection Comments:** A summary of major land ownership issues that may affect the PCA and the element(s) in the PCA.

**Management Comments:** A summary of PCA management issues that may affect the long-term viability of the PCA.



## Staunton State Park Potential Conservation Areas

### **Black Mountain Creek**

**Biodiversity Rank: B2** Very high significance

This PCA contains a good occurrence of a plant community that is imperiled on a global scale.

**Protection Urgency Rank: P3**

Most of the PCA is within the park boundary. However, the eastern end of the PCA is potentially threatened by housing developments in the future.

**Management Urgency Rank: M2**

Management actions are essential to prevent the loss of the occurrence. Actions should include weed control and restoration efforts, and restricted recreation access. Conversion of the 4WD road on Black Mountain Creek to a hiking trail is strongly recommended.

**Location:** Park and Jefferson counties. This PCA includes all of Black Mountain Creek and its tributaries within Staunton State Park with the exception of the headwaters of Black Mountain Creek just south of the summit of Black Mountain. One small part of the PCA is outside the park's eastern boundary on private land.

**Legal Description:** U.S.G.S. 7.5 minute Meridian Hill and Conifer quadrangles. T6S R71W S 18, 19. T6S R72W S 13, 14, 23, 24.

**General Description:** This PCA includes an extensive riparian system within the park that remains in good condition overall. It ranges in elevation from 10,000 feet near the headwaters of Black Mountain Creek and its northeast tributary to 8,400 feet near the southern border of the original Staunton property. It is contiguous with the Black Mountain PCA to the north, which includes the headwaters of Black Mountain Creek.

Much of the existing network of roads in the park are also included within this PCA, as these follow the creeks and their tributaries in most cases. The main thoroughfare through the park runs along the north bank of the west fork of Black Mountain Creek. A rough two-track road also runs north-south along Black Mountain Creek's west bank to an old timber mill near the north park boundary.

The riparian zone is somewhat narrow and is dominated by blue spruce (*Picea pungens*) and other conifers in most places. Along Black Mountain Creek, between the confluence with the west fork of Black Mountain Creek to the south and the timber mill to the north, the riparian area is dominated by blue spruce and river birch (*Betula occidentalis*). This globally rare association is found only in deep, moist canyons of the Colorado Front Range. Outside the park this association is greatly imperiled by the rapid development of the Front Range. As such, this community represents one of the Park's most valuable natural heritage resources.



The understory of the blue spruce/river birch community has a rich flora of mesic forbs and graminoids. Some of the species found were elephantella (*Pedicularis groenlandica*), twisted stalk (*Streptopus fassettii*), chiming bells (*Mertensia ciliata*), shooting star (*Dodecatheon pulchellum*), cow parsnip (*Heracleum sphondylium*), scouring rush (*Equisetum* sp.), strawberry (*Fragaria virginiana*), senecio (*Senecio triangularis*), woodrush (*Luzula parviflora*), and Canada reedgrass (*Calamagrostis canadensis*). In addition to blue spruce and river birch, the overstory contains Engelmann spruce (*Picea engelmannii*), quaking aspen (*Populus tremuloides*), Drummond's willow (*Salix drummondiana*), alder (*Alnus incana*), and wild rose (*Rosa woodsii*).

The adjacent upland areas support mixed coniferous forests of lodgepole pine (*Pinus contorta*), Douglas fir (*Pseudotsuga menziesii*), and limber pine (*Pinus flexilis*), with a sparsely vegetated understory of wintergreen (*Pyrola asarifolia*), golden banner (*Thermopsis divaricarpa*), harebell (*Campanula rotundifolia*), scorpionweed (*Phacelia heterophylla*), groundsel (*Packera* sp.), and penstemon (*Penstemon virens*).

**Biodiversity Rank Justification:** This PCA contains a good example of a globally imperiled riparian plant community (blue spruce/river birch riparian community). This plant association has only been documented in seven sites in foothill canyons of the Colorado Front Range in the South Platte River Basin.

Natural Heritage Element Occurrences at the Black Mountain Creek PCA.

Element	Common Name	Global Rank	State Rank	Federal Status	State Status	Federal Sens.	EO* Rank
<i>Picea pungens/Betula occidentalis</i>	Colorado blue spruce/river birch riparian forest	G2	S2				B

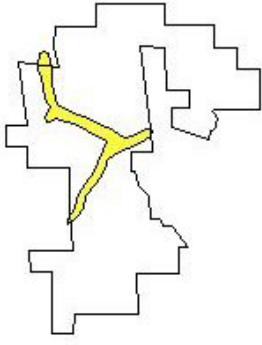
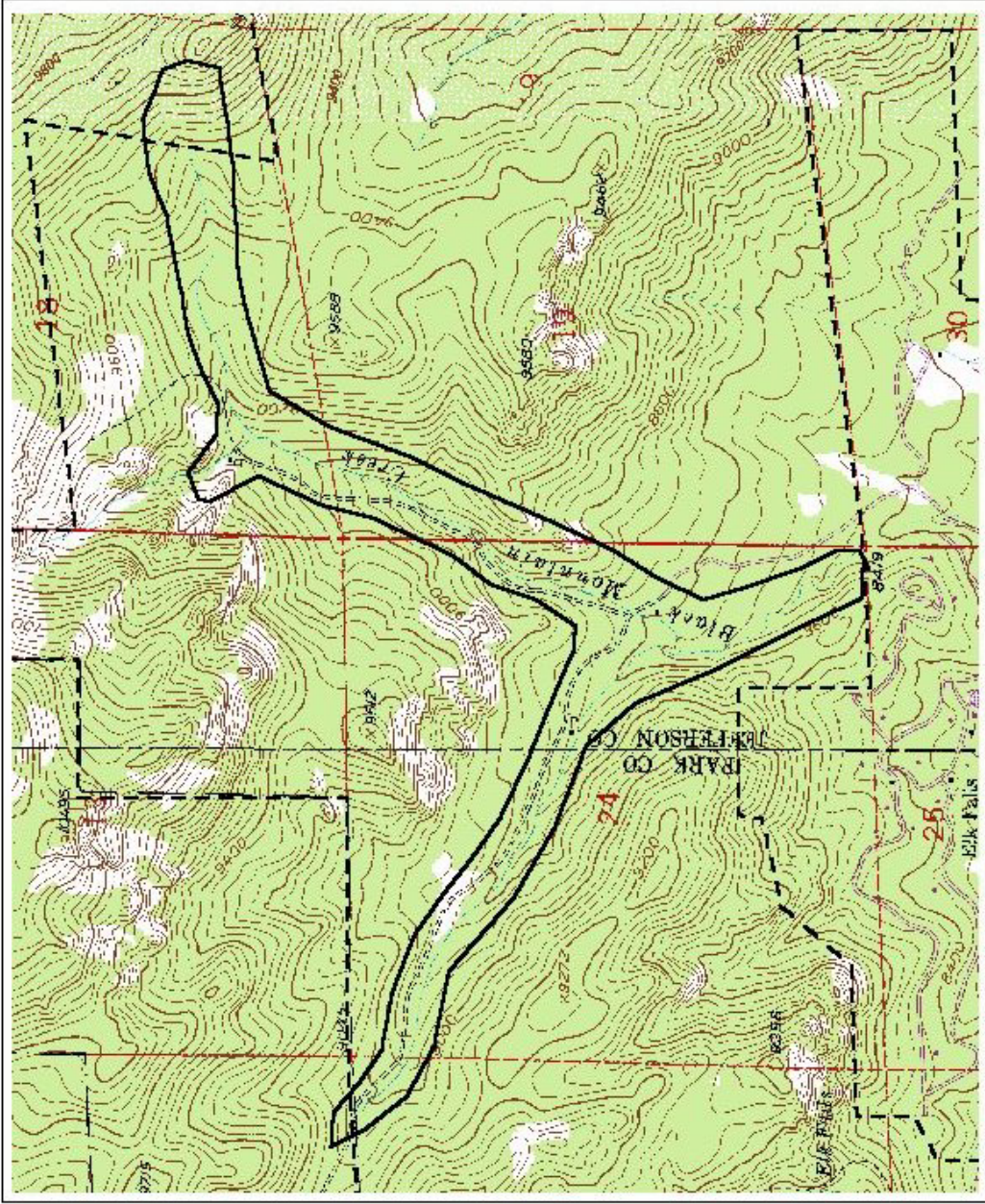
\*EO=Element Occurrence

**Boundary Justification:** The boundary is drawn to include the riparian areas associated with the Black Mountain Creek watershed with the exception of Upper Black Mountain Creek near Black Mountain, which is included within the Black Mountain PCA. A narrow band of upland forest and rock outcrops adjacent to the creek channel are included within the PCA because any activities or management changes near the creek will have impacts on the community that must be considered. The roads are included within the PCA because of their particularly high potential for altering ecological processes within the riparian area. Pollution from surface runoff, increased erosion, narrowing of the riparian zone, trampling of vegetation, and weed dispersal are all exacerbated by the presence of roads. Hydrological processes originating outside the planning boundary, including water quality, quantity, and timing should be managed to maintain PCA viability.

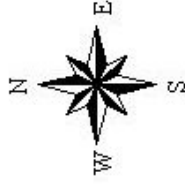
**Protection Comments:** Most of the PCA is included within the Staunton State Park boundary, with a small eastern portion located on private land.

**Management Comments:** As park visitation increases, this PCA will probably be heavily impacted. Thus, particular attention must be given to management of this PCA to maintain the viability of the blue spruce/river birch community and other riparian areas. Of particular concern is the two track 4WD road that follows Black Mountain Creek to the old timber mill. In most places this road is very close to the creek, and it has already impacted the riparian area in many places. Fill from the road has buried many parts of the creek bed and the road bed is heavily eroded. This has resulted in an unnatural narrowing of the riparian area in some places and siltation of the creek. Future use of this road for ORV recreation will have a serious detrimental effect on the integrity of the blue spruce/river birch community. Foot-traffic-only access will greatly reduce the road's impact to the area and reduce the impact on the natural heritage resources within the Black Mountain PCA upstream. In places where the roadbed is too close to the creek, the future trail should be moved uphill and the road recontoured and stabilized.

Throughout most of the PCA few weeds were observed. However, along the southern part of the Black Mountain Creek PCA weeds were particularly prevalent in disturbed areas. Exotic species observed include musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), toadflax (*Linaria vulgaris*), cheatgrass (*Anisantha tectorum*), salsify (*Tragopogon dubius*), smooth brome (*Bromus inermis*), and orchard grass (*Dactylis glomerata*). Weeds in this area pose a risk to the rest of the park, as they could readily spread to uninfested areas with increased visitation.



Location in Staunton State Park



1.5 Miles



## Black Mountain Creek Potential Conservation Area





**Photo 1:** Blue spruce/river birch (*Picea pungens*/*Betula occidentalis*) community at Black Mountain Creek.



**Photo 2:** Lower Black Mountain Creek viewed from Black Mountain.

## Black Mountain

**Biodiversity Rank: B2** Very high significance

A good occurrence of a globally imperiled plant species and one excellent occurrence of a plant species that is rare in Colorado are found within this PCA.

**Protection Urgency Rank: P3**

This PCA is publicly owned and managed by the U.S. Forest Service and by Staunton State Park. Areas to the east are also on private land. Recreational and housing development are definable threats to this PCA.

**Management Urgency Rank: M2**

Management actions are recommended to prevent the loss of the Weber monkeyflower occurrence. Recommended actions include limiting recreation access to the Weber monkeyflower habitat and instituting a monitoring program for the occurrence of this species.

**Location:** Jefferson County. Area to the south of the summit of Black Mountain, including the headwaters of Black Mountain Creek. This PCA is contiguous with the Black Mountain Creek PCA to the south.

**Legal Description:** U.S.G.S. 7.5 minute Meridian Hill quadrangle. T6S R71W S18. T6S R72W S 12, 13.

**General Description:** The Black Mountain PCA is the most remote part of the park. Within the PCA are riparian areas associated with Black Mountain Creek, aspen meadows, montane lodgepole and Douglas fir forests, subalpine forests of limber pine and Engelmann spruce, rock outcrop communities, and a waterfall/granitic seep community. Near the headwaters of Black Mountain Creek are also limited areas of an interesting shrubland consisting of waxflower (*Jamesia americana*) and oceanspray (*Holodiscus dumosus*). Throughout the site the soils are gravelly and derived from the granitic parent material that underlies all of the park. Numerous cliffs and outcrops of granite flank the slopes of Black Mountain. A total of 240 acres are included within the Black Mountain PCA, within an elevational range of 9160 to 10,720 feet.

Near the northernmost extent of Staunton State Park and the Black Mountain Creek headwaters is an occurrence of a globally rare plant which is endemic to Colorado, the Weber monkeyflower (*Mimulus gemmiparus*). About 100 individuals were found in 1999 under a seep at the base of a 200 foot high granite cliff. The entire population occupies an area of approximately 1 square meter, and is extremely vulnerable to trampling or alteration of the site. Granitic seeps are evidently extremely rare in the park. Six granitic seeps have been found in the Black Mountain PCA thus far (CNHP 1999). These were searched in 1992 during a previous biological inventory by Mark Duff, and three were relocated in 1999 and searched again for Weber monkeyflower (*Mimulus gemmiparus*). However, only one seep has been found to support a population of Weber monkeyflower. Unfortunately, this seep is quite scenic and would naturally

attract many visitors if a trail were constructed in this area. The ledge on which the Weber monkeyflower resides is readily accessible from the creek.

The Weber monkeyflower is a globally rare Colorado endemic, with a limited distribution in the Front Range and Tarryall Mountains (CNHP 1999). It has only been found in Larimer, Jefferson, and Grand counties. It occurs in granite seeps, outcrops, and slopes, and on wet banks and rocks between 8400 and 10,500 feet in elevation (Ryke and Vest 1994). In addition to being very rare, it is a very unusual plant because it is the only species of *Mimulus* that can reproduce vegetatively. It accomplishes this with modified leaf petioles that form pockets containing dormant embryonic shoots (CNHP 1999). It seldom produces flowers but when it does they are seen in mid-July. The lack of flowers in this species makes it extremely difficult to find, and the potential for inadvertently trampling it is high.

Three large sub-populations of boykinia (*Telesonix jamesii*) were found in this PCA on the numerous cliffs and outcrops of granite flanking the south slopes of Black Mountain. These sub-populations range in elevation from 9800 to 10,680 feet, with occurrences inside the park, in the adjacent Pike National Forest, and on private land to the east of the park. These occurrences contain collectively approximately 3000 individuals. They were found in cracks on cliffs, boulderfields, and granitic gravel. The occurrences are surrounded by subalpine forests of Engelmann spruce (*Picea engelmannii*), lodgepole pine (*Pinus contorta*), limber pine (*Pinus flexilis*), and patches of aspen (*Populus tremuloides*). Mat forming plant species such as spotted saxifrage (*Ciliaria austromontana*), alumroot (*Heuchera bracteata*), twisted fruit whitlowwort (*Draba streptocarpa*), and chiming bells (*Mertensia lanceolata*), with boykinia, are the major components of the rock outcrop plant community. Boulder fields below and adjacent to cliffs also support boykinia, and shrublands of waxflower (*Jamesia americana*) and currant (*Ribes* sp.). Most cliffs within the PCA are south to southwest facing.

**Biodiversity Rank Justification:** This PCA contains a good occurrence of Weber monkeyflower (*Mimulus gemmiparus*), a rare plant species narrowly endemic to Colorado. This species is documented from only eight locations in the world, all of them in Colorado.

The Black Mountain PCA also contains an excellent occurrence of boykinia (*Telesonix jamesii*), a plant species that is apparently secure on a global scale but rare in Colorado.

This PCA was selected as a likely habitat for the Mexican spotted owl (*Strix occidentalis lucida*) during this inventory. Though no occurrences were found within the park, this area represents good potential habitat for this species due to its relative seclusion and the availability of narrow rocky canyons.

Natural Heritage Element Occurrences at the Black Mountain PCA.

Element	Common Name	Global Rank	State Rank	Federal Status	State Status	Federal Sens.	EO* Rank
<i>Mimulus gemmiparus</i>	Weber monkeyflower	G2	S2			FS	B
<i>Telesonix jamesii</i>	Boykinia	G4	S2?				A

\*EO=Element Occurrence

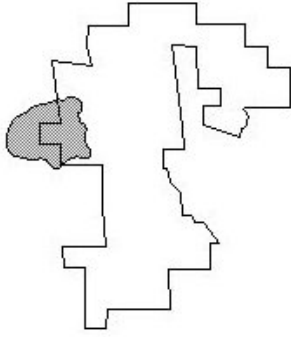
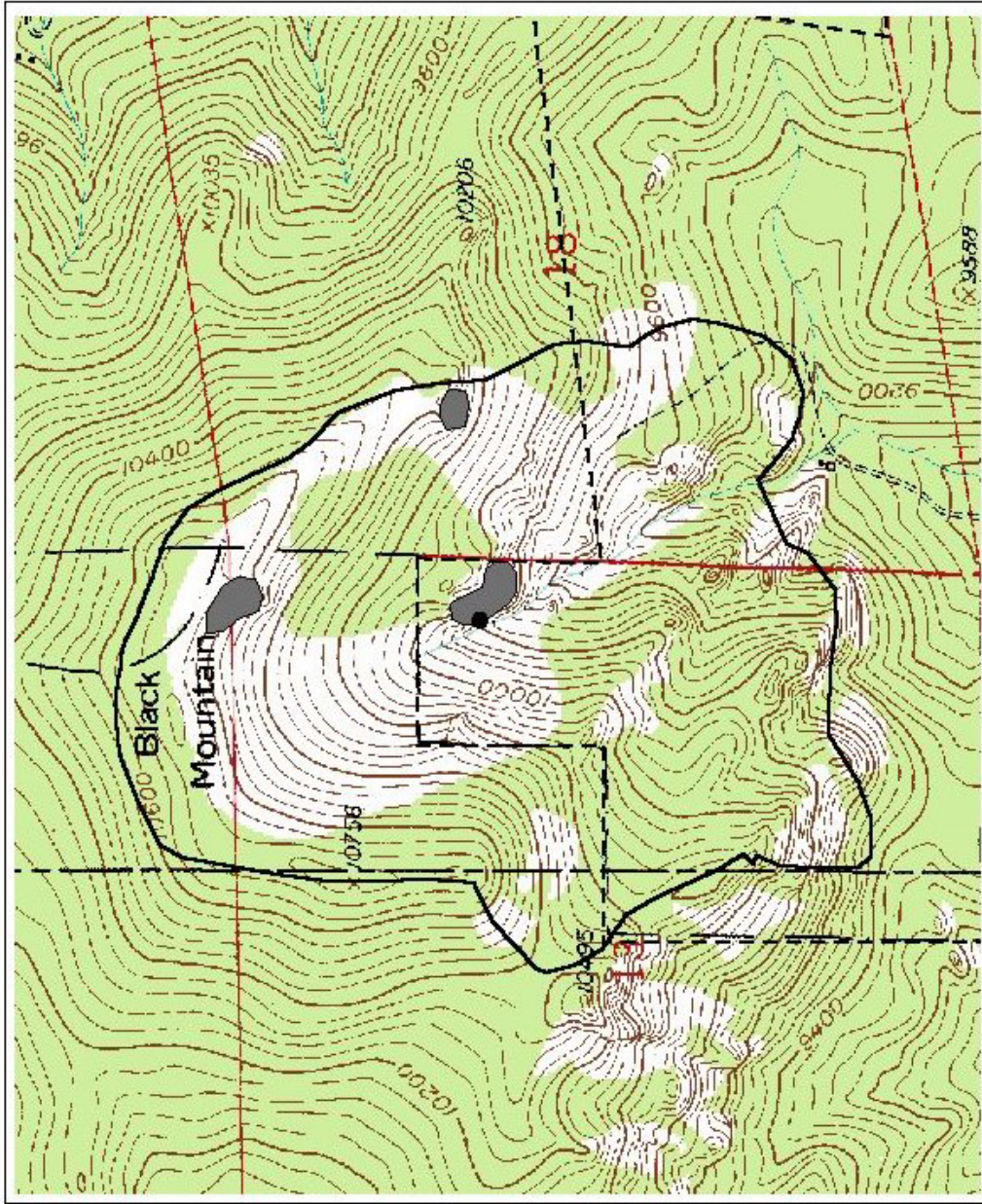
**Boundary Justification:** The boundary is drawn to include the extent of the occurrences of boykinia and Weber monkeyflower. Adjacent potential habitat is included where suitable rock outcrops and cliffs were noted. Because Weber monkeyflower could be extirpated by alterations to the hydrological regime of Black Mountain, it is particularly important that no changes are made that would affect the source of water for the seep and waterfall that supports it. Management decisions within the upper Black Mountain Creek valley will affect both of the element occurrences within this PCA.

**Protection Comments:** Most of this PCA is on state land (Staunton State Park) or federal land (Pike National Forest). However, the northeastern portion lies on private land, and one occurrence of boykinia is located in this part of the PCA.

**Management Comments:** The fate of Weber monkeyflower in Staunton State Park depends largely on future management decisions. In order to maintain this small and vulnerable population, serious consideration must be given towards designing an effective protection strategy before visitation rates increase in this part of the park. If visiting hikers are ushered into the upper valley of Black Mountain Creek by a trail, many will certainly head straight to this waterfall, which is extremely inviting after a moderately difficult hike. It is thus suggested that visitors be discouraged from entering the upper reaches of this valley. This could be accomplished by not building a trail to it. However, with high visitation rates to the park, some people will inevitably forge their own path even if there is no trail. The area below the waterfall could be signed to ask hikers not to walk under it. A yearly monitoring program for the occurrence of Weber monkeyflower would detect changes to the overall quality and condition of the occurrence.

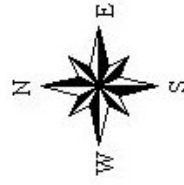
The populations of boykinia in this PCA are in little danger, since most of them are relatively inaccessible on cliffs and rock outcrops. They are not threatened by any exotic species. Rock climbing poses the greatest potential danger to this element. Climbing should be closely managed in this area, and no climbing routes should be established that would impact boykinia populations.





Location in Staunton State Park

- **Telesonix jamesii**
- **Mimulus gemmiparus**
- ▭ Staunton State Park
- Black Mountain PCA



1 Miles

0.5

0

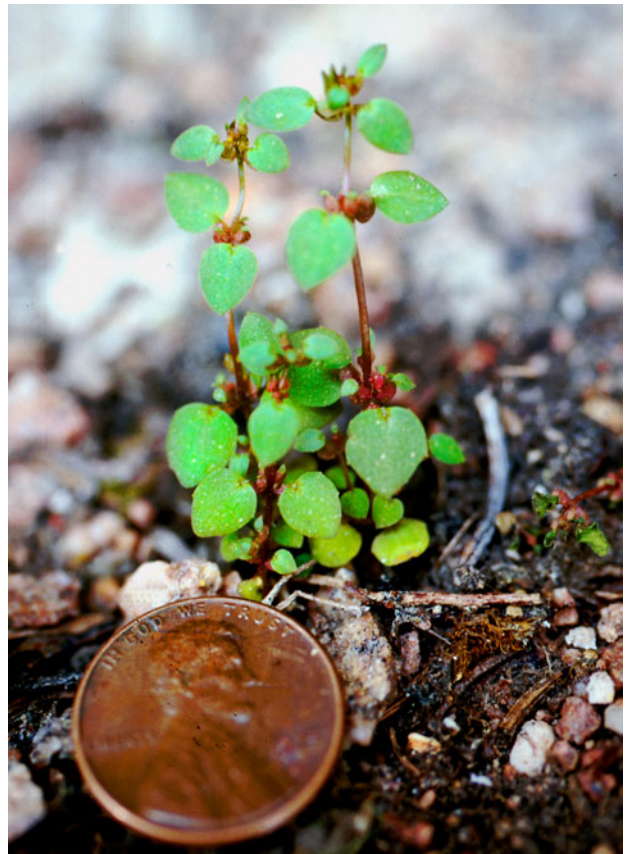
0.5

## Black Mountain Potential Conservation Area





**Photo 3:** Habitat of Weber monkeyflower (*Mimulus gemmiparus*) in the Black Mountain PCA.



**Photo 4:** Weber monkeyflower (*Mimulus gemmiparus*).



**Photo 5:** Rock outcrops typical of those supporting boykinia (*Telesonix jamesii*) in the Black Mountain PCA. Note the unusual shrubland of waxflower (*Jamesia americana*) and oceanspray (*Holodiscus dumosus*) in the foreground.

## Elk Falls

**Biodiversity Rank: B3** High significance

This area of Staunton State Park contains a large, contiguous population of a state imperiled plant species. It also contains known nesting habitat for the state rare peregrine falcon.

**Protection Urgency Rank: P4**

This PCA is entirely contained and protected within Staunton State Park.

**Management Urgency Rank: M2**

A management strategy is needed to address issues of visitation and rock climbing within this area in order to maintain the viability of both occurrences. The development of an exotic species control strategy is also recommended. Consideration to potential impacts on the elements from trail construction should be given.

**Location:** Park County. Area includes Lions Head, Chimney Rock, and Elk Falls.

**Legal Description:** U.S.G.S. 7.5 minute Meridian Hill quadrangle. T6S R72W S 23, 24, 26.

**General Description:** The Elk Falls PCA contains a topographically diverse part of Staunton State Park, ranging in elevation from 8360 feet on lower Elk Creek to 9463 feet at the top of Lions Head. North Elk creek plummets over 100 feet in less than 1/4 of a mile in a series of spectacular waterfalls. Large granite slabs and cliffs surround the drainage. The rock faces near Elk Falls are sparsely vegetated with mosses, alumroot (*Heuchera bracteata*), and boykinia (*Telesonix jamesii*). North-facing slopes support a mixed coniferous forest (Douglas fir, ponderosa, Engelmann spruce) and south-facing slopes are more sparsely vegetated and rocky. Boulder fields at the base of the cliffs support waxflower (*Jamesia americana*) shrublands. The riparian area along North Elk Creek is very narrow and rocky with the upland trees coming down to the water's edge. Chiming bells (*Mertensia ciliata*), cow parsnip (*Heracleum sphondylium*), shooting star (*Dodecatheon pulchellum*), and sedges (*Carex* spp.) are found in the understory. Below Elk Falls, the creek flows into a narrow canyon with vertical walls festooned by a luxuriant carpet of ferns and mosses. Lions Head and Chimney Rock tower above as prominent features in this PCA. The area encompassed by this PCA is approximately 350 acres.

**Biodiversity Rank Justification:** The Elk Falls PCA supports a large, contiguous population of boykinia. The population appears to be in excellent condition with no evidence of human impact. The population is sufficiently large to have an excellent chance of long-term viability. The condition of the habitat for boykinia is pristine in the Elk Falls PCA, particularly on rock faces that are relatively inaccessible to humans.

The high, exposed, and inaccessible cliff faces within this PCA are also ideal nesting habitat for the peregrine falcon (*Falco peregrinus anatum*) and are known to have supported nesting falcons. A breeding pair was last observed at an eyrie in 1996, but they did not successfully breed.

Natural Heritage Element Occurrences at the Elk Falls PCA.

<i>Element</i>	<b>Common Name</b>	<b>Global Rank</b>	<b>State Rank</b>	<b>Federal Status</b>	<b>State Status</b>	<b>Federal Sens.</b>	<b>EO* Rank</b>
<i>Telesonix jamesii</i>	Boykinia	G4	S2?				A
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	G4T3	S2B	LE			D

\*EO=Element Occurrence

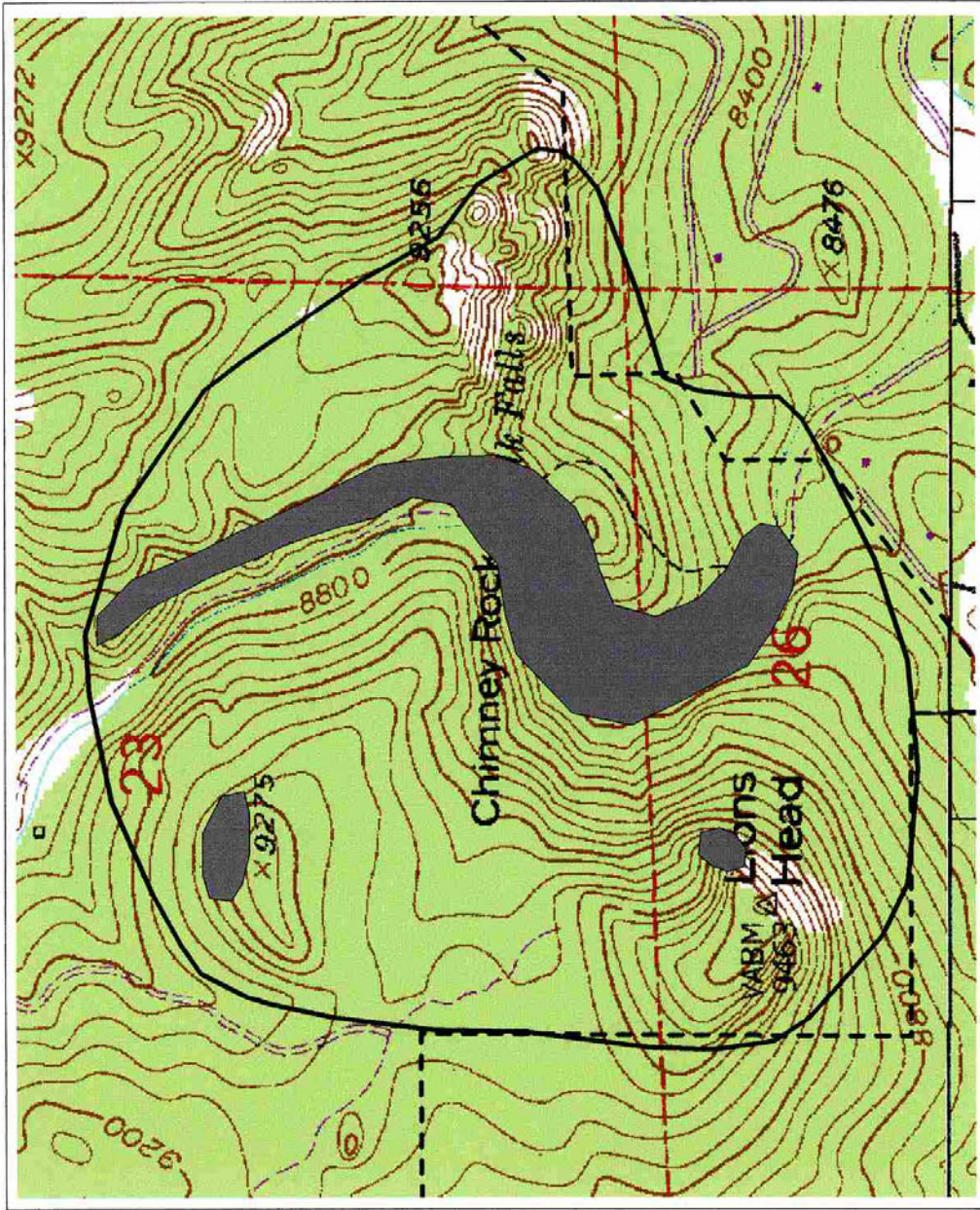
**Boundary Justification:** This PCA includes a known nesting site for the peregrine falcon. It also includes the known extent of the boykinia population found in the vicinity. Many other subpopulations of boykinia that were not found in this inventory are likely to occur on the numerous rock outcrops and cliffs in the area.

**Protection Comments:** This PCA is entirely contained within the boundary of Staunton State Park.

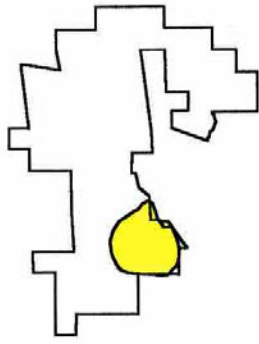
**Management Comments:** Because this area is likely to receive very high visitation when the park is opened to the public, careful planning will be necessary to maintain its biological resources. Some trails already exist within the PCA but improvements are needed to prevent problems from shortcutting and from trail widening where they are poorly defined. However, increased visitation by hikers is unlikely to greatly affect either of the elements within the PCA. There is a potential for rock climbing to impact the element occurrences within the PCA. Particularly vulnerable is the peregrine falcon eyrie. Human encroachment within ½ mile of the nesting area should be restricted from March 15 to July 31 (Craig 1997). Because there are many areas in the park without boykinia populations, park managers may wish to deter rock climbing in areas of this PCA that support large boykinia occurrences.

Exotic species were found along most of Elk Creek's riparian zone, both above and below the falls. These include bluegrass (*Poa pratensis*), Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*), salsify (*Tragopogon dubius*), and mullein (*Verbascum thapsus*).



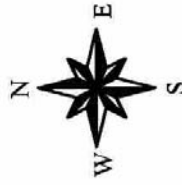


**Elk Falls Potential Conservation Area**



Location in Staunton State Park

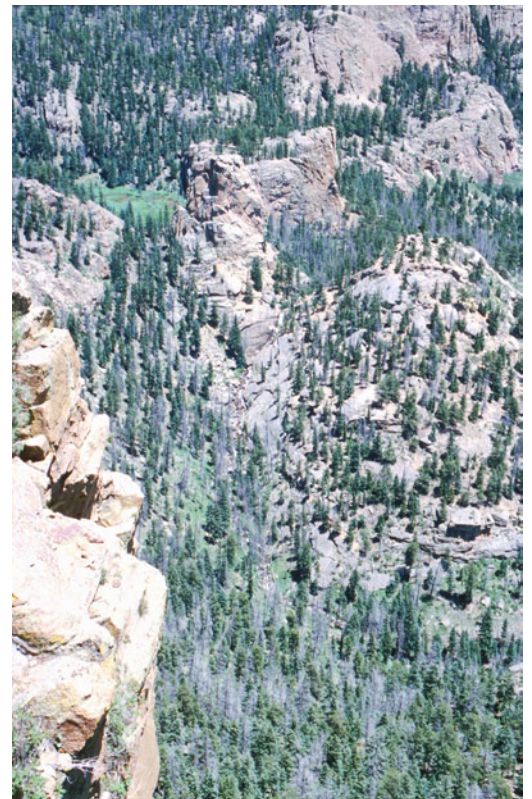
- *Telesonix jamesii*
- ▲ Staunton State Park
- Elk Falls PCA







**Photo 6:** Boykinia (*Telesonix jamesii*)



**Photo 7:** Lions Head (left) and Chimney Rock (right), both of which support populations of boykinia (*Telesonix jamesii*).

## North Elk Creek

**Biodiversity Rank: B3** High significance

This PCA supports a fair occurrence of a globally vulnerable wetland. It is classified as a fen, a rare wetland type that is "essentially an irreplaceable ecological system" (Gessner 1998).

**Protection Urgency Rank: P3**

This PCA is partially located on private land. Threats are expected given the current rate of residential development in the area.

**Management Urgency Rank: M3**

Management action will be needed to maintain or restore the quality of the wetland. Recommended management actions include a road maintenance management plan and an exotic plant removal plan. Re-routing the road away from the wetland would greatly enhance the quality of the wetland. Water quality, quantity, and flooding should not be significantly altered. Management plans should include consideration of the hydrology of the entire upstream watershed that is not contained in the PCA.

**Location:** Park County. The PCA includes the confluence of North Elk Creek with the north fork of North Elk Creek. It includes areas within Staunton State Park as well as adjacent areas in the Pike National Forest to the north and on private land to the west of the park.

**Legal Description:** U.S.G.S. 7.5 minute Meridian Hill quadrangle. T6S R72W S 14, 15, 23.

**General Description:** North Elk Creek flows through a large spring-fed Nebraska sedge (*Carex nebrascensis*) dominated wetland surrounded by granite outcrops and mixed coniferous forest. There are several areas of groundwater discharge and springs throughout the wetland and on the adjacent slopes, on which the wetland is exclusively dependent. Although Elk Creek flows through the site, it contributes little, if at all, to the hydrology of the wetland. The wetland is "quaking" in places with a deep (40cm) layer of peat. As such, this wetland is a fen, which is defined as a groundwater-driven wetland with organic matter accumulation in the first 40 centimeters of the soil (USFWS 1997). Because this fen is dependent on springwater from the surrounding slopes, alterations to these slopes will affect its hydrology. The road has completely altered the hydrology of one part of the fen, resulting in the drying of a one to two acre portion. The hydrology of the upstream portion of North Elk Creek on the north side of this PCA has also been affected to a lesser extent by the adjacent road, and by a few very small upstream dams. Some non-native plant species are spreading into the edges from the adjacent roads (see Management Comments for species). However, the wetland remains in fair condition overall.

Nebraska sedge (*Carex nebrascensis*) dominates the wettest portions of the wetland. Also present with *C. nebrascensis* are other sedges (*C. simulata* and *C. utriculata*). Hummocks or mounds are dominated by dwarf birch (*Betula glandulosa*), willow (*Salix planifolia*), and shrubby cinquefoil (*Pentaphylloides floribunda*), with alpine meadowrue (*Thalictrum alpinum*)

and *Sphagnum* mosses. Elephantella (*Pedicularis groenlandica*), blue-eyed grass (*Sisyrinchium montanum*), and cottongrass (*Eriophorum angustifolium*) are scattered throughout the wetland. Other species observed in this wetland are shooting star (*Dodecatheon pulchellum*), monkshood (*Aconitum columbianum*), scouring rush (*Equisetum sp.*), mariposa lily (*Calochortus gunnisonii*), marsh marigold (*Psychrophila leptosepala*), and chiming bells (*Mertensia ciliata*). A narrow grassland band between the wetland and upland forest is dominated by fescue (*Festuca sp.*) and oatgrass (*Danthonia parryi*). This PCA ranges in elevation from 8880 to 9480 feet. At 400 acres it is the largest PCA in Staunton State Park.

**Biodiversity Rank Justification:** This PCA includes an occurrence of a large spring-fed wet slope meadow community. The wetland is slightly degraded by weeds and hydrological alterations, but overall it remains in good condition. The *Carex nebrascensis* wetland community has been documented in 13 sites in Colorado, in Jefferson, Routt, Moffat, Garfield, Weld, Larimer, Rio Blanco, and Costilla counties. Because the North Elk Creek occurrence of this community is spring fed, it is somewhat anomalous. CNHP wetland ecologists are currently considering classifying this variant as a separate community type.

Natural Heritage Element Occurrences at the North Elk Creek PCA.

Element	Common Name	Global Rank	State Rank	Federal Status	State Status	Federal Sens.	EO* Rank
<i>Carex nebrascensis</i> slope wetland	Wet slope meadow	GU	S3?				C

\*EO=Element Occurrence

**Boundary Justification:** The boundary encompasses the wetland community and the adjacent slopes from which spring water flows into the wetland. Part of the adjacent road is also included in the PCA due to the effects the road is having on the wetland. Areas upstream in the North Elk Creek watershed need to be considered when a plan is developed for the long-term viability of the community.

**Protection Comments:** This PCA is located mainly within Staunton State Park but includes private lands to the west which could be developed in the near future. Hydrologic alterations in this watershed but outside the park have the potential to negatively impact the element occurrence.

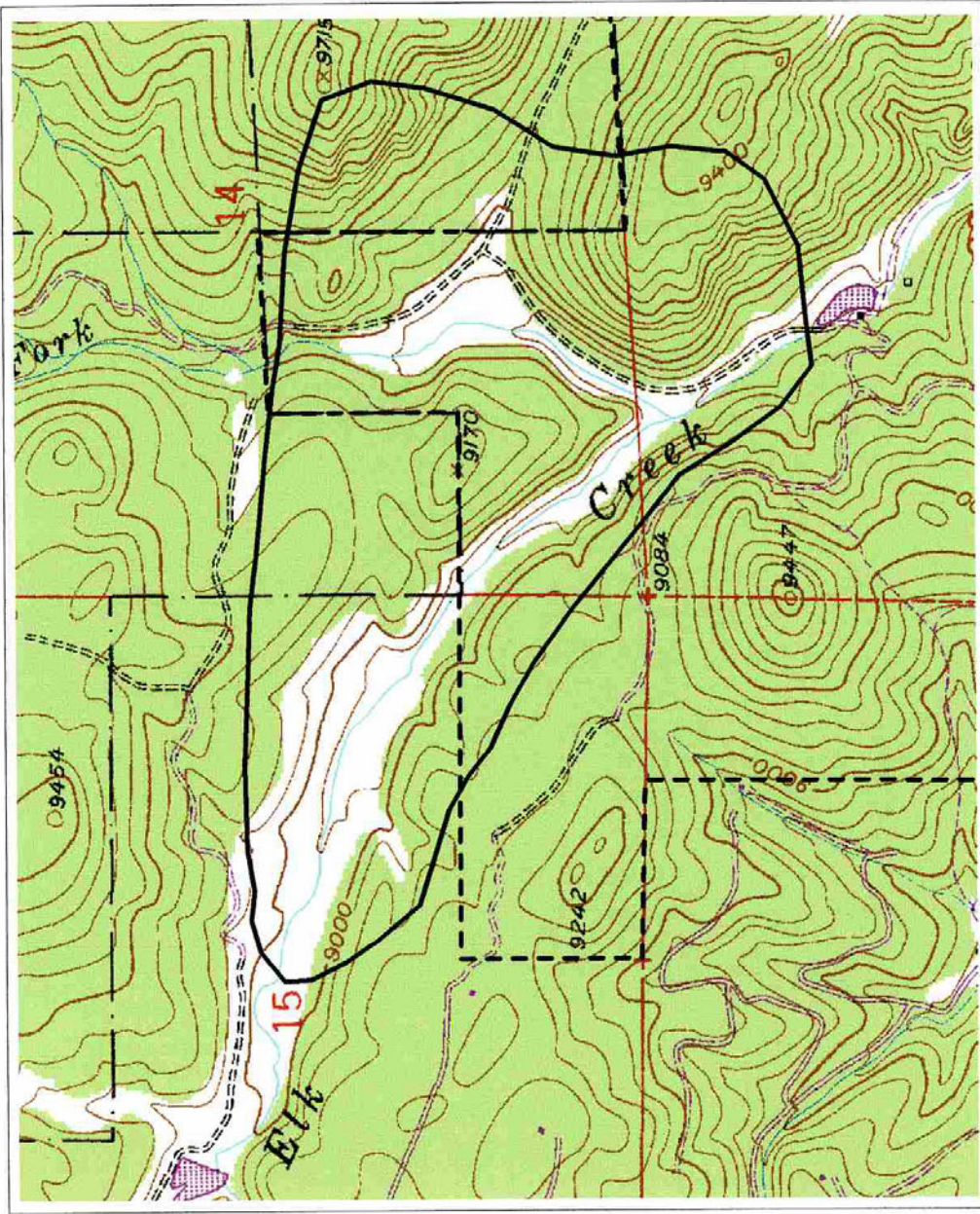
**Management Comments:** A management plan is needed to stop the deterioration of this wetland that is currently taking place. Changes to the road adjacent to the wetland such as widening or paving could have a strong negative impact. Changes made to the roadbed should be done in such a way that the flow of ground and surface water into the wetland is improved. Changes to the road should not involve bringing the road edge any closer to the wetland, or the construction of any turnouts or parking near the wetland. In most places the original roadbed was constructed too close to the wetland and this has resulted in habitat loss and degradation. Rerouting the road away from the wetland, along with careful recontouring of the surface, may help restore the flow of water into parts of the wetland that have dried up.

The influx of invasive species is likely to accelerate when the park is opened to the public. A management plan should also address removal and control strategies for weeds in this area. Exotic species found in this area include dandelion (*Taraxacum officinale*), bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), Timothy grass (*Phleum pratense*), and sweet clover (*Trifolium repens*).

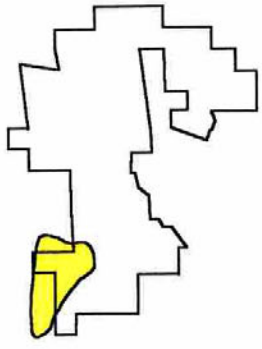






**Photo 9:** North Elk Creek PCA- Nebraska sedge (*Carex nebrascensis*) slope wetland.

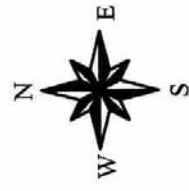


## North Elk Creek Potential Conservation Area



Location in Staunton State Park

-  Staunton State Park
-  North Elk Creek PCA



## Rock Outcrop West of Mason Creek

**Biodiversity Rank: B4** Regional significance

The biodiversity rank is based on a good occurrence of a plant imperiled in Colorado.

**Protection Urgency Rank: P4**

This PCA is located entirely within Staunton State Park. It is likely to receive low visitation.

**Management Urgency Rank: M4**

Recreational impacts may need to be addressed to ensure the long-term protection of the occurrence.

**Location:** Jefferson County. Prominent rock outcrops between Mason and Black Mountain Creeks.

**Legal Description:** U.S.G.S. 7.5 minute Meridian Hill quadrangle. T6S R71W S 19.

**General Description:** The rugged, steep slopes of this PCA are representative of many other areas within the park. Granite cliffs and outcrops interspersed with coniferous forest on south to southwest facing slopes occur in other areas of the park as well. This area is relatively inaccessible at present.

The rock outcrops of pink granite contained in this PCA are hundreds of feet tall and overlook the valleys of Mason and Black Mountain creeks. *Boykinia (Telesonix jamesii)* was found in organic soil that has accumulated in cracks in the rocks. This occurrence contains approximately 200 individuals, most of which are inaccessible on cliff faces. Though they are located in pristine habitat, the size of this population is small relative to the other occurrences found in the park. Other components of this rock outcrop community are lichens, waxflower (*Jamesia americana*), oceanspray (*Holodiscus discolor*), grassfern (*Asplenium septentrionale*), and fleabane (*Erigeron vetensis*). The surrounding forest is dominated by limber pine (*Pinus flexilis*), lodgepole pine (*Pinus contorta*), and Douglas fir (*Pseudotsuga menziesii*). Possible nesting sites for peregrine falcons (*Falco peregrinus anatum*) were identified in this area during the inventory, but no eyeries were found.

Elevation within this PCA ranges from 9,200 to 9,462 feet, over a total area of 15 acres.

**Biodiversity Rank Justification:** A good occurrence of a state imperiled plant species occurs within this PCA. Although the plants are in an inaccessible, pristine location, the known population size is small. If more individuals are found in this area, the Biodiversity Rank could be raised.



Natural Heritage Element Occurrences at the Rock Outcrop West of Mason Creek PCA.

Element	Common Name	Global Rank	State Rank	Federal Status	State Status	Federal Sens.	EO* Rank
<i>Telesonix jamesii</i>	Boykinia	G4	S2				B

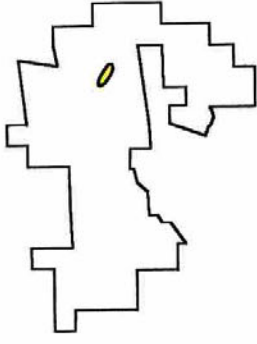
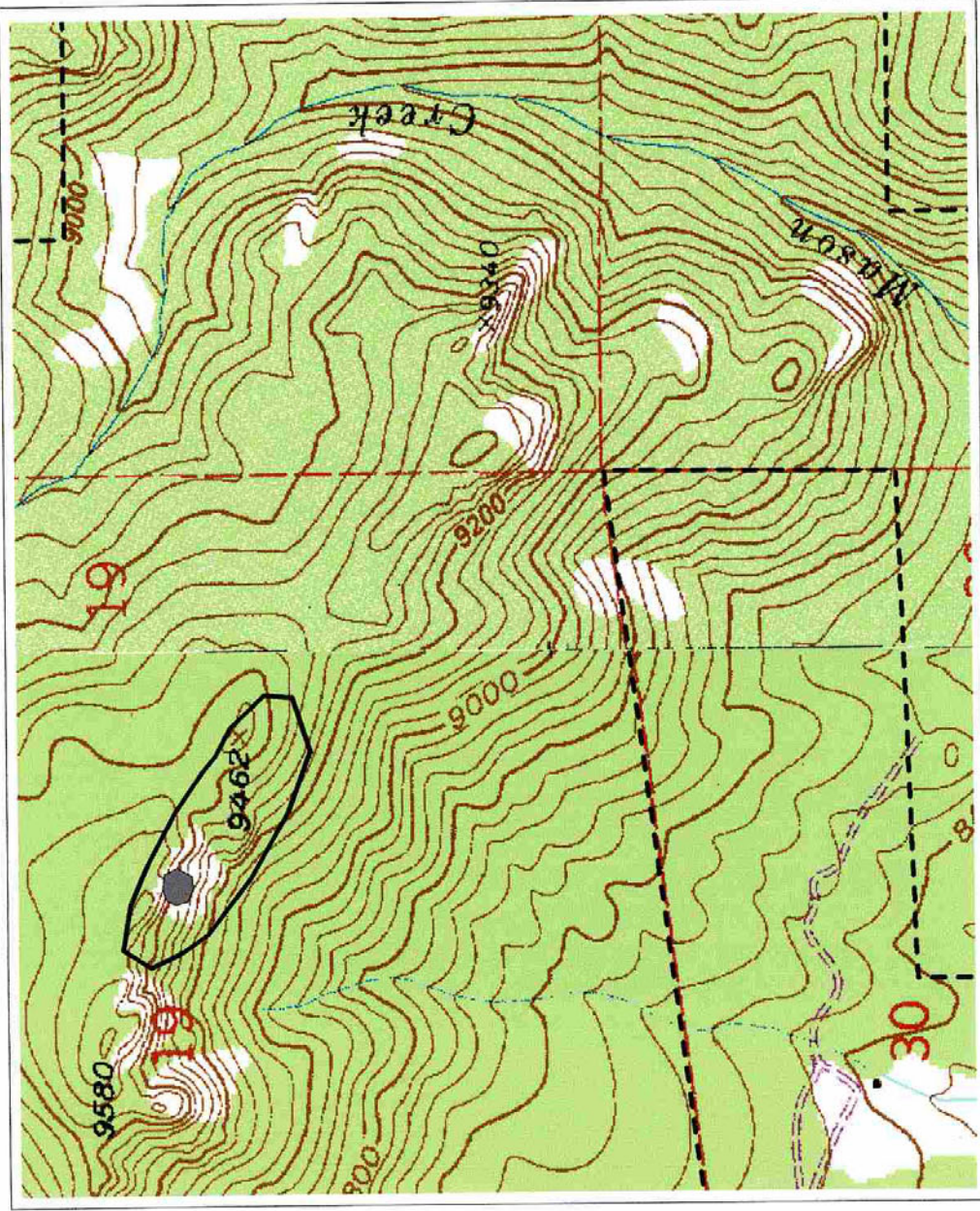
\*EO=Element Occurrence

**Boundary Justification:** The boundary is drawn to include all of the known occurrences of boykinia in this area of the park. The PCA also includes a small amount of adjacent potential habitat on rock outcrops and cliffs to allow the rare plants to move into suitable habitat over time.

**Protection Comments:** This PCA is relatively inaccessible and is entirely contained within the park. The natural heritage resources contained within it are on cliff faces and are thus in little jeopardy.

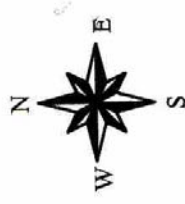
**Management Comments:** No exotic species were noted within this PCA. The area around Mason Creek is quite weedy, with toadflax (*Linaria vulgaris*) and thistles possibly spreading into the forest to the east of this PCA. In 1999 no weeds were found further than 30 meters up the slopes adjacent to Mason Creek.

At present, this area is not in need of management decisions to maintain the viability of the boykinia population. However, if usage patterns within the park result in high visitation to this area after it is opened to the public, an assessment of the human impacts on the boykinia population will be warranted. As in the other PCAs in the park where boykinia is found (Elk Falls and Black Mountain), rock climbing poses the greatest potential threat to this species. Thus any new climbing routes should avoid areas that support boykinia populations. Climbers should be informed through signage, brochures, and park personnel of the potential for impacting boykinia while climbing.



Location in Staunton State Park

- Telesonix jamesii
- ^ Staunton State Park
- Rock Outcrop PCA



## Rock Outcrop West of Mason Creek Potential Conservation Area





**Photo 11:** Boykinia (*Telesonix jamesii*) in the foreground with a common associated species, alumroot (*Heuchera bracteata*) above and to the left. Without flowers, these two species can be difficult to distinguish.

## Birds observed in Staunton State Park during inventory

Common name	Scientific name
American Dipper	<i>Cinclus mexicanus</i>
American Robin	<i>Turdus migratorius</i>
Black-billed Magpie	<i>Pica pica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>
Canyon Wren	<i>Catherpes mexicanus</i>
Chipping Sparrow	<i>Spizella passerina</i>
Clark's Nutcracker	<i>Nucifraga columbiana</i>
Common Raven	<i>Corvus corax</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Golden Eagle	<i>Aquila chrysaetos</i>
Gray Jay	<i>Perisoreus canadensis</i>
Great Horned Owl	<i>Bubo virginianus</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>
Mountain Bluebird	<i>Sialia currucoides</i>
Mountain Chickadee	<i>Poecile gambeli</i>
Mourning Dove	<i>Zenaida macroura</i>
Northern Flicker	<i>Colaptes auratus</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>
Red-tailed Hawk	<i>Buteo sloitarius</i>
Rock Wren	<i>Salpinctes obsoletus</i>
Steller's Jay	<i>Cyanocitta stelleri</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
White-throated Swift	<i>Aeronautes saxatalis</i>
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>

## Weed List for Staunton State Park

Scientific name	Common name	Abundance	Locations	Threat
<i>Agropyron cristatum</i>	crested wheatgrass	L	5, *	M
<i>Anisantha tectorum</i>	cheat grass	M	5, 9, 10, 11	H
<i>Bromus inermis</i>	smooth brome	H	1, 2, 3, 5, 6, 8, 9, 10, 11, *	M
<i>Carduus nutans</i>	musk thistle	H	3, 5, 6, 9, 10, 11, *	H
<i>Chenopodium capitatum</i>	squaw paint	L	5	L
<i>Cirsium arvense</i>	Canada thistle	H	3, 5, 6, 8, 9, 10, *	H
<i>Dactylis glomerata</i>	orchard grass	H	5, 6, 8, 9, 10, *	M
<i>Linaria vulgaris</i>	toadflax	H	4, 5, 6, 8, 9, 10, 11, *	H
<i>Melilotus officinale</i>	yellow sweetclover	M	*	M
<i>Phleum pratense</i>	timothy grass	H	1, 2, 3, 5, 6, 8, 9, 10, 11, *	M
<i>Poa pratensis</i>	bluegrass	M	6, 9, 10, 11, *	M
<i>Taraxacum officinale</i>	dandelion	M	1, 4, *	H
<i>Thlaspi arvense</i>	pennycress	L	11	L
<i>Tragopogon dubius</i>	salsify	H	3, 9, 10, 11	M
<i>Trifolium repens</i>	white clover	M	1, *	M
<i>Verbascum thapsus</i>	mullein	H	3, 6, 7, 8, 9, 10, 11, *	M

### Key

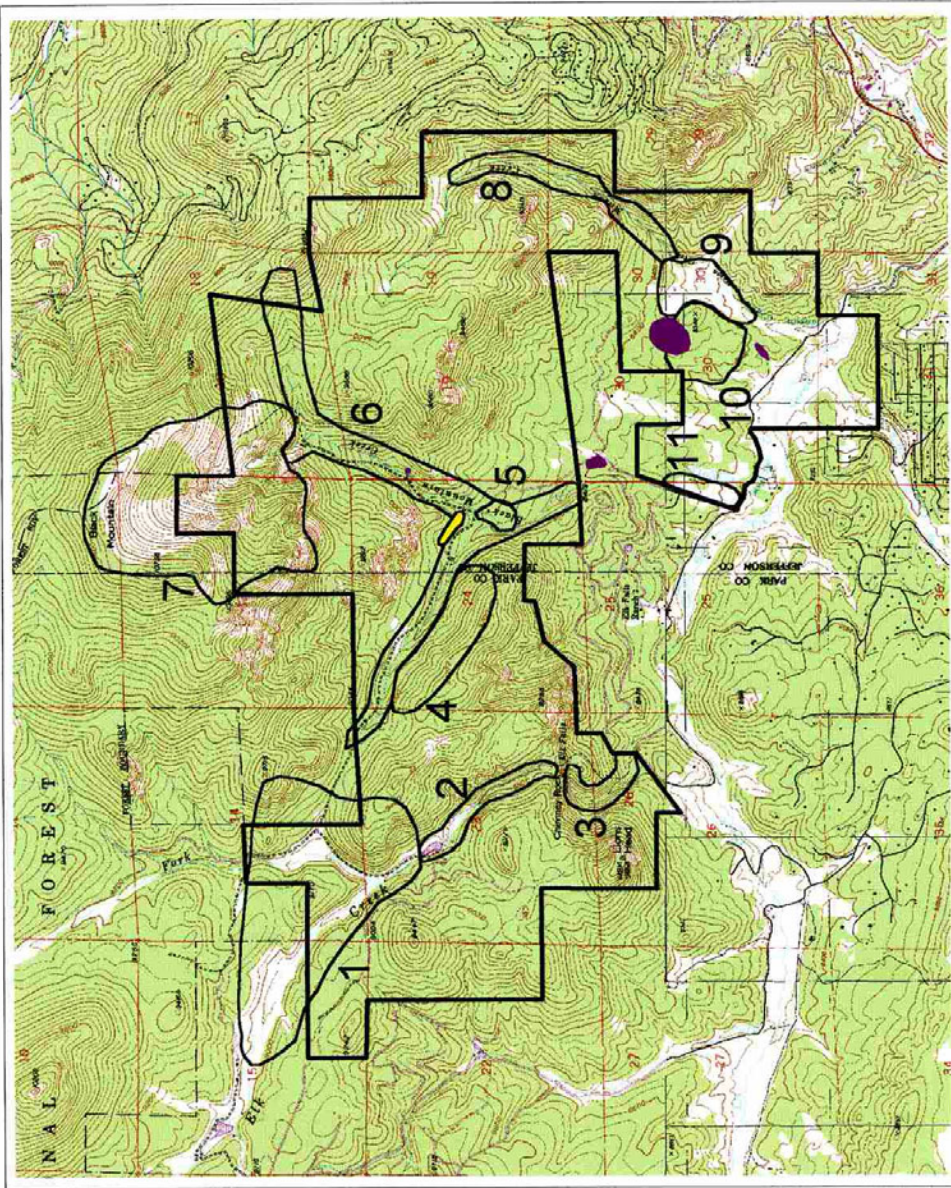
**Abundance:** L = low, M = moderate, H = high

**Location:** Numbers correspond to the numbers on the map on the following page. Additional occurrences of musk thistle (*Carduus nutans*) and toadflax (*Linaria vulgaris*) are also shown.

- 1 North Elk Creek
- 2 Elk Creek above Elk Falls, south of the fishing pond
- 3 Elk Creek below Elk Falls
- 4 Slope above Black Mountain Creek
- 5 Black Mountain Creek near current entrance to the park among remains of old buildings
- 6 Black Mountain Creek
- 7 Black Mountain
- 8 Mason Creek
- 9 Lower Mason Creek meadow area
- 10 Davis Ranch Area
- 11 Three Ponds Area
- \* Roadsides throughout Staunton State Park

**Threat:** L = low, M = moderate, H = high





## Weed Occurrences in Staunton State Park



Location of Staunton State Park in Colorado

### LEGEND

- Highways
- Linaria vulgaris*
- Carduus nutans*
- Staunton State Park

Numbers on this map correspond to numbers on the Weed List for Staunton State Park on page 5.

- 1=North Elk Creek
- 2=Elk Creek (above the falls)
- 3=Lower Elk Creek
- 4=Slope above Black Mtn. Cree
- 5=Lower Black Mountain Creek
- 6=Black Mountain Creek
- 7=Black Mountain
- 8= Mason Creek
- 9=Mason Creek Meadow
- 10=Davis Ranch
- 11=Three Ponds Area



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