

# Level 4 Potential Conservation Area (PCA) Report

Name Big Creek Lakes

Site Code S.USCOHP4\*2370

## IDENTIFIERS

Site ID 410 Site Class PCA  
 Site Alias Goose Creek  
 Site Alias Grizzly Helena Trail  
 Site Alias Kettle Lakes  
 Site Alias Shafer Creek  
 Site Alias Shafer Ranch

## Network of Conservation Areas (NCA)

<u>NCA Site ID</u>	<u>NCA Site Code</u>	<u>NCA Site Name</u>
-		No Data

## LOCATORS

Nation United States Latitude 405351N  
 State Colorado Longitude 1063632W

## Quad Code Quad Name

40106-H5 Pearl  
 40106-H6 Davis Peak  
 40106-G6 Mount Zirkel  
 40106-G5 Boettcher Lake

## County

Jackson (CO)

## Watershed Code Watershed Name

10180002 Upper North Platte  
 10180001 North Platte Headwaters

## SITE DESCRIPTION

Minimum Elevation	8,600.00 Feet	2,621.28 Meters
Maximum Elevation	9,800.00 Feet	2,987.04 Meters

## Site Description

The Big Creek Lakes site is situated on the east flank of the Park Range, which forms the northwestern border of North Park. The site is drained by the North Fork of the North Platte River along with the major tributaries: Forester, Goose, and Shafer creeks. The area consists of Pleistocene deposits and glacial drift of the Pinedale and Bull Lake glaciations (Tweto 1979). Throughout the site are closed depressions, kettle ponds, and sharp lateral and terminal moraines. The depressions and kettle ponds are concentrated on top of the glacial till. Kettle ponds are a remnant of melting glacial ice stagnation and lack an inlet or outlet. The Big Creek Lakes area is one of the most extensive kettle pond areas known in Colorado. The vegetation of the kettle ponds occurs in successional zones from the open water to lake margins. Open water areas are dominated by water lilies (*Nuphar lutea* ssp. *polysepala*), water smartweed, (*Persicaria amphibia*), pondweed (*Potamogeton natans*), buckbean (*Menyanthes trifoliata*), bur-reeds (*Sparganium natans*, *S. angustifolium*) and bladderwort (*Utricularia minor*). The herbaceous-dominated lake margins that surround the open water are dominated by graminoids (*Carex lasiocarpa*, *C. aquatilis*, *C. lasiocarpa*, *C. canescens*, *C. utriculata*, *C. buxbaumi*, *C. brunnescens*), cottongrasses (*Eriophorum gracile*, *E. angustifolium*), mannagrass (*Glyceria borealis*, *G. elata*), spike rush (*Eleocharis palustris*, *E. acicularis*), bluejoint reedgrass (*Calamagrostis canadensis*, *C. stricta*), tufted hairgrass (*Deschampsia cespitosa*) and rushes (*Juncus longistylis*, *J. ensifolius*, *J. drummondii*). Forbs within the lake margin include marsh cinquefoil (*Comarum palustre*) and coltsfoot (*Petasites sagittatus*). Floating mats are found along the edges of the larger ponds. These mats support roundleaf sundew (*Drosera rotundifolia*), bog sedge (*Carex limosa*), pale sedge (*C. livida*) with *Sphagnum* spp. Water analysis performed by the Forest Service in 2005 indicate that the fens are classified as intermediate poor fens with a relatively low pH (5.3) and low cation concentration 55.3 microsiemens per centimeter. Amphibians that are known to occur in the ponds are western toad (*Bufo boreas boreas*), wood frog (*Rana sylvatica*), northern leopard frog (*Rana pipiens*), and the striped chorus frog (*Pseudacris triseriata*). The slopes and ridges surrounding the kettles consist of sandy loams, characterized by coarse glacial till and cobbles. The upland vegetation consists of lodgepole pine (*Pinus contorta*) forests that have been severely impacted by the mountain pine beetle (*Dendroctonus* spp.).

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## Key Environmental Factors

Intact hydrology is the main ecological factor. Climate change could become another driving ecological factor in the future.

## Climate Description

This site is located in a wetter area of North Park, receiving 25-30 inches of precipitation annually.

## Land Use History

There are two major ditches in the general area, Pleasant Valley and Independence ditches. The ditches are owned by a private ranch and take water off the North Fork and out of Big Creek Lakes. The Forest Service operates a 54 unit campground that is found at Lower Big Creek Lakes. Fishing, non motorized boating and hiking are the main activities.

## Cultural Features

No Data

### SITE DESIGN

Site Map Y - Yes

Mapped Date 11/05/2009

Designer Culver, D.R.

## Boundary Justification

The boundary is drawn to capture the immediate watershed that supports the rare elements. The boundary starts at the northeastern flank of Red Elephant Mountain and encompasses the drainages, lakes, kettle ponds, and wet meadows within the glacial basin up to Twisty Park.

Primary Area 15,705.48 Acres

6,355.81 Hectares

### SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

## Biodiversity Significance Comments

This site contains three rare amphibians and a very high concentration of several state rare plants. Plants include slender cottongrass (*Eriophorum gracile*) (G5/S2), bristly stalk sedge (*Carex leptalea*) (G5/S1), livid sedge (*Carex livida*) (G5/S1), roundleaf sundew (*Drosera rotundifolia*) (G5/S2), lesser bladderwort (*Utricularia minor*) (G5/S2), mud sedge (*Carex limosa*) (G5/S2), and slender sedge (*Carex lasiocarpa*) (G5/S1). There are several excellent (A-ranked) occurrences of globally common wetland communities such as pond lily herbaceous wetland (*Nuphar lutea* ssp. *polysepala*) (G5/S3), beaked sedge - water sedge herbaceous wetland (*Carex utriculata* - *Carex aquatilis*) herbaceous wetland, and beaked sedge herbaceous wetland (*Carex utriculata*) (G5/S4). Rare amphibians include wood frog (*Rana sylvatica*) (G5/S3), northern leopard frog (*Rana pipiens*) (G5/S3) and a breeding population of the boreal toad (*Bufo boreas*) (G4T1Q/S1). The boreal toad was once common throughout the mountains of Colorado, but has undergone declines over the last 20 years (Goettl 1997). Reasons for the decline are unknown, but postulated to be due to a chytrid fungus (Cunningham 1998 as cited in Hammerson 1999). In 1993, the boreal toad was listed as state endangered by the Colorado Division of Wildlife. The northern leopard frog and the wood frog are globally common, but considered by the Federal and State agencies as sensitive. In 2009, the Forest Service and DOW documented 5 adult and 10 juvenile northern leopard frogs and 1 adult and 7 juveniles from Big Creek Lakes area.

Other Values Rank No Data

## Other Values Comments

No Data

### LAND MANAGEMENT ISSUES

## Land Use Comments

No Data

## Natural Hazard Comments

No Data

## Exotics Comments

No Data

## Offsite

Management within the Big Creek Lakes watershed should be evaluated for significant alteration to the hydrology and negative impacts to the elements present.

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## Information Needs

No Data

### ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
20351	<i>Bufo boreas</i> pop. 1	Boreal Toad (Southern Rocky Mountain Population)	G4T1Q	S1	Yes
21314	<i>Carex livida</i>	livid sedge	G5	S1	No
17095	<i>Rana sylvatica</i>	Wood Frog	G5	S3	Yes
17835	<i>Acroloxus coloradensis</i>	Rocky Mountain Capshell	G3	S1	No
23578	<i>Drosera rotundifolia</i>	roundleaf sundew	G5	S2	Yes
24194	<i>Carex leptalea</i>	bristle-stalk sedge	G5	S1	No
18619	<i>Eriophorum gracile</i>	slender cottongrass	G5	S2	No
18494	<i>Utricularia minor</i>	lesser bladderwort	G5	S2	No
22458	<i>Carex limosa</i>	mud sedge	G5	S2	No
23578	<i>Drosera rotundifolia</i>	roundleaf sundew	G5	S2	Yes
23259	<i>Carex lasiocarpa</i>	slender sedge	G5	S1	No
18619	<i>Eriophorum gracile</i>	slender cottongrass	G5	S2	No
17073	<i>Nuphar lutea</i> ssp. <i>polysepala</i> Herbaceous Vegetation	Western Slope Floating/Submergent Palustrine Wetlands	G5	S3	No
18795	<i>Carex utriculata</i> Herbaceous Vegetation	Beaked Sedge Montane Wet Meadows	G5	S4	No
17073	<i>Nuphar lutea</i> ssp. <i>polysepala</i> Herbaceous Vegetation	Western Slope Floating/Submergent Palustrine Wetlands	G5	S3	No
18795	<i>Carex utriculata</i> Herbaceous Vegetation	Beaked Sedge Montane Wet Meadows	G5	S4	No
24955	<i>Carex aquatilis</i> - <i>Carex utriculata</i> Herbaceous Vegetation	Montane Wet Meadows	G4	S4	No
18864	<i>Sagittaria montevidensis</i> ssp. <i>calycina</i>	long-lobe arrowhead	G5T5?	S1	No
18389	<i>Rana pipiens</i>	Northern Leopard Frog	G5	S3	Yes
18389	<i>Rana pipiens</i>	Northern Leopard Frog	G5	S3	Yes
23259	<i>Carex lasiocarpa</i>	slender sedge	G5	S1	No
20351	<i>Bufo boreas</i> pop. 1	Boreal Toad (Southern Rocky Mountain Population)	G4T1Q	S1	Yes
24666	<i>Salix wolfii</i> / <i>Carex aquatilis</i> Shrubland	Subalpine Riparian Willow Carr	G4	S3	No
21615	<i>Sisyrinchium pallidum</i>	pale blue-eyed grass	G2G3	S2	No
22458	<i>Carex limosa</i>	mud sedge	G5	S2	No
17095	<i>Rana sylvatica</i>	Wood Frog	G5	S3	Yes

### REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
198407	Culver, D.R., K. Decker, J. Parker, J. Bell, J. Sovell, and J. Huggins. 2010. CNHP Final Report: Identification and Assessment of Important Wetlands within the North Platte Watershed, CO. Colorado Natural Heritage Program, Fort Collins, CO.
170599	Goettl, J. P. Jr., and The Boreal Toad Recovery Team. 1997. Boreal Toad ( <i>Bufo boreas boreas</i> ) (Southern Rocky Mountain Population), Recovery Plan. Colorado Division of Wildlife, Denver.
159546	Hammerson, G.A. 1999. Amphibians and Reptiles in Colorado. Second Edition. University Press of Colorado. Niwot, CO.
192747	Tweto, O. 1979. Geologic Map of Colorado, 1:500,000. United States Geological Survey, Department of Interior, and Geologic Survey of Colorado, Denver, CO.

### ADDITIONAL TOPICS

#### Additional Topics

Original site design by Ellingson, A.R. 1995-01-25.

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## VERSION

Version Date 11/05/2009

Version Author Culver, D.R.

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