Level 4 Potential Conservation Area (PCA) Report

Name Iron Creek **Site Code** S.USCOHP2*2088

IDENTIFIERS

Site ID 1979 **Site Class** PCA

Site Alias None

Network of Conservation Areas (NCA)

NCA Site ID	NCA Site Code	NCA Site Name
-		No Data

LOCATORS

Nation United States **Latitude** 372325N

State Colorado **Longitude** 1063618W

Quad Code	Quad Name
37106-C5	Platoro
37106-D5	Summitville

County

Conejos (CO)

Rio Grande (CO)

Watershed Code	Watershed Name
13010002	Alamosa-Trinchera

SITE DESCRIPTION

Minimum Elevation	10,200.00	**Feet**	3,109.00	**Meters**
Maximum Elevation	12,400.00	**Feet**	3,780.00	**Meters**

Site Description

The site occurs along a steep drainage and includes much smaller and steeper tributaries. The area is characterized by moderate to steep mountain slopes covered with Engelmann spruce (Picea engelmannii), aspen (Populus tremuloides), and common juniper (Juniperus communis). The globally imperiled and vulnerable moonworts (Botrychium echo, B. pallidum, and B. hesperium) were found growing in disturbed areas (e.g., old logged areas, roadsides, etc.). Associated plant species in these areas included: wild strawberry (Fragaria virginiana spp. glauca), clover (Trifolium sp.), spike trisetum (Trisetum spicatum), blueberry (Vaccinium myrtillus spp. oreophilum), pine dropseed (Blepharoneuron tricholepis), yarrow (Achillea lanulosa), Oreochrysum parryi, bottle gentian (Pneumonanthe parryi), dwarf fleabane (Erigeron vetensis), and goldenrod (Solidago spathulata var. neomexicana). This Goldenrod species is a diagnostic plant which indicates potential moonwort habitat. A few small occurrences of iron fens were located along the Iron Creek drainage. Iron fens are unusual peatlands in that surface/groundwater pH and the associated plant species are typical of ombrotrophic bogs and acidic, nutrient poor fens, while the concentration of ions is more typical of rich and extreme rich fens (Cooper 1999). Peatlands are usually classified along a chemical gradient (pH and concentration of cations such as Ca2+, Na+, K+, and Mg2+). The gradient is typically as follows: ombrotrophic bogs and poor fens are characterized by low pH and low cation concentration, whereas rich and extreme rich fens (e.g., High Creek Fen near Fairplay, CO) are characterized by high pH and high cation concentration. Iron fens do not fit into this gradient because of the unusual biogeochemistry (low pH but high concentration of cations (especially Ca2+ and SO42-). This occurs due to groundwater and surface water draining through rock rich in pyrite. As the pyrite becomes oxidized, it produces a sulfuric acid, which leaches ions from surrounding rock while also creating an acidic solution, leading to a nutrient rich yet acidic water supply (Cooper 1999). Iron fens are characterized by limonite ledges, which form when iron precipitates out of solution and then solidifies into hard rock. Organic substrates (e.g., peat and coarse woody debris) often are mixed with the iron precipitate thus limonite often contains large amounts of organic materials. The plant species typically found in iron fens include: bog birch (Betula glandulosa), dwarf blueberry (Vaccinium cespitosum), creeping wintergreen (Gaultheria humifusa), swamp-laurel (Kalmia microphylla), water sedge (Carex aquatilis), bluejoint reedgrass (Calamagrostis canadensis), with a continuous carpet of mosses mainly dominated by sphagnum peat moss (Sphagnum spp). The iron fens located at this site were supported by seepage passing over oxidizing pyritic rock causing seepage waters to have a low pH (<4.0). The extent of acidic drainage was often very narrow and areas with low pH often rapidly graded into more alkaline areas where pH was above 6.5. Poor fen sphagnum (Sphagnum angustifolium), water sedge, and bluejoint reedgrass are the dominant species whereas dwarf blueberry, creeping wintergreen, and a few other mosses (Pohlia longicolla, Polytrichastrum longisetum, and Hypnum lindbergii) are less abundant. The peat in two of the occurrences was very deep despite being on extremely steep slopes. Although the three occurrences

found were quite small, there is high probability that many other small iron fens occur in the area (CNHP was unable to search all potential locations). A large number of small iron fens in one area may have as much or more conservation value than a single large system.

Key Environmental Factors

No Data

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map P - Partial **Mapped Date** 01/01/2000

Designer Rocchio, F.J.

Boundary Justification

The site encompasses most hydrological sources, except for those originating upstream in Schinzel Flats. This also includes habitat in the area that may support additional moonwort populations and to allow the elements additional areas to establish.

Primary Area 1,442.07 **Acres** 583.59 **Hectares**

SITE SIGNIFICANCE

Biodiversity Significance Rank B4: Moderate Biodiversity Significance

Biodiversity Significance Comments

This site supports fair examples of two plant species which are vulnerable on a global scale.

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGMENT ISSUES

Land Use Comments

[Pague 94-08-01] There are mining claims within the site boundaries.

Natural Hazard Comments

No Data

Exotics Comments

No Data

Offsite

No Data

Information Needs

[Pague 94-08-01] Need to verify site boundaries with on-site investigation. Determination of additions to buffer needed. This very small species should be sought in other similar areas.

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
20475	*Botrychium echo*	reflected moonwort	G3	S3	Yes
19971	*Botrychium pallidum*	pale moonwort	G3	S2	No
22785	*Botrychium hesperium*	western moonwort	G4	S2	No

REFERENCES

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Name Iron Creek **Site Code** S.USCOHP2*2088

Reference ID	Full Citation
165924	Kettler, S., J. Rocchio, R. Schorr, J. Burt. 2000. Biological Inventory of Rio Grande and Conejos Counties, Colorado. Unpublished report prepared for The Nature Conservancy. 234 pp.
171757	Pague et al. 1994. Natural Heritage Inventory of the mammals occurring in the Doudy Draw Open Space, Boulder and Jefferson Counties, Colorado.
171089	Rocchio, J. 1999. Colorado Natural Heritage Program Wetland and Riparian Inventory/Assessment for Rio Grande/Conejos Counties.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 01/01/2000

Version Author Rocchio, F.J.

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