Natural Heritage Resources of the Glade Park-Piñon Mesa Area Mesa County, Colorado and Grand County, Utah

March 18, 1996

Prepared for The Nature Conservancy's Colorado Field Office

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Introduction

The Glade Park - Piñon Mesa area in Mesa County, Colorado, is under increasing pressure from residential development, mainly due to its proximity to the city of Grand Junction and the natural beauty of the area. Unplanned development may threaten many of the natural heritage resources of the area (those plants, animals, or natural communities monitored the Natural Heritage Network) and the rural character of the land.

In the spring of 1995 the Colorado Field Office of The Nature Conservancy contracted the Colorado Natural Heritage Program (CNHP) to conduct an inventory of natural heritage resources in the area. This report summarizes the results of the inventory and will focus on the area from the top of Unaweep Canyon north to the area known as Black Ridge, and from west of the Colorado National Monument to the confluence of the Dolores and Colorado Rivers in Utah (referred to as Glade Park - Piñon Mesa). Several conservation sites were identified and are listed below. Site profiles for these sites are also included in the report.

Conservation sites identified in the Glade Park - Piñon Mesa area.

Sites	Biodiversity Rank
Piñon Mesa Macrosite	B3
Fish Park	B2
Piñon Mesa	B2
Toms Canyon Mesa	B2
Piñon Mesa Canyons	B3
Granite Creek	B3
Little Dolores River Headwaters	B4
Miracle Rock	B4
Mountain Island Mesa	B4
Payne Wash	B4
Two V	B4

The Piñon Mesa Macrosite site encompasses the following standard sites: Piñon Mesa, Granite Creek, Little Dolores River Headwaters, Payne Wash, Piñon Mesa Canyons, and Two V.

The Glade Park - Piñon Mesa area is considered a part of the Colorado Plateau. Many plant species are endemic to the area and are globally rare (G1-G3). Few globally rare animal species are known from the area, the exceptions being several Colorado River fish species and the Gunnison sage grouse. Natural communities occurring in the area are

generally widespread on the Colorado Plateau, but many have been degraded rangewide and are considered threatened or imperiled.

Although the general area is well known for its endemic plants, few of these species have the potential to occur in the main area of interest. Data pertaining to animals of concern were available from various state and federal agencies and have been incorporated into the database at CNHP. Information on the natural communities was generally not available but it was thought that these communities may be one of the most important aspects of a conservation plan for the area.

Study Area Description

The term "Glade Park-Piñon Mesa area" as used here is refers to the northern end of the Uncompahgre Plateau. It is surrounded on all sides by river valleys: The Colorado River flows westward through the Grand Valley and into Horsethief and Ruby Canyons along its northern boundary; the Gunnison and Dolores Rivers, both north flowing tributaries of the Colorado, form the eastern and western boundaries, respectively; and on the south, the area has been separated from the main body of the Uncompahgre Plateau by Unaweep Canyon, with East Creek and West Creek flowing in opposite directions from the center. The plateau is dissected by numerous, mostly intermittent, streams flowing from the central highlands outward in all directions. Many have carved deep, colorful canyons through the Jurassic and Triassic sedimentary rocks. Elevations in the study area range from a low of 4100 ft. at the confluence of the Dolores and Colorado Rivers, to 9671 ft. in the Grand Mesa National Forest.

Geologically, the area is a remnant of an ancient highland known as Uncompahgria, part of the ancestral Rocky Mountains which were uplifted 300 million years ago. During the Pennsylvanian period, when the rest of Colorado was under an inland sea, Uncompahgria was an island. Erosion during the Pennsylvanian period removed all the rock layers above the Precambrian metamorphic rock. By the end of the Permian, the landscape was nearly a level plain. The Precambrian rock was again buried by sediments during the Triassic and Jurassic Periods, leaving an unconformity representing over 300 million years, or the entire Paleozoic sequence, between the Precambrian and Triassic. The Mesozoic sediments can be seen now as the Cutler, Moenkopi, Chinle, Kayenta, and Wingate sandstones of the Triassic, and the Entrada and Morrison formations of the Jurassic. Over these layers were deposited the Dakota and Mancos formations of the Cretaceous period. The Plateau was again uplifted later in the Cretaceous period, along with the Rocky Mountains during the Laramide Orogeny, thus beginning a new period of erosion which continues today. The last major uplift occurred during the Miocene, when the entire Colorado Plateau was elevated (Chronic 1980, Collins 1985).

At present, the Mancos shale has almost completely eroded from the top of the plateau, but can be seen on the surrounding lower mesas. Along the eastern slope, and on Black Ridge, the more resistant cap of Dakota sandstone (Cretaceous) has survived. The Jurassic and Triassic layers which dominate the plateau today are mostly horizontal. On the sides of the plateau, deep canyons have cut into the sandstone layers, exposing the

colorful canyon walls of the area. In deeper canyons such as Unaweep and along the Little Dolores River, Precambrian granites have been exposed (Chronic 1980, Collins 1985).

This excavational environment has been important in determining the flora of the area. It favors the existence of many endemic species which appear to be specific to certain substrates, as opposed to the more generalized flora which exists in a depositional environment, such as the Great Basin, where soils are a mixture of parent materials.

Cretaceous

Dakota: The Dakota sandstone represents the beach deposits of a transgressing sea. This shallow inland sea covered the area when the calcareous Mancos shale formed the final sedimentary layer.

Jurassic

Morrison: The Morrison formation was deposited in a swampy environment during a tropical period, and contains the famous dinosaur fossils found nearby. The lower member, the salt wash member contains the uranium deposits that were mined in the area.

Entrada: The Entrada, like the Wingate, was deposited as dry dune sands. It is recognizable when exposed by its smooth, often convex slickrock. It makes a good landmark, because of its light color. The Entrada is the layer which forms the familiar arches of Arches National Park in Utah.

Triassic

Kayenta: The Kayenta was formed from stream sands when the climate was again more humid, and contains some fossil plants.

Wingate: The Wingate sandstone was derived from dune sands during a period when the climate resembled that of the present Sahara. Cross bedding typical of windblown sediments can be seen in this layer. It forms smooth vertical cliffs in the deeper canyons.

Chinle: The red Chinle shale was derived from similar depositional events and also contains uranium deposits.

Precambrian

This is similar to the core of many mountain ranges in Colorado. The rock is hard, resistant to erosion, and very old.

Soils: Soils of the area may be alluvial, wind deposited, or weathered in place. They are derived from sandstone (sandy), shale (clay) or both (loam). Some soils at the lowest

elevations may have excess salt or sodium. Four of the world's ten orders are represented: Aridisols, Entisols, Mollisols and Alfisols.

Climate: The area lies in a rain shadow caused by mountain ranges to the east, west and north. Precipitation in Grand Junction is about 8 inches per year, and probably somewhat higher at the higher elevations of the study area. Precipitation is highest in August. Grand Junction is frost free for about 185 days. Temperatures vary as much as 20 degrees with elevation, with mean lows in January ranging from 0 to 16 degrees F. and highs in July from 70 to 95 degrees F. Summer temperatures over 100 degrees F. are common. Humidity is generally 22 % in midsummer. Prevailing winds are from the southwest, but are influenced by local topography (U. S. Dept of Interior 1979.)

Vegetation: Several vegetation zones are represented in the area. At the lowest elevations, along the Colorado and Dolores Rivers, there are salt desert shrub communities with shadscale or saltbush (*Atriplex* spp.), winterfat (*Krascheninnikovia lanata*), galleta grass (*Hilaria jamesii),* and Indian ricegrass (*Oryzopsis hymenoides*). Above this are communities dominated by sagebrush (mostly *Artemisia tridentata vaseyana*). Piñon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*)become dominant with increasing elevation, and become mixed with Gambel's oak (*Quercus gambelii)* and other mountain shrubs. In some places there are extensive stands of shrubs, interspersed with meadows and patches of aspen (*Populus tremuloides*). Above 8,000 ft. there are Ponderosa pine (*Pinus ponderosa*)and Douglas-fir (*Pseudotsuga menziesii)* forests. Higher yet, there are aspen, Engelmann spruce (*Picea engelmannii)* and subalpine fir (*Abies lasiocarpa)*. There are no alpine communities in the area. Riparian vegetation consists of cottonwoods (*Populus* spp.), willows (*Salix* spp.), birch (*Betula occidentalis)* and alder (*Alnus incana*) at lower elevations, giving way to aspen and subalpine fir upstream. Blue spruce (*Picea pungens*) occurs in some of the cooler drainages. The Colorado and Dolores Rivers have been seriously invaded by tamarisk (*Tamarix*).

Ownership: Ownership of the area is predominantly public. In Mesa County as a whole, 73% is Federal land, 26% private, and 1% state, county and municipal. The Bureau of Land Management administers most of the federal lands. Also under federal management are Colorado National Monument and a small (12 sections) isolated part of the Grand Mesa National Forest. The rest of the area is privately owned, mostly large ranches, but with an increasing amount of residential subdivision.

Methods

Some species specific information was available from various land managers within the area (mainly the BLM and CDOW). This information has been compiled and entered it into the Biological and Conservation Database (BCD) at the Colorado Natural Heritage Program. Less information is available regarding the locations, rarity or imperilment, and condition of natural communities (plant associations). With limited time available for thorough field surveys it was necessary to assess the status of these communities in a short time.

To accomplish this a simplified gradsect type of sampling system (see Bourgeron et al. 1995) was used to distribute targeted vegetation inventory sites throughout the study area. Inventory sites were established along elevation gradients and on different geologic substrates (the factors thought to mostly strongly influence the vegetation). At each site the vegetation types were described and information collected regarding the extent, condition, and quality of the plant community. This was done to identify the major vegetation types and to assess the general quality and condition of these communities across the environmental gradients in the study area. This method allows a coarse analysis of the range of variability of the vegetation in the Glade Park area with the realization that similar environmental gradients and therefore similar communities may exist in other parts of the Colorado Plateau or adjacent ecosystems. Where possible gradsect transects were located near roads to facilitate more thorough coverage of area. Inventory areas were distributed along nine geologic types - Morrison Formation/Summerville Formation and Entrada sandstone; Kayenta Formation/Wingate sandstone/Chinle Formation; Dakota sandstone/Burro Formation; Cambrian metamorphic biotite gneiss, schist, and pegmatite; Quaternary/modern alluvium; granitic rocks of Precambrian; other granitic rocks of Precambrian; Cutler Formation , Permian sedimentary; and Quaternary landslide deposits at approximately 500' elevation intervals.

In addition, BLM natural color aerial photos were used to identify areas (potential natural areas) that appeared to be relatively undisturbed. Both the targeted inventory areas mentioned above and the potential natural areas were mapped and as many as possible visited in the field.

Representativeness and General Condition of the Major Vegetation Types

Most of the vegetation types documented from the area are relatively common throughout the Colorado Plateau. Elevation (influencing precipitation) seems to be the most important variable affecting vegetation distribution. Although the geology of the area is quite complex most of the parent materials are sandstones and siltstones. These parent materials weather into soils that support a similar suite of plant communities. West and Van Pelt (1987) state that climate is the primary driver of vegetation change, and that soils and landforms are not as influential in controlling macropatterns and the rate of succession on mesas in the area.

Numerous scientists familiar with the area (BLM, CO State Forest Service, staff from The Nature Conservancy and Natural Heritage Programs in AZ, NM, and UT) were consulted to get a rangewide perspective of the conservation values of the area. Much of the following information was gathered from those scientists. Most of this information is unpublished and from personal observation (both CNHP staff and others) and therefore subject to our personal biases. Because of the limited resources and time available for this study, this information should be considered as our best estimate of the conservation value of the area. The inventory of Mesa County, to be conducted by CNHP in the

summer of 1996, may provide more detailed information about the distribution and quality of many of the elements of natural diversity identified during this project.

Keys contacts for information compiled for the Glade Park - Piñon Mesa inventory

Kathy Abrahamson - USFS Grand Mesa
Patrick Bourgeron - TNC Western Region
Dennis Gorsett - Natural Resources Conservation Service
Ron Lambeth, Grand Junction BLM
Esteban Muldavin- NMNHP
Kelly Rogers - CO State Forest Service
Doug Stone - UTNHP
Joel Tuhy - CO Plateau TNC
Nick Van Pelt - UT TNC
Peter Warren - AZ TNC
David Williams - Moab BLM

Significance of General Habitats and Vegetation Types

Mesas:
Small isolated mesa that are relatively undisturbed are common in the area but as the size of a mesa increases so does the chance that it has been more heavily disturbed. Mesa tops often have different animal communities depending on the size (Van Pelt 1993). Large mesas are probably more representative of the small mammal communities, yet tend to be more accessible and therefore more disturbed (which may impact less common animals). Small mesas may be in better condition but are often not as representative of small mammal communities. These smaller mesas might be large enough to support natural invertebrate communities. Protection of multiple mesas of various size (and probably various condition) might help protect the plant communities and animal communities as well. These would be most valuable if they occur in the landscape with other vegetation types that are relatively undisturbed, allowing natural movements and migrations of both plants and animals.

Slopes:
Many of the steep slopes of the mesas in the area are dominated by piñon-juniper at lower elevations and by Gambel's oak and other montane shrubs at slightly higher elevations. In general these communities are in good condition as they are relatively inaccessible.

Riparian/Wetlands:
Both riparian areas and wetlands are relatively unprotected throughout the Colorado Plateau (Joel Tuhy, Peter Warren - personal communication). Several riparian plant communities are somewhat rare and many are heavily degraded. Although in the Glade Park - Piñon Mesa area there are a fair number of isolated, inaccessible canyons with

structurally intact riparian vegetation, exotics species are also prevalent in the understory of these communities. The most extensive narrowleaf cottonwood/shrub communities are on the Little Dolores River and the patchy narrowleaf cottonwood documented on Granite Creek is typical for the area (Ron Lambeth - personal communication). In general, riparian ecosystems should be high priority for further inventory and protection efforts.

Lower River Valleys:
Lower valleys such as those along the Dolores and Little Dolores Rivers are greatly modified by livestock grazing and agricultural operations such as haying. It appears that heavy restoration efforts would be needed to restore these communities to good quality and this might not be successful in restoring all components of the ecosystem. Few records of the Gunnison sage grouse exist in the lower valley of the Little Dolores River so they may have never been common there. Restoration potential to the extent necessary to support the Gunnison sage grouse should be investigated if the area is shown to have been historical habitat for the birds.

Montane:
Montane grasslands, shrublands and forests were considered to be of some conservation significance to several ecologists with knowledge of the Colorado Plateau. It was noted that most things above the piñon-juniper zone, including Gambel's oak, aspen forests, grasslands, and mixed conifer forests would be significant. Manzanita (*Arctostaphylos patula)* stands are relatively rare in Colorado but they do occur in the Glade Park area and in Utah. This plant community is slightly similar to the *Pinus ponderosa/Arctostaphylos patula* plant association (Youngblood and Mauk 1985) and is common locally (CNHP staff - personal observation, Ron Lambeth - personal communication, Joel Tuhy - personal communication). This plant association will be considered a separate plant association and tracked (in BCD) by CNHP.

Grasslands:
Literature and opinions vary as to the status of grasslands in the Colorado Plateau and Great Basin. Some sources suggest that many grasslands have been converted to dense sagebrush or piñon-juniper stands through grazing and fire suppression, while others indicate that this might not be true. Grasslands in general have been one of the most impacted ecosystems in the area and few high quality occurrences are known. Few high quality grasslands were identified during the field survey, and most of these were at the higher elevations of the study area. These should be high priorities for further inventory and protection efforts.

Festuca thurberi-Elymus glaucus grasslands are more common on the Unaweep Canyon side of the study area and in the understory of aspen stands. Some of the best *Stipa comata* grasslands in the general area occur in Dominguez Canyon outside the study area (Dennis Gorsett NRCS - personal communication). Grasslands and low elevation shrubland conservation sites need to be large because the patch dynamics are large scale for these types. Smaller grassland sites may contain viable populations of some animals but will not protect the entire associated biota.

Sagebrush:
Sagebrush communities are common and widespread in the Glade Park - Piñon Mesa area and the Colorado Plateau, but are usually heavily impacted. There is some protection for these communities in Utah, mostly in openings of piñon-juniper woodlands (Joel Tuhy - personal communication) but very little in Arizona (Peter Warren - personal communication). Much of the sagebrush ecosystem near Farmington, New Mexico, is being converted to irrigated agricultural land (Esteban Muldavin - personal communication). Most stands in the Glade Park - Piñon Mesa area have been heavily impacted by agricultural activities (burning and chaining and then planting to crested wheatgrass, conversion to hay meadows, heavy livestock grazing). The only high quality sagebrush community identified during the survey was in the Colorado National Monument. The sagebrush ecosystem should be a high priority for further inventory and protection efforts.

Gambel's oak:
Gambel's oak communities are common and widespread throughout Glade Park - Piñon Mesa area and the Colorado Plateau. In general, the Gambel's oak vegetation type is relatively unprotected in Utah (Joel Tuhy - personal communication). Several small, but good condition sites were identified during field surveys. This vegetation type may be somewhat naturally protected on steep slopes of inaccessible canyons but more accessible sites (possibly with different associated biota) may not be protected. Protection of high quality sites and management of lesser quality, more accessible sites would help to protect this vegetation type over a portion of its range of natural variability.

Aspen:
Aspen communities are limited to but common at the higher elevations of the study area. The condition of these stands appears to be highly variable. Aspen stands in the nearby LaSal Mountains in Utah are easily accessible and has been somewhat degraded (Joel Tuhy - personal communication). One small, good condition aspen stand was identified during the field survey last summer near Two V Basin. The landowner said this site was grazed in the fall to avoid larkspur poisoning to cattle. Identification and protection of other stands managed similarly or changed to this type of management would help protect a representation of communities that is apparently not protected elsewhere on the Colorado Plateau.

Piñon-juniper:
Although we have not sampled the variability of this vegetation type across the range, piñon-juniper woodlands are very common throughout the Plateau. The consensus from the Colorado Plateau ecologists was that vegetation type appears to be protected to some level across its range. In Arizona, piñon-juniper woodlands are protected around Grand Canyon National Park. In Utah, piñon-juniper is generally well protected, including mesa top sites in the Westwater area near the Colorado line. The vegetation is probably very similar to that in the Glade Park area (Joel Tuhy, Nick Van Pelt - personal communication).

One isolated mesa near the Coates Creek School was unique among those surveyed during the field season. This site supported a common plant association that exhibited old-growth characteristics as defined by the Forest Service (Mehl 1993). Although old trees do not appear to be unusual in piñon-juniper woodlands, this stand exhibited structure unlike any other seen during the field surveys in the area and is of interest to the local Bureau of Land Management staff.

There is some literature suggesting that piñon-juniper has increased to both higher and lower elevations. Several reasons or combinations have been suggested including climate change, grazing and fire suppression, and impacts from Anasazi woodcutters (Van Devender 1987). Piñon -juniper stands on deeper soils this may be a result of expansion of these species into stands formerly dominated by grasslands as a result of grazing and fire suppression (Dennis Gorsett - personal communication). In Glade Park, the piñon -juniper vegetation type could be adequately protected using management agreements that minimize the threats to the ecosystem. This could be done without putting a lot of resources into more formal protection.

Ponderosa pine:
Ponderosa pine stands are not common in the study area but do occur at the higher elevations near the Grand Mesa National Forest parcel south of the Colorado National Monument. Nature Conservancy and Heritage ecologists in the west generally feel that Ponderosa pine has been one of the most heavily impacted vegetation types across its range and needs further protection. Few ponderosa pine communities were surveyed in the Glade Park - Piñon Mesa area, mainly because of lack of landowner access to the sites. Those that were surveyed were in easily accessible areas and usually degraded.

Spruce-fir or mixed conifer:
Mixed conifer types are limited to the higher elevations of the study area, for example in the small part of the Grand Mesa National Forest south of the Colorado National Monument. This vegetation type in the Arizona part of the Colorado Plateau is somewhat protected in inaccessible areas and/or on Forest Service land (Peter Warren - personal communication) and somewhat protected in Utah (Joel Tuhy - personal communication).

Fauna: There are several occurrences of the Gunnison sage grouse in the study area. This is a newly described species that will probably be ranked G1G2. There are less than a dozen sites known for the species with the greatest concentrations known near Gunnison, Colorado. Protection of this species should be the highest priority in the development of a conservation plan for the Glade Park-Piñon Mesa area. When considering long term protection of the species itself (using an element scorecard approach), protection of populations near Gunnison would provide the best chance of survival of the species.

Cutthroat trout may occur in the upper Little Dolores River, upper Payne Creek, and possibly in Northeast Creek. Exotic rainbow trout also occur in many of these streams. Elk and deer are common in the area which is popular with hunters.

Rare plant species: *Lomatium eastwoodiae* is locally abundant between Rough and Bangs Canyons on the eastern side of the area, and *L. latilobum* is known from Black Ridge. There is a *Psoralea aromatica* site on Steamboat Mesa quad. *Lygodesmia doloresensis* can be found all along the Dolores River (Ron Lambeth -personal communication). *Astragalus piscator* occurs along the Dolores River from Gateway to Dewey on the western boundary of the area (Lyon, in progress.) *Epipactis gigantea* is known from Unaweep Seep. The Colorado National Monument is home to *Pellaea glabella, Oreocarya longiflora, O. osterhoutii, Sporobolus flexuosus, Eriogonum palmerianum*, *Lomatium latilobum, L. eastwoodiae*, and *Aquilegia micrantha* (Weber et al. 1985.) *Aquilegia micrantha* is also present in Knowles Canyon (Ron Lambeth - personal communication).

Many of the rare plants found in the Glade Park - Piñon Mesa area also occur on the Colorado National Monument and are well protected. The exceptions may be those species locally restricted to the Dolores River valley which may warrant conservation attention. It is recommended that the Utah office of the Nature Conservancy and the Utah Natural Heritage Program be included in conservation planning for those elements.

A database search by the Utah Natural Heritage Program indicated that there were a number of rare plant and several rare animal occurrences from near but not within the study area. Recent information suggests that many of the rare plants that occur along the Dolores River near Gateway, extend well into Utah but this data has yet to be incorporated into the Heritage Program database. There were no records of natural communities from the area.

Recommendations:

1) Protection of core sites identified in the inventory of the area is recommended. In certain areas current management has been shown to be compatible with natural heritage resources. Conservation easements and similar management for large tracts containing a wide range of plant and animal communities would help protect much of the natural diversity of the area and that of the Colorado Plateau.

2) Assess the extent of high quality communities and identify others. Because of time limitations, many of the areas visited last summer received only a brief survey. The extent of the high quality communities needs to be assessed, and with a "signature" on aerial photos other potential examples should be identified and field surveyed.

3) Further develop working relationships with other partners in the area to insure protection of significant resources. Numerous private landowners and both state and federal agency personnel have expressed interest in conservation issues in the area and should be included in the planning process.

4) Continue research relative to significant elements of natural diversity. Population studies of the Gunnison sage grouse should be supported. Research regarding the ecological affects of fire and grazing on plant communities is vital for understanding the natural conditions of the area.

Elements Documented From the Glade Park -Piñon Mesa Study Area

Amsonia jonesii - G4/S1
Centrocercus minimus gunnisonii - G1G2/S1S2
Epipactis gigantea - G4/S2
Penstemon utahensis - G4/S1
Lygodesmia doloresensis - G1Q/S1
Lomatium eastwoodiae - G3/S2S3
Festuca idahoensis-Elymus trachycaulus p.a - *G4/S2*
Populus tremuloides/Tall Forbs p.a. - *G5/S5*
Arctostaphylos patula p.a. - *GU/SU*
Stipa comata - West p.a (tentative classification) - *G4/S2*
Populus tremuloides/Carex geyeri p.a.
Abies lasiocarpa/Carex geyeri p.a. - *G5/S2S3*
Pinus edulis/Quercus gambelii p.a. - *G5/S5*
Juniperus scopulorum/Cornus sericea p.a. - *G4/SU*
Pinus edulis/Cercocarpus montanus p.a. - *G5/S5*
Pinus edulis/Cercocarpus ledifolius p.a. - *G3/S3*
Pinus edulis/Cowania mexicana p.a. - *G5/S3?*
Populus angustifolia/Betula occidentalis p.a. - *G3/SU*
Populus angustifolia/Cornus sericea p.a. - *G3/S2?*
Quercus gambelii/Paxistima myrsinites p.a. - *GU/SU*
Betula occidentalis/Cornus sericea p.a. - *G3/SU*
Salix monticola-Salix geyeriana/Mesic Forb p.a. - *GU/S3*

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SITE PROFILES

Conservation sites identified in the Glade Park - Piñon Mesa area.

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Piñon Mesa Macrosite	B3
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CONSERVATION SITE PROFILE

SITE NAME: Piñon Mesa Macrosite

SIZE: ?

BIODIVERSITY RANK: B3 - high biodiversity significance. Contains one B2, one B3, and three B4 sites.

PROTECTION URGENCY RANK: P2 - threat expected within 5 years. Change in ownership could change management of the site which currently is compatible with survival of the elements.

MANAGEMENT URGENCY: M2 - management is needed within 5 years.

LOCATION: Mesa County, Colorado. Southwest of the city of Grand Junction.

GENERAL DESCRIPTION: See site profiles (or SBRs) for Granite Creek, Little Dolores River Headwaters, Payne Wash, Two V, Piñon Mesa Canyons, and Piñon Mesa which are encompassed in the Piñon Mesa Macrosite.

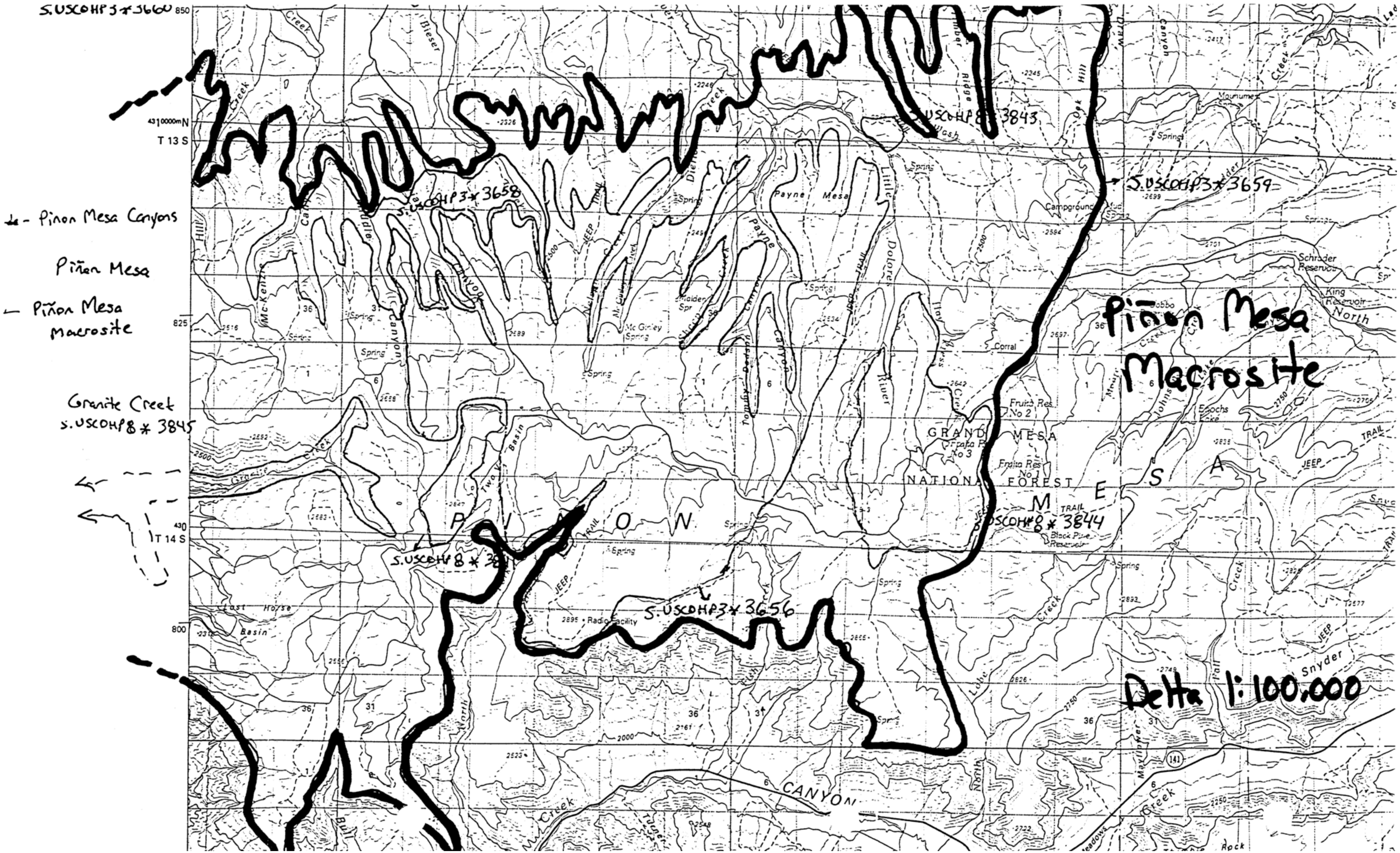
NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site contains a concentration of B2 to B4 sites.

CURRENT STATUS: Ownership is both public (BLM and USFS) and private. Most of the land with the site is used for cattle ranching. No formal protection is provided.

BOUNDARY JUSTIFICATION: The boundary is intended to encompass similar habitat to that in the standard sites, especially habitat suitable for the Gunnison sage grouse and habitat similar to that documented in the standard sites. The southern boundary is the rim of Unaweep Canyon. The northern limits are where the habitat changes to more degraded vegetation types near the Little Dolores River. The eastern limit is the county road to the National Forest land east of which the dominant vegetation types are significantly different. The western boundary is located in Utah and needs more precisely verified.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Protection efforts and management agreements with the landowners of the site would protect the known occurrences within the standard sites and similar habitat that may be important for the long term survival of the Gunnison sage grouse and the range of natural variation in the plant communities

GENERAL COMMENTS:.


S.USCOHP3*3660
← Piñon Mesa Canyons
Piñon Mesa
← Piñon Mesa Macrosite
Granite Creek
S.USCOHP8*3845
S.USCOHP3*3658
S.USCOHP8*3843
S.USCOHP3*3659
S.USCOHP3*3656
S.USCOHP8*3844
Piñon Mesa Macrosite
Delta 1:100,000

CONSERVATION SITE PROFILE

SITE NAME: Piñon Mesa

SIZE: Approximately 18,500 acres

BIODIVERSITY RANK: B2 - very high biodiversity significance. Two unranked occurrences (=C) of a G1G2 element.

PROTECTION URGENCY RANK: P3 - threats occur, but are not specifically identified. The site is under private ownership with several owners.

MANAGEMENT URGENCY: M2 - the decline in the Gunnison sage grouse is largely blamed on the degrading of the sagebrush communities. Management is needed within 5 years.

LOCATION: Mesa County, Colorado, Two V Basin Quad (3810878), Bieser Creek Quad (3810888), Payne Wash Quad (3810887), Fish Creek Quad (3810877). In the area known as Piñon Mesa southwest of the town of Grand Junction.

GENERAL DESCRIPTION: The Piñon Mesa site encompasses a wide variety of vegetation types. The vegetation types included (roughly from higher to lower elevations) are aspen, sagebrush meadows, Gambel's oak shrublands, and piñon-juniper woodlands, along with scattered grasslands and riparian areas at different elevations. Elevations of the site range from approximately 9500 feet to 7600 feet. The site is used for livestock grazing (currently cattle, but sheep ranching was more common historically). Many 4-wheel drive roads and trails and a county road pass through the site. Several springs and numerous natural ponds and stock ponds exist within the site. The sage grouse prefers the patchy shrublands with abundant grasses and forbs. These habitats are being encroached upon by other vegetation types.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site contains two unranked occurrences of a G1G2 element, the Gunnison sage grouse.

Gunnison sage grouse (G1G2) - unranked occurrence (=C):
There are fewer than 20 birds associated with the lek sites on Payne Mesa. The small size of the population prompted the CDOW observers to express grave concern for the occurrence. There are less than a dozen sites known for the species.

Gunnison sage grouse (G1G2) - unranked occurrence (=C)

Stipa comata - west (tentative name) (G2G4/S2) - B-ranked occurrence
This occurrence is at a much higher elevation that typically reported for this association and does not contain many of the characteristic species. The occurrence is tentatively placed in this association until more information can be gathered on montane *Stipa*

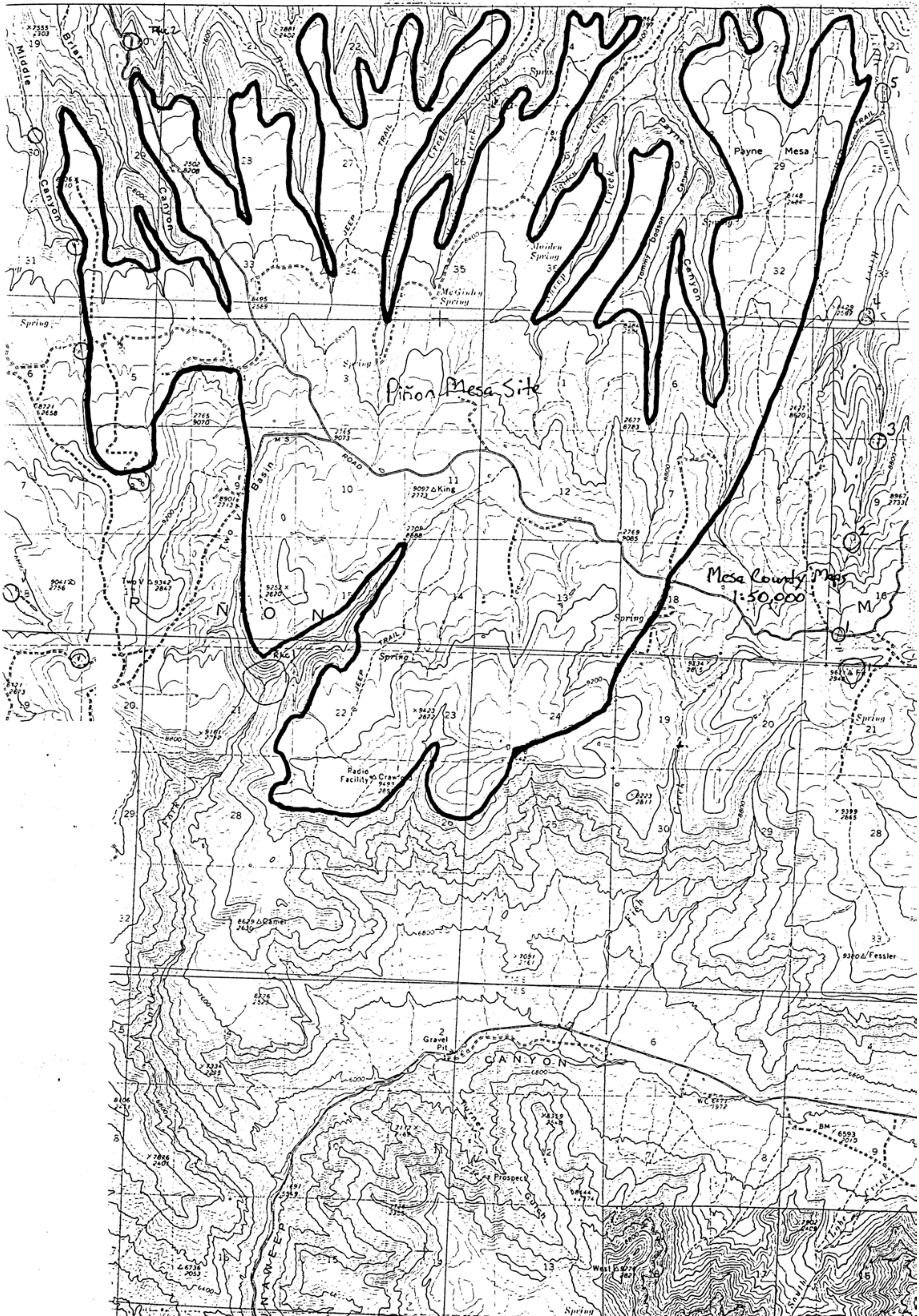
comata grasslands. It is suspected that this may be an undocumented plant community. None the less, bunchgrass plant associations are thought to have been severely reduced in extent and quality in the Great Basin and the Colorado Plateau. Ecologists from New Mexico and Utah state that good condition examples are rare and should be a high conservation priority.

CURRENT STATUS: Most of the site is in private ownership with several ranches. No formal protection is provided. The grouse is being intensively studied by CDOW. Nearby Forest Service lands that were known to be occupied are not now inhabited (Woods and Braun 1995).

BOUNDARY JUSTIFICATION: The Gunnison sage grouse leks of the area are included within the boundary. In addition, an area of approximately 2.5 mi. radius surrounding each lek is included provided that there is some suitable habitat. Additional data in the 1996 field season may provide for adjustments.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Wood and Braun (1995) suggested the following management recommendations: 1) annual movement and winter grounds need to be identified, 2) monitoring of leks should continue in subsequent years, 3) habitat manipulations are necessary in Fish Park (assure there are no other elements that may be negatively impacted, 4) land protection of any available parcels is warranted, 5) protect from human development, and 6) sagebrush communities need to be restored; however, we do not support all of the methods mentioned in the 1995 report. CNHP notes that fire may be one of the most important factor influencing the vegetation and therefore the sage grouse.

GENERAL COMMENTS: Further survey is needed to document breeding status of the sage grouse (Woods and Braun 1995) and the extent and condition of the natural communities.


Piñon Mesa Site
Mesa County Maps
1:50,000
Payne Mesa
Middle
Canyon
Tommy Dodson Canyon
Maiden Spring
McGinley Spring
Spring
JEEP TRAIL
Two V Basin
ROAD
King
Two V
P
Ñ
O
N
M
Radio Facility
Crawford
Camel
Fessler
Gravel Pit
CANYON
Prospect
Gulch
West

CONSERVATION SITE PROFILE

SITE NAME: Granite Creek

SIZE: Approximately 2500 acres

BIODIVERSITY RANK: B3 - high biodiversity significance. A concentration (4+) of B-ranked community occurrences.

PROTECTION URGENCY RANK: P2 - threat expected within 5 years. Change in ownership could change management of the site which currently does not threaten the elements.

MANAGEMENT URGENCY: M5 - no serious management needs are known or anticipated at the site.

LOCATION: Mesa County, Colorado, Steamboat Mesa Quad (3810971), Two V Basin Quad (3810878). At the western edge of the area known as Piñon Mesa southwest of the town of Grand Junction.

GENERAL DESCRIPTION: The Granite Creek site drains the higher elevations of the Piñon Mesa. The stream is high gradient near the upper reaches of the site but is of moderate gradient lower. Granite canyon is a very steep, V-shaped canyon with a narrow riparian area. At the higher elevations aspen and Douglas-fir grow on the steep slopes. At the lower elevations piñon-juniper stands dominate the slopes with some sagebrush communities on terraces above the creek and Gambel's oak stands directly adjacent to the riparian area. Elevations of the site range from approximately 8800 feet to below 6000 feet where the creek crosses into Utah. The site has been used for livestock grazing and evidence of an old settlement exists in the upper canyon. A 4-wheel drive road exists at the lower elevations of the site along the riparian area.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site contains a concentration (4+) of G3 to G5 plant communities in fair to good condition (C to B-ranked).

Salix monticola-Salix geyeriana/Mesic forb (GU/S3) - AB-ranked occurrence
Salix monticola dominated stands are not common in Utah (Padgett et al. 1989) and are reported as limited in distribution in Idaho (Brunsfeld and Johnson 1985). This association is considered a major vegetation type in central Colorado (Kittel et al. 1995).

Betula occidentalis-Cornus sericea (G3/SU) - C-ranked occurrence
This plant association is considered a major type in Utah and is occurs mostly in the central part of the state (Padgett et al. 1989). This association is uncommon in Colorado.

Populus angustifolia/Betula occidentalis (G3/SU) - B-ranked occurrence

This plant association has only recently been documented in Colorado. It is considered a major type in the Wasatch Mountains of Utah (Padgett et al. 1989).

Populus angustifolia/Cornus sericea (G3/S2?) - BC-ranked occurrence
This association is considered a major type in Utah (Padgett et al. 1989), and also occurs in Montana (Hansen et al. 1989) and Colorado. Most sites in Colorado are degraded and high quality stands are rare (Kittel et al. 1995).

Quercus gambelii/Paxistima myrsinites (GU/SU) - B-ranked occurrence
Little is known about this plant association which appears to occur only on the Colorado Plateau.

Pinus edulis/Cowania mexicana (G5/S3?) - B-ranked occurrence
This is a widespread association that occurs in New Mexico, Utah, Arizona, and Colorado.

Many of the communities present at the site are relatively widespread in the region but are good to fair quality occurrences. Protection of this site would encompass a significant representation of this ecosystem.

CURRENT STATUS: Most of the lower elevation land is owned by the Bureau of Land Management. The land at the higher elevations is currently owned by the Mountain Island Ranch. Historically, the site has been used for cattle and sheep ranching with cattle ranching being the current use. No formal protection is provided.

BOUNDARY JUSTIFICATION: The current boundary would protect the occurrences from direct impact, and encompasses most of the slopes of the canyon and major tributaries. This boundary also should protect the hydrologic regime which is necessary for the continued survival of the riparian elements.

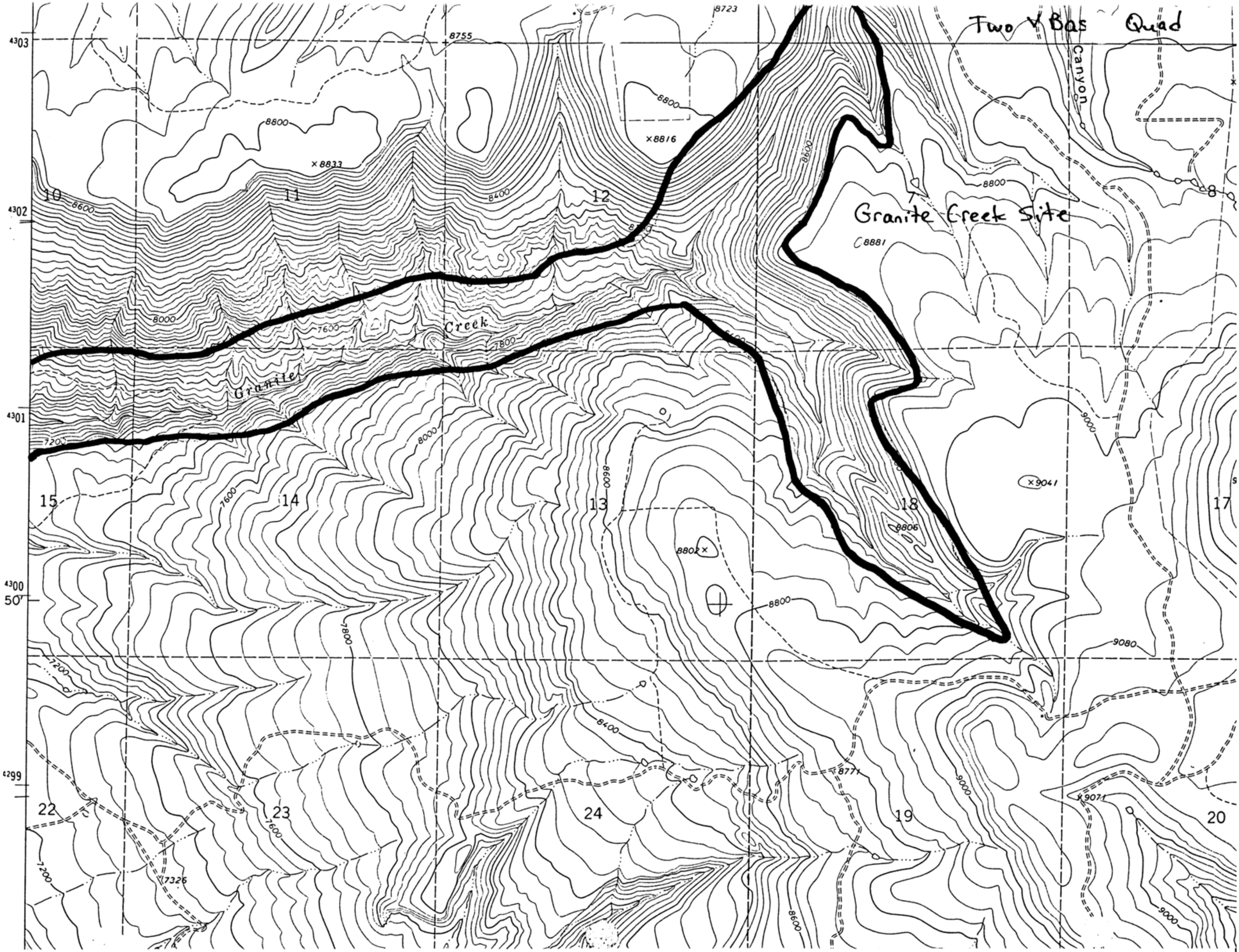
PROTECTION AND MANAGEMENT CONSIDERATIONS: This site contains a complex mosaic of plant associations but is contained within a relatively small watershed. Protecting the hydrologic regime is important for the riparian plant associations. Fire may be one of the most important factor influencing the upland associations. In the area it appears that succession after fire is a long process with at least one undesirable stage (domination by cheatgrass). Fire may also affect the hydrology of the creek by increasing erosion and therefore sediment loads in the creek. A large fire, such as the one to the north of the site in 1995, may completely alter the ecosystem. Smaller fires would have less impact on the entire watershed and allow natural variability in the plant and animal communities to persist within the site.

Padgett et al. (1989) state that the *Betula occidentalis-Cornus* sericea plant association reduces scouring and increases deposition during flood events because of the dense rooting nature of the dominant species. This may be a very important function in this type of riparian ecosystem which probably experiences flash floods.

In Utah, the *Populus angustifolia/Betula occidentalis* association exhibits little regeneration of cottonwood, possibly indicating that this type is successional to more xeric communities (Padgett et al. 1989).

In Utah, the *Populus angustifolia/Cornus sericea* association may be dense enough to deter heavy livestock use (Padgett et al. 1989), but in Montana heavy livestock use is thought to convert the understory to dominance of rose and snowberry (Hansen et al. 1989).

GENERAL COMMENTS: The composition and condition of the communities in the canyon further downstream into Utah needs to be evaluated. Riparian areas are highly threatened in Utah and Arizona and are high conservation priorities (Joel Tuhy, Peter Warren - personal communication).


Two V Bar Quad
Canyon
Granite Creek Site
Granite
Creek
8881
8723
8755
8816
8833
8800
8600
8400
8000
7600
7800
7200
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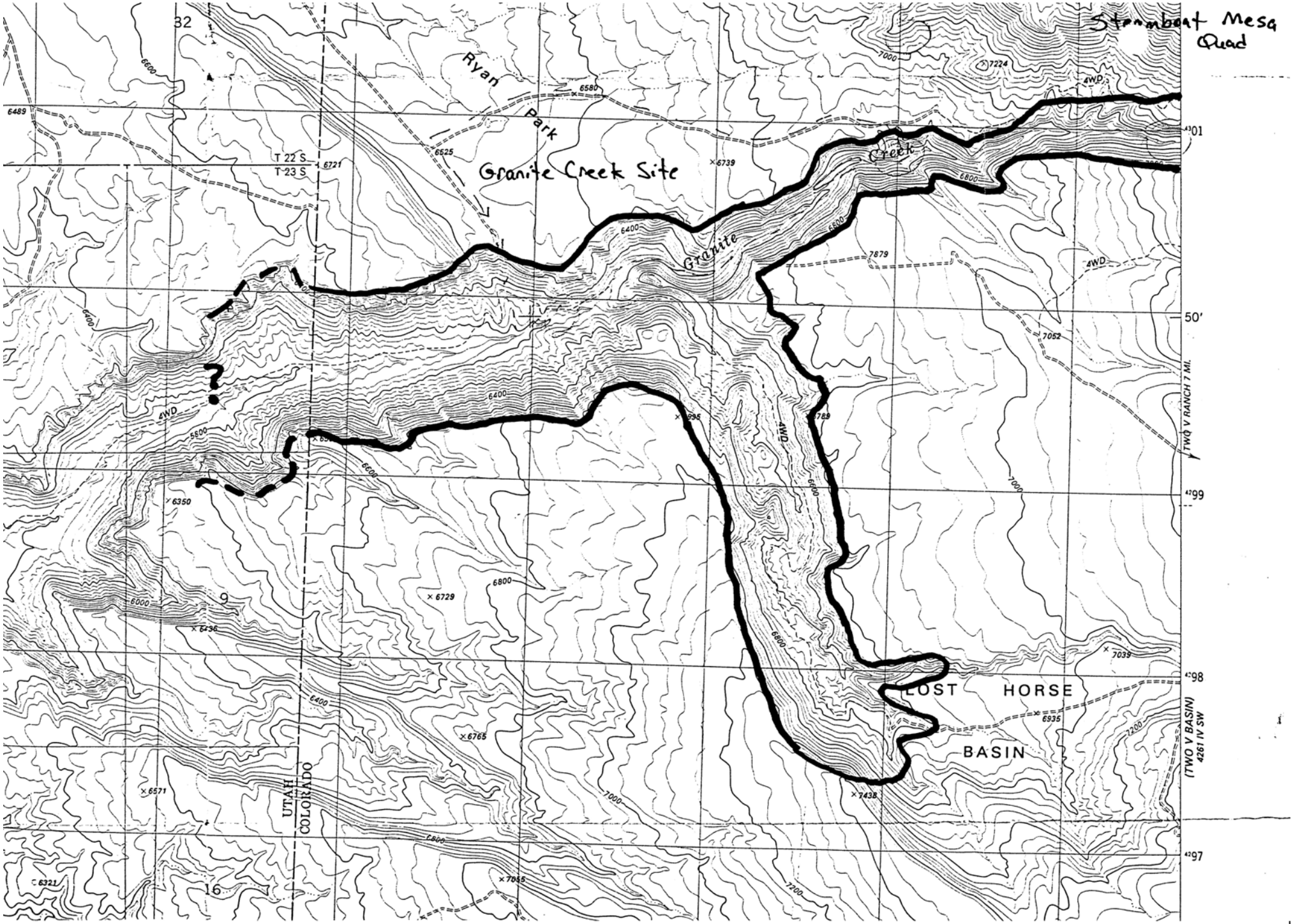
4299


Steamboat Mesa Quad
Granite Creek Site
Ryan Park
Granite Creek
LOST HORSE BASIN
UTAH
COLORADO
T 22 S
T 23 S
32
9
16
4WD
TWO V RANCH 7 MI.
(TWO V BASIN) 4261 IV SW
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50'
4299
4298
4297

CONSERVATION SITE PROFILE

SITE NAME: Piñon Mesa Canyons

SIZE: Approx. 4,500

BIODIVERSITY RANK: B3 - High biodiversity significance. B-ranked occurrence of a G3 plant association.

PROTECTION URGENCY RANK: P3 - Potentially threatened by roads, recreational use and development, although time frame of threat unknown.

MANAGEMENT URGENCY: M3? - Action will likely need to be taken within five years to prevent spread of weedy exotic species.

LOCATION: Series of five canyons and many side canyons just north of Piñon Mesa. T13S, R103W, Secs. 19, 20, 21, 28, 29, 30, 31; and T13S, R104W, Secs. 24, 25, 27.

QUADRANGLE: Bieser Creek, CO 3810888

GENERAL DESCRIPTION: The Piñon Mesa Canyons site encompasses five canyons and their side canyons draining off Piñon Mesa to the north, ranging from about 7400' to 8400' in elevation. The site is mostly underlain by Precambrian igneous rock in the canyons and the Triassic Chinle Formation on steep canyon slopes. The site includes a mosaic landscape of riparian areas, and gentle to precipitous canyon slopes with a variety of relatively intact plant associations.

At the canyon rims, on moderately sloping uplands there are nearly pure patches of Manzanita (*Arctostaphylos patula*), a community that occurs very rarely in Colorado, this being the eastern edge of its range. This type grows throughout the site particularly on north facing slopes with very thin, sandy soils. At the edges of nearly monospecific Manzanita patches, one can observe oak (*Quercus gambelii*), piñon pine (*Pinus edulis*), ponderosa pine (*Pinus ponderosa*), or mountain big sagebrush (*Artemisia tridentata ssp. vaseyana)*. Piñon pine may also be scattered in manzanita stands.

On gently sloping canyon rims, on deeper soils, there are patches of grassland dominated in places by exotic pasture grasses, but sometimes consisting of nearly pure needle and thread grass (*Stipa comata*). This plant association was not sampled in enough detail to classify it here, however preliminary observation suggest that it is the *Stipa comata* - west association, common globally and of unknown status in Colorado.

These grasslands intergrade with pure patches of Gambel's oak just below the piñon pine Utah juniper (*Juniperus osteosperma*) zone. Although lack of quantitative data also does not allow classification to the association level, the Gambel's oak alliance (Bourgeron and Engelking 1994) is well represented on canyon sides.

There is also a mixed shrub community on sedimentary materials on the canyon slopes that is probably in part, the widespread piñon pine/mountain mahogany association. Here one sees patches of piñon pine, mountain mahogany (*Cercocarpus montanus*), Gambel's oak, and big mountain sage. Other shrubs that may occur, and even co-dominate include serviceberry (*Amelanchier alnifolia*), and squaw apple (*Peraphyllum ramosissimum*). More field work will likely uncover several other mixed mountain shrubland plant associations that occur along the canyon slopes.

At the bottom of these v-shaped canyons lie relatively narrow riparian zones with predominantly shrubby vegetation. Shrubs commonly observed include river birch (*Betula occidentalis*), red-osier dogwood (*Cornus sericea*), thin leaf alder (*Alnus* incana), and Rocky Mountain willow (*Salix monticola*) right along the creek, with a band of wild cherry (*Prunus virginiana*) and occasionally oaks just above the true riparian zone.

Parts of this site remain in excellent condition, while other areas are more or less impacted by human activities including cattle grazing and recreation. The site is not impacted by housing development at this time, however it is somewhat fragmented by roads. Recreational impacts are concentrated along public access roads and include litter, or off road vehicle tracks. Weedy species, especially non-native weeds, are far more common along roads than elsewhere in the site.

While there is some grazing in the canyons, parts of them are relatively steep and inaccessible and therefore less impacted. One does see some weedy, exotic species in parts of the riparian zone, along with old cow pies and trails. The steep canyon slopes remain relatively intact with very few weedy exotic, or weedy native species. As mentioned above, the more level uplands contain patches of high quality grass and shrublands, while other patches have been planted to exotic pasture grasses, or have been invaded by cheat grass (*Bromus tectorum*). Overall, however, the site contains fair to excellent examples of common and rare plant associations, that obviously are interacting across the landscape.

HISTORICAL PERSPECTIVE: While detailed historical records are not available for this site, it is known that Native Americans used the area, probably for hunting and fishing. Beginning in around 1920, the site was converted to pasture for domestic livestock. An old homestead site with an apple orchard above McKenzie Canyon attests to the presence of settlers in and around the site.

NATURAL HERITAGE RESOURCE SIGNIFICANCE:

Element	Common Name	Occur. Rank	Global Rank	State Rank	Federal Status	State Status
Betula occidentalis/Cornus sericea	River birch/red osier dogwood p.a.	B	G3	SU		
Pinus edulis/Cercocarpus montanus	Piñon pine/Mountain mahogany p.a.	B	G5	S4		

The *Betula occidentalis/Cornus sericea* plant association commonly observed along the stream channels at this site, is globally rare, and likely very rare within Colorado, although it has not yet been ranked in the state awaiting further quantitative data. This plant association is not in pristine condition, however it is part of a large, and hydrologically intact landscape. The other classified plant association at this site, the *Pinus edulis/Cercocarpus montanus* plant association is globally common, and fairly common in Colorado. The vegetation type found on north facing slopes with thin soils across this site, likely a phase of the *Pinus ponderosa/Arctostaphylos patula* plant association, is globally common, but extremely rare in Colorado, this being the eastern edge of its range. This type will likely be classified and ranked S1 or S2 by the Colorado Natural Heritage Program, although further data is needed to determine proper classification. Because the site is very large and has not yet been fully surveyed, other Natural Heritage resources are likely to be discovered.

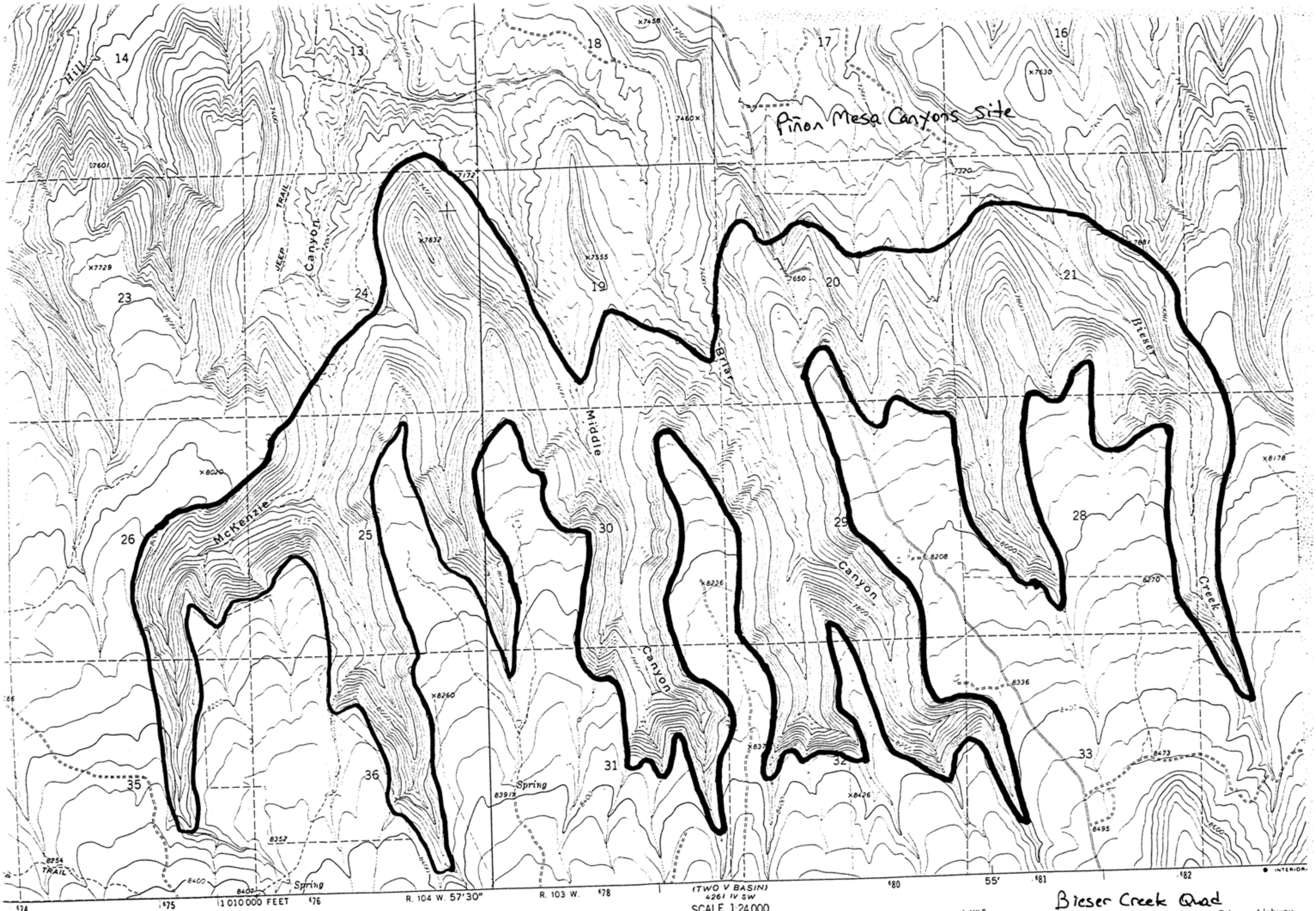
CURRENT STATUS: This site is currently under public (Bureau of Land Management) and private ownership. Mountain Island Ranch owns much of the private land in the site, and the current ranch manager practices rotational grazing and has rested the pastures within this site. While current and past land uses have preserved the site in its present state, no management is directed towards preserving the known and suspected natural heritage elements at this site.

BOUNDARY JUSTIFICATION: The site boundary is drawn to protect the intact and interacting plant associations found within the site. It encompasses the Natural Heritage elements as well as buffers to protect ecological processes, especially hydrologic cycles within this canyon system.

PROTECTION AND MANAGEMENT CONSIDERATIONS: The single greatest threat to this site would be landscape fragmentation, followed closely by hydrologic modifications. Should more roads or other developments take place within the site, or near its borders, the intact nature of this site would be destroyed, and hydrology may be modified. Already most impacts are noticed along roads where numerous weedy species and litter can be seen. The current grazing regime does not appear to pose any threat to this site, however grazing levels should not be increased lest more weedy species invade the riparian areas and other parts of this site.

Future plantings should use only species native to this area. Efforts should perhaps be taken to restore native vegetation to areas currently dominated by weedy exotic species. This may be necessary to preserve the current condition of known and suspected elements.

The Bureau of Land Management should be alerted to this sites' existence, and should manage the site accordingly as described in part above, for long term maintenance of ecological processes.



Bieser Creek Quad

3810888

ited, and published by the Geological Survey
GS and USC&GS
y photogrammetric methods from

Primary highway, hard surface
Secondary highway, hard surface
Interstate R

CONSERVATION SITE PROFILE

SITE NAME: Little Dolores River Headwaters

SIZE: Approximately 3500 acres

BIODIVERSITY RANK: B4 - moderate biodiversity significance. A B-ranked occurrence of a G5 community.

PROTECTION URGENCY RANK: P4 - no threat known for foreseeable future. The site is currently owned by the U.S. Forest Service.

MANAGEMENT URGENCY: M4 - not currently threatened but management may be needed in the future.

LOCATION: Mesa County, Colorado, Fish Creek Quad (3810877), Payne Wash Quad (3810887). At the eastern edge of the area known as Piñon Mesa southwest of the town of Grand Junction.

GENERAL DESCRIPTION: The Little Dolores River Headwaters site encompasses some of the highest elevations in the Glade Park - Piñon Mesa area. The land was originally placed under federal ownership to protect water sources for the town of Fruita. The vegetation is a mixture of grassland, shrubland, riparian, and deciduous and mixed conifer vegetation types. Elevations of the site range from approximately 8400 feet to 9671 feet. The site is used extensively for recreation. Numerous 4-wheel drive roads and trails are present and a well used county road passes through the site. Several reservoirs and diversion structures exist along the creeks. The part of the site under Forest Service ownership is apparently ungrazed although a stock trail was said to have once crossed the area.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site contains a B-ranked occurrence of a G5 plant community, a BC -ranked occurrence of a G4 community, and a BC-ranked occurrence of a G5 community.

Abies lasiocarpa/Carex geyeri (G5/S2S3) - B-ranked occurrence

Populus tremuloides/Carex geyeri (G4/S4) - BC-ranked occurrence

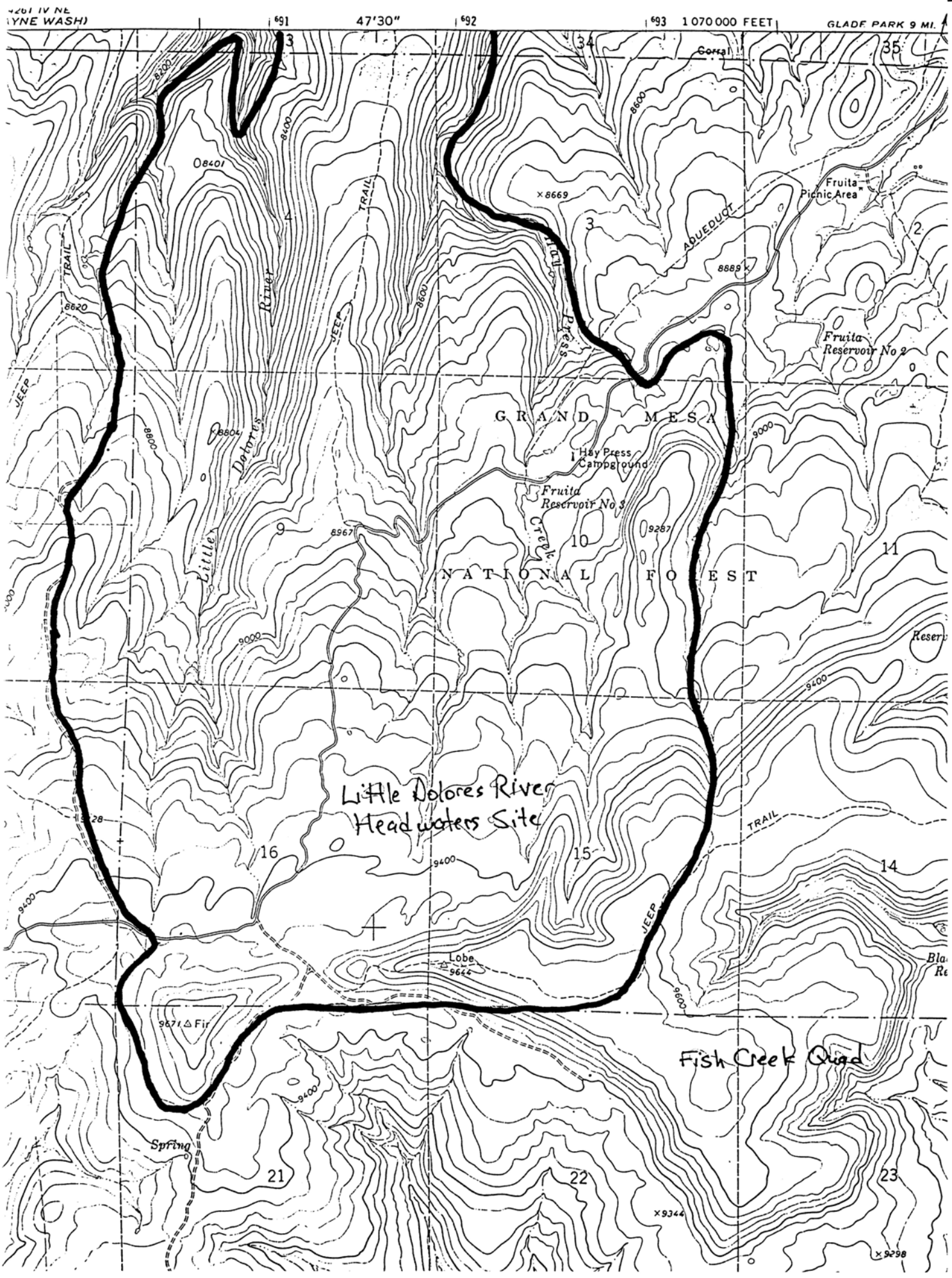
Quercus gambelii/Symphoricarpos oreophilus (G5/S3S4) - BC ranked occurrence

CURRENT STATUS: Most of the site is owned by the U.S. Forest Service. No formal protection is provided.

BOUNDARY JUSTIFICATION: The current boundary would protect the occurrences from direct impact, and encompasses most of the upper watershed. It is thought that this boundary will protect most of the ecological processes needed to support the elements.

PROTECTION AND MANAGEMENT CONSIDERATIONS: This site contains a complex mosaic of plant associations but is contained within a relatively small watershed. Fire may be the most important factor influencing the plant associations.

GENERAL COMMENTS: Further survey is needed to document the extent and condition of the natural communities.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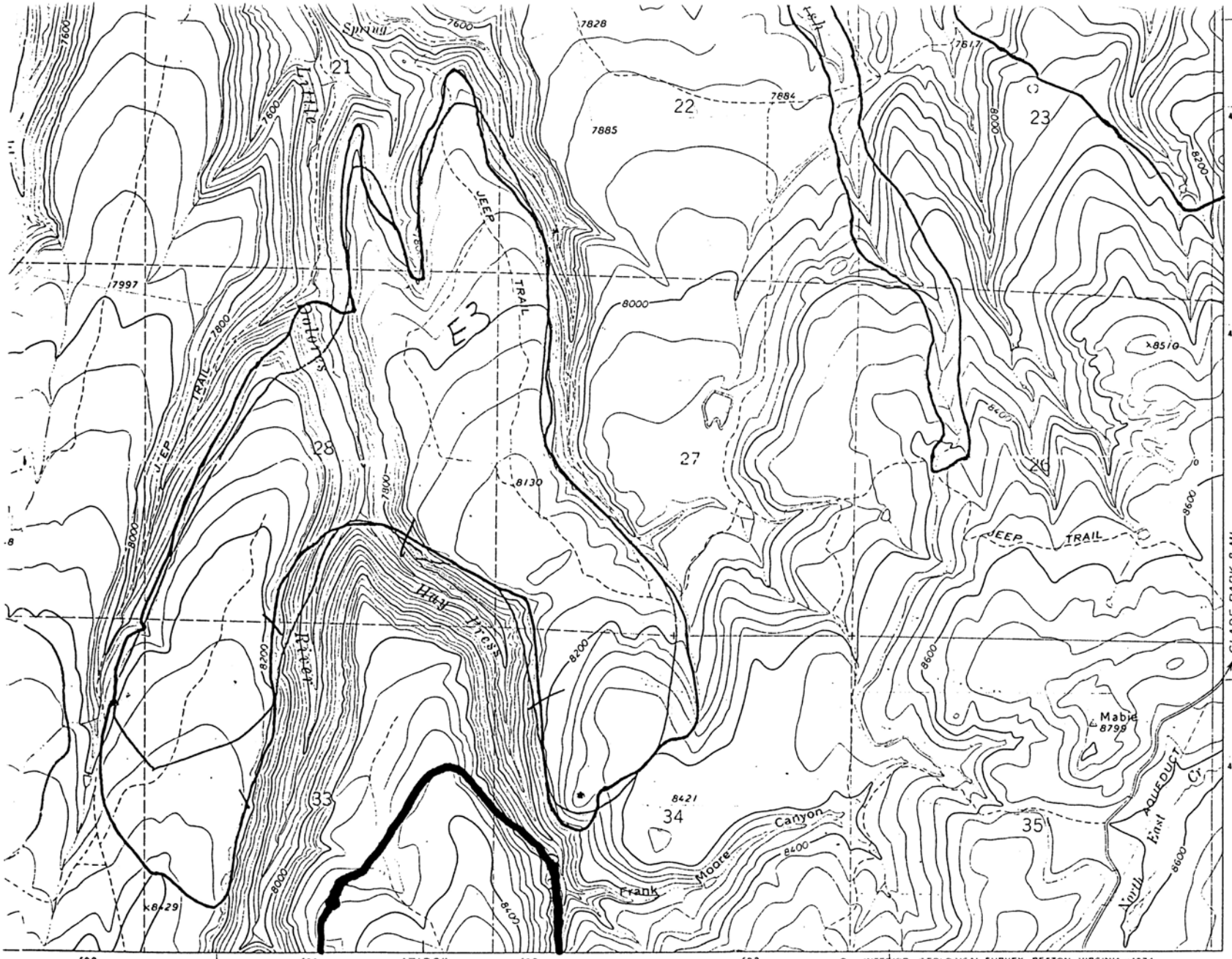
GLADE PARK 9 MI.
Corral
Fruita Picnic Area
ABUEDUCT
Fruita Reservoir No 2
Hay Press Campground
Fruita Reservoir No 3
GRAND MESA
NATIONAL FOREST
Little Dolores River
Dolores River
Hay Press Creek
TRAIL
JEEP
Lobe
9644
Spring
Little Dolores River Headwaters Site
Fish Creek Quad



Little Dolores River Headwaters Site

Payne Wash Quad

.E 1:24000

MILE

3:00 4000 - 5000 6000 7000 FEET

1 KILOMETER

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1974

ROAD CLASSIFICATION

Primary highway, hard surface

Secondary highway, hard surface

Light-duty road, hard or improved surface

Unimproved road

CONSERVATION SITE PROFILE

SITE NAME: Payne Wash

SIZE: Approximately 350 acres

BIODIVERSITY RANK: B4 - moderate biodiversity significance. A B-ranked occurrence of a G5 natural community.

PROTECTION URGENCY RANK: P4 - no threat known for foreseeable future.

MANAGEMENT URGENCY: M4 - not currently threatened but management may be needed in the future.

LOCATION: Mesa County, Colorado, Payne Wash Quad (3810887). Near the area known as Glade Park southwest of the town of Grand Junction.

GENERAL DESCRIPTION: The Payne Wash site encompasses moderate to relatively steep slopes between the Little Dolores River and Payne Wash. The slopes are dominated by piñon-juniper and Gambel's oak communities. Elevations at the site range from approximately 7400 feet to 7700 feet. The site is used for livestock grazing and a 4-wheel drive road exists at the upper part of the site.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site contains a B-ranked occurrence of a G5 plant community and a C-ranked occurrence of a G4 plant community.

Pinus edulis/Quercus gambelii (G5/S5) - B-ranked occurrence
This plant association is common in Colorado and New Mexico.

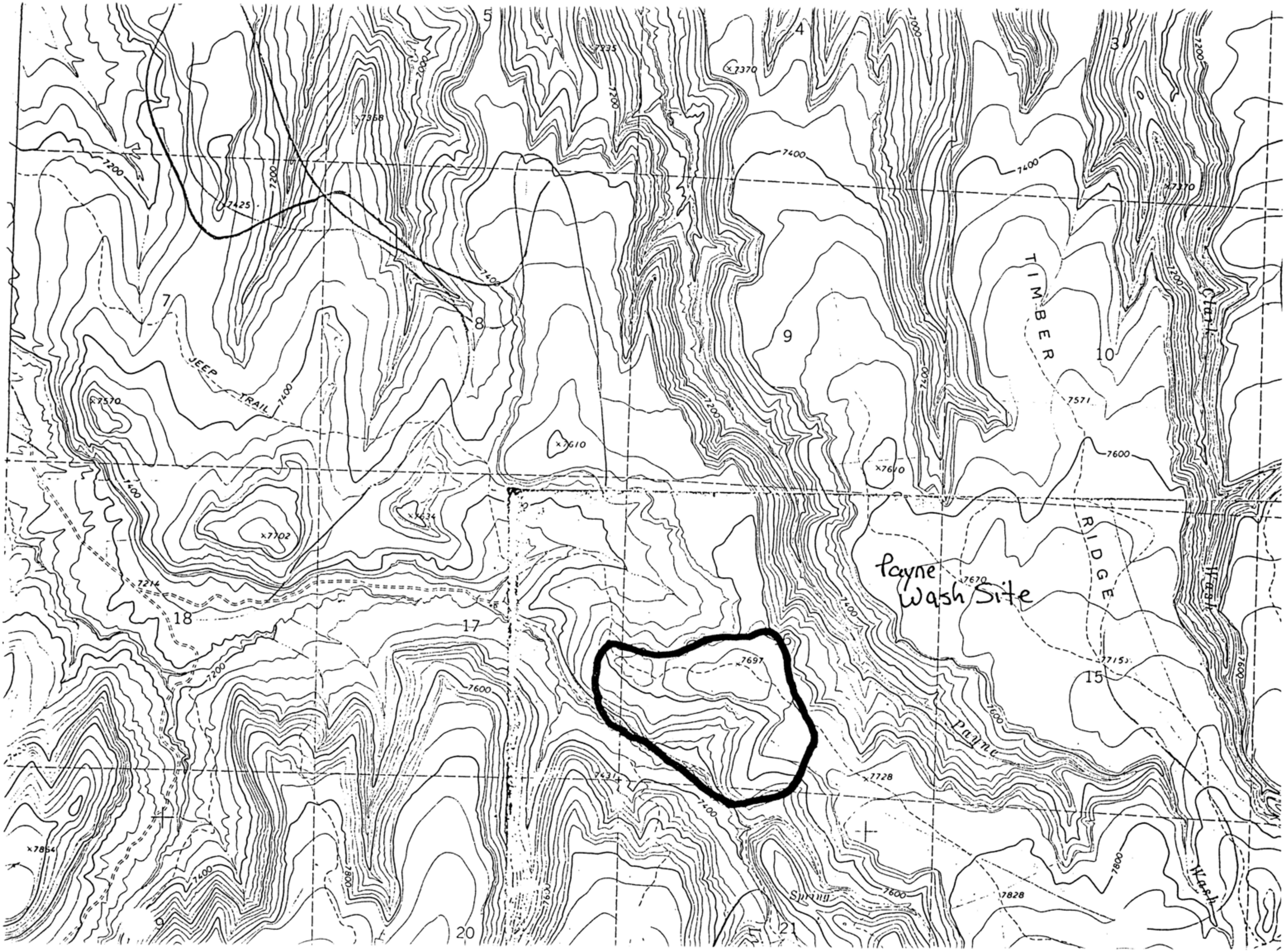
Juniperus scopulorum/Cornus sericea (G4/SU) - C-ranked occurrence
This plant association is common in Montana but previously unreported in Colorado.

CURRENT STATUS: The site is privately owned by Warren Gore. The site is not formally protected.

BOUNDARY JUSTIFICATION: The current boundary would protect the occurrences from direct impact, and encompasses most of the slopes and part of the adjacent uplands.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Fire may be an important factor influencing the plant associations. Livestock use was evident on the site but did not appear to be negatively impacting the occurrences.

GENERAL COMMENTS:


Payne Wash Site
JEEP TRAIL
TIMBER RIDGE
Payne
Wash
Clark
Spring

CONSERVATION SITE PROFILE

SITE NAME: Two V

SIZE: Approximately 900 acres

BIODIVERSITY RANK: B4 - moderate biodiversity significance. B-ranked occurrences of a G4 and a G5 community.

PROTECTION URGENCY RANK: P2 - threat expected within 5 years. Change in ownership could change management of the site which currently does not threaten the elements.

MANAGEMENT URGENCY: M5 - no serious management needs are known or anticipated at the site.

LOCATION: Mesa County, Colorado, Two V Basin Quad (3810878). Near the abandoned Two V Ranch on Piñon Mesa.

GENERAL DESCRIPTION: The Two V site is located in the higher elevations of the Piñon Mesa area above the piñon-juniper zone. Elevations of the site range from approximately 8900 feet to 9342 feet at the top of the knoll known as Two V. The site has been used for cattle grazing in the recent past and possibly sheep grazing historically. The current manager grazes the area in the fall. The vegetation is characterized by open grassland meadows and sagebrush stands with intermixed stands of aspen. A spring has been developed within the aspen forest. The abandoned Two V Ranch is located adjacent to the site to the east.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site contains a B-ranked occurrence of a G4 and a G5 community.

The *Festuca idahoensis-Elymus trachycaulus* plant association is currently ranked G4/S2 (Bourgeron and Engelking 1994). The stand is fairly small but exotic species are uncommon. *Festuca idahoensis* is not common in the Colorado Plateau portion of Utah but is more common in the northern part of that state (Joel Tuhy - personal communication). Johnston (1987) reports this association as occurring in Montana, Wyoming, and Colorado.

The *Populus tremuloides/*Tall forbs plant association is currently ranked G5/S5 (Bourgeron and Engelking 1994). Again, this stand is fairly small but exotic species are uncommon. High quality aspen stands are uncommon on the Colorado Plateau in Utah and may be high conservation priorities (Joel Tuhy, Nick Van Pelt - personal communication).

CURRENT STATUS: The land is currently owned by the Mountain Island Ranch. Historically, the site has been used for cattle and sheep ranching, and is currently a

working cattle ranch. At least part of the site is under a hunting easement (with DOW?) which allows road access through the site.

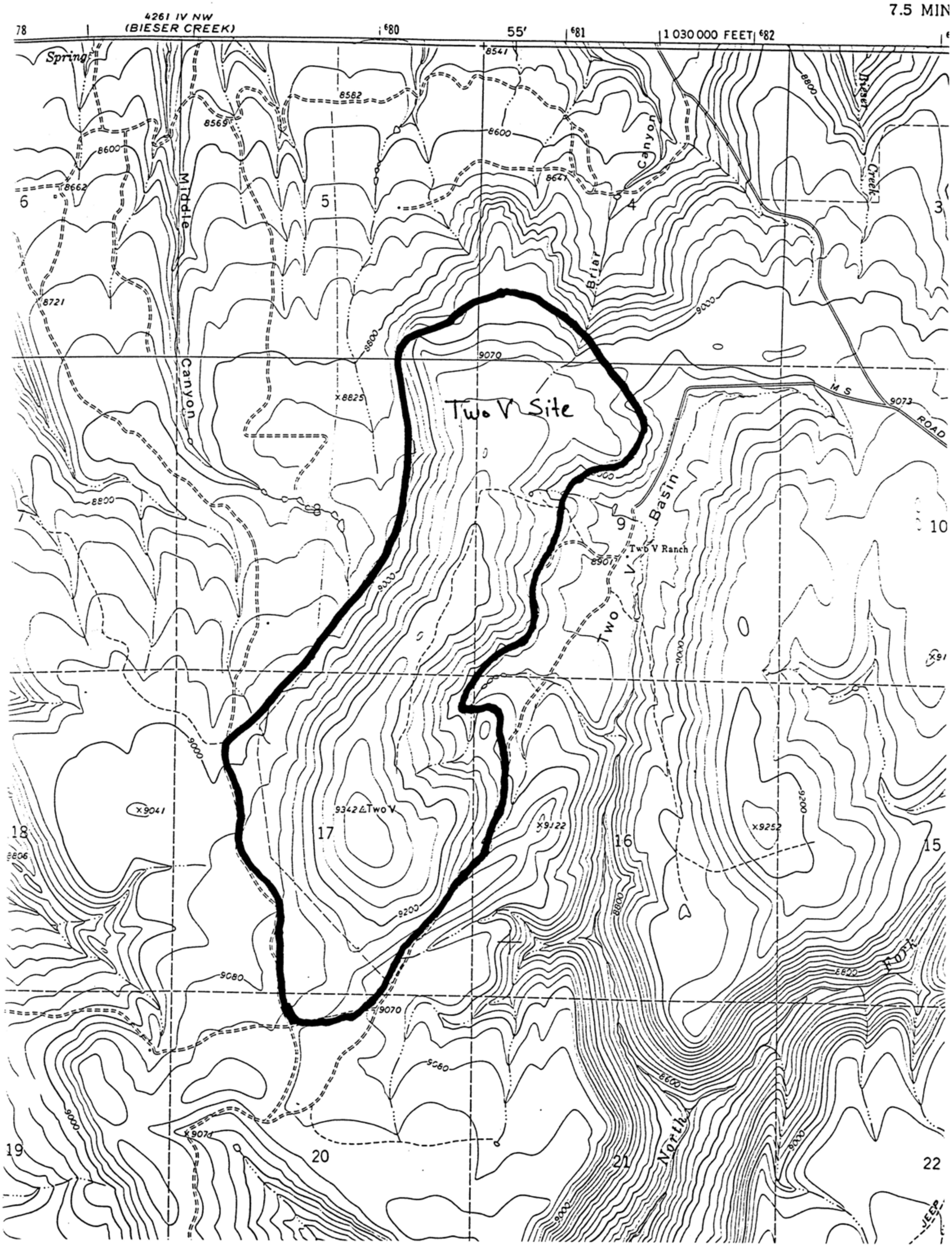
BOUNDARY JUSTIFICATION: The current boundary would protect the occurrences from direct impact, and contains a buffer that includes vegetation that appears to be similar on color infrared aerial photographs. Fire may be an important influence on these plant associations. The scale of fire dynamics in this type of ecosystem should be considered when determining final conservation planning boundaries.

PROTECTION AND MANAGEMENT CONSIDERATIONS: With heavy grazing, sagebrush or snowberry may eventually dominate the *Festuca idahoensis-Elymus trachycaulus* stand. SCS Range Site #228 appears to be similar to this association but contains little management information.

The *Populus tremuloides/*Tall forbs plant association may be impacted by heavy grazing which may alter the composition and structure of the vegetation. Currently, the area is grazed in the fall and this seems to allow the vegetation to remain dominated by native species. Timber harvesting may adversely impact the association because of the generally wet nature of the soils. Fire is important in stand initiation and will stimulate aspen suckering (Community Characterization Abstract on file at CNHP). Elk appear to have an impact on aspen regeneration in the area around the Two V site (Hawk Greenway - personal communication, Steve Kettler - personal observation).

GENERAL COMMENTS: Mueggler (1988) reports that this plant association provides high value for wildlife forage and nesting habitat for birds.

Two V Basin Quad



CONSERVATION SITE PROFILE

SITE NAME: Fish Park

SIZE: Approximately 2700 acres

BIODIVERSITY RANK: B2 - very high biodiversity significance. An unranked occurrence (=C) of a G1G2 element.

PROTECTION URGENCY RANK: P3 - threats occur, but are not specifically identified. The site is under private and public (BLM) ownership.

MANAGEMENT URGENCY: M2 - the decline in the Gunnison sage grouse is largely blamed on the degrading of sagebrush communities. Management is needed within 5 years.

LOCATION: Mesa County, Colorado and Grand County, Utah. Marble Canyon Quad (3810981). The site is located along the Utah-Colorado line near the DS Road about 25 miles west of Grand Junction.

GENERAL DESCRIPTION: The Fish Park site is characterized as a sagebrush flat surrounded by piñon-juniper woodlands and rock outcrops (Woods and Braun 1995). Some irrigated hay meadows are located near the ranch houses in the area. Elevations of the site range from approximately 6500 feet to 6100 feet. The site is used for livestock grazing. Several 4-wheel drive roads and a county road pass through the site. Two airplane landing strips are within the site but it is not known how much these are used. Numerous stock ponds exist within the site. The sage grouse prefers the patchy shrublands with abundant grasses and forbs. These habitats are being encroached upon by other vegetation types, especially in Fish Park (Woods and Braun 1995). In 1995 a fire burned approximately 5500 acres of the adjacent area to the south.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site contains an unranked occurrences of a G1G2 element, the Gunnison sage grouse.

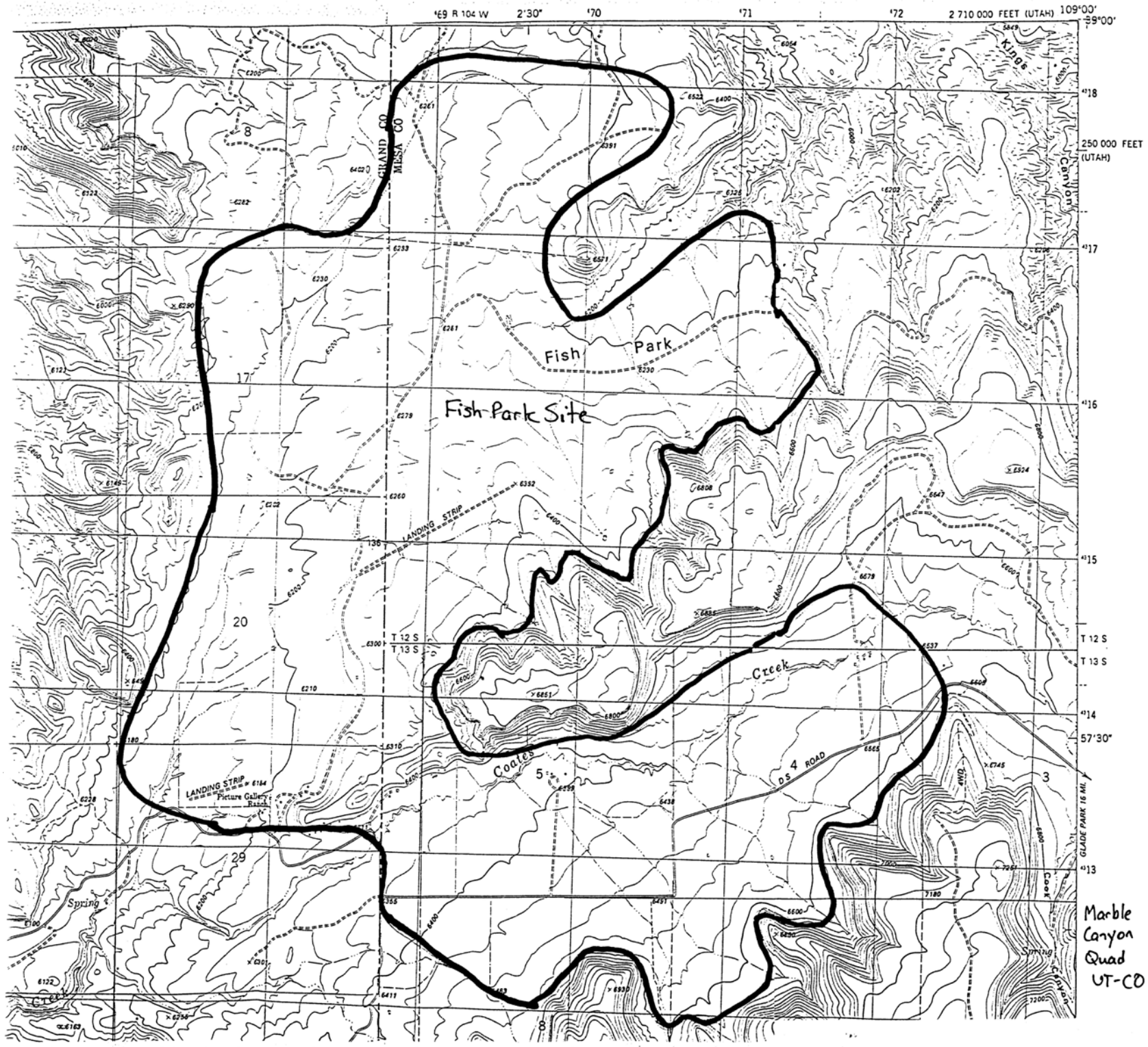
Gunnison sage grouse (G1G2) - unranked occurrence (=C):
There are less than a dozen sites known for the species.

CURRENT STATUS: The site is under both private and public ownership. No formal protection is provided. The grouse is being intensively studied by CDOW.

BOUNDARY JUSTIFICATION: The Gunnison sage grouse leks of the area are included within the boundary. In addition, an area of approximately 2.5 mi. radius surrounding each lek is included provided that there is some suitable habitat. Additional data in the 1996 field season may provide for adjustments.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Wood and Braun (1995) suggested the following management recommendations: 1) annual movement and winter grounds need to be identified, 2) monitoring of leks should continue in subsequent years, 3) habitat manipulations are necessary in Fish Park (assure there are no other elements that may be negatively impacted, 4) land protection of any available parcels is warranted, 5) protect from human development, and 6) sagebrush communities need to be restored; however, we do not support all of the methods mentioned in the 1995 report. The grouse were reported to be foraging in nearby hay meadows where at several of the birds were killed by predators (Woods and Braun 1995). Activity associated with fire fighting efforts in the area in 1995 displaced the grouse but they returned to foraging areas when fire fighting activities ceased. Changes in vegetation and grouse use in the burned areas should be monitored.

GENERAL COMMENTS: Further survey is needed to document breeding status of the sage grouse (Woods and Braun 1995).


Fish Park
Fish Park Site
Coates Creek
GRAND CO
MESA CO
LANDING STRIP
Picture Gallery Ranch
D S 4 ROAD
Kings Canyon
Cook Canyon
Spring Canyon
GLADE PARK 16 MI.
T 12 S
T 13 S
2 710 000 FEET (UTAH)
250 000 FEET (UTAH)
109°00'
39°00'
57'30"
Marble Canyon Quad UT-CO

CONSERVATION SITE PROFILE

SITE NAME: Toms Canyon Mesa

SIZE: Approximately 600 acres

BIODIVERSITY RANK: B2 - very high biodiversity significance. An A-ranked occurrence (one of few known exhibiting old growth characteristics) of a G5 community.

PROTECTION URGENCY RANK: P4 - no threat known for the foreseeable future. The site is currently owned by the Bureau of Land Management.

MANAGEMENT URGENCY: M5 - no serious management needs known or anticipated.

LOCATION: Mesa County, Colorado, Bieser Creek Quad (3810888). West of the town of Glade Park near the Utah border.

GENERAL DESCRIPTION: The Toms Canyon mesa site encompasses an isolated mesa overlooking the Coates Creek valley. The vegetation is dominated by piñon-juniper woodlands on the slopes and mesa top which is surrounded by sagebrush communities on the flats below. Elevations of the site range from approximately 6800 feet to over 7200 feet on the mesa top. The mesa is somewhat isolated but evidence of very light cattle use is present. Several roads exist adjacent to the site and a county road passes nearby. The Coates Creek floodplain has been heavily altered by agricultural practices and grazing.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site encompasses an A-ranked occurrence (possibly one of the best known) of a G5 plant community and a C-ranked occurrence of a G3 community.

Pinus edulis/Cercocarpus montanus (G5/S5) - A-ranked occurrence.
Although the adjacent lands have been altered by human activities the occurrence of this plant association at this site exhibits old growth characteristics as defined by the U.S. Forest Service (Mehl 1993) and not seen by CNHP staff on several other mesas in the area. Although old trees in the piñon-juniper ecosystem are not uncommon (Joel Tuhy - personal communication), the structure of this stand seems unusual and of interest (Nick Van Pelt - personal communication).

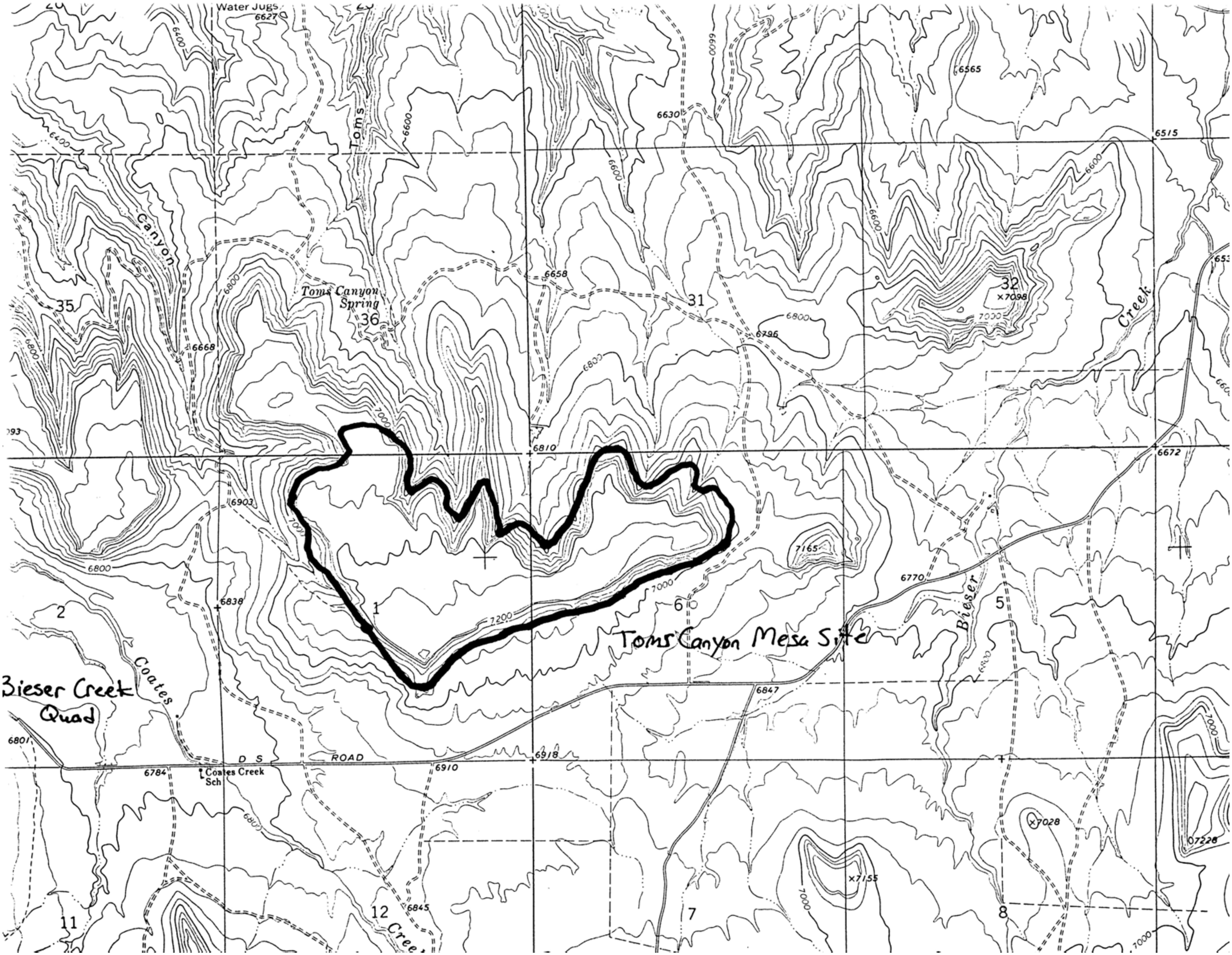
Pinus edulis/Cercocarpus ledifolius (G3/S3) - C-ranked occurrence
This plant association is only documented from northwestern Colorado and from Wayne County, Utah. The occurrence at this site in small but in good condition. The overstory of this occurrence is relatively sparse compared with stands reported in northwestern Colorado (Community Characterization Abstract on file at CNHP).

CURRENT STATUS: The site is owned by the Bureau of Land Management. No formal protection is provided.

BOUNDARY JUSTIFICATION: The current boundary would protect the occurrences from direct impact, and encompasses the mesa top and slopes. Other than direct impacts, such as chaining and fire, these communities are most influenced by climate (West and Van Pelt 1987). Small, isolated mesa have been shown to have less diverse small mammal populations than large mesas and may not be representative of some animal communities (Van Pelt 1993). Small mesas may protect representative communities of other groups such as invertebrates.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Fire may be the most important factor influencing the plant associations. Livestock impacts on the site are minimal probably because of the lack of water and available forage.

GENERAL COMMENTS: Old-growth piñon-juniper stands are of interest to the BLM (Ron Lambeth - personal communication to Peggy Lyon) and do not appear to be common in the Utah portion of the Colorado Plateau.


Toms Canyon Mesa Site
Bieser Creek
Quad
Water Jugs
Toms
Canyon
Toms Canyon
Spring
Coates
Coates Creek
Sch
ROAD
Bieser
Creek

CONSERVATION SITE PROFILE

SITE NAME: Miracle Rock

SIZE: Approximately 350 acres

BIODIVERSITY RANK: B4 - moderate biodiversity significance. A C-ranked occurrence of a G3 community.

PROTECTION URGENCY RANK: P4 - no threat known for the foreseeable future. The site is currently owned by the Bureau of Land Management.

MANAGEMENT URGENCY: M4 - management may be needed in the future to maintain quality. Hiking trails are common on the site.

LOCATION: Mesa County, Colorado, Payne Wash Quad (3810887). West of the town of Glade Park, Colorado.

GENERAL DESCRIPTION: The Miracle Rock site encompasses an isolated mesa overlooking the Coates Creek and Little Dolores River valleys. The vegetation is dominated by piñon-juniper woodlands on the slopes and mesa top. Elevations of the site range from approximately 6700 feet to over 7200 feet on the mesa top. The mesa is somewhat isolated but evidence of cattle use is present. Several roads exist adjacent to the site and a county road passes nearby. The Coates Creek and Little Dolores River floodplains have been heavily altered by agricultural practices and grazing. There is a BLM picnic ground adjacent to the site and hiking trails to the geologic structure known as Miracle Rock.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site encompasses an C-ranked occurrence of a G3 plant community and a B-ranked occurrence of a G5 community.

Pinus edulis/Cercocarpus ledifolius (G3/S3) - C-ranked occurrence
This plant association was previously documented only from northwestern Colorado and from Wayne County, Utah. The occurrence at this site is small but in good condition. The overstory of this occurrence is relatively sparse compared with stands reported in northwestern Colorado (Community Characterization Abstract on file at CNHP).

Pinus edulis/Cercocarpus montanus (G5/S5) - B-ranked occurrence.
This plant association is common and well protected throughout the Colorado Plateau, including the nearby Westwater area in Utah (Joel Tuhy - personal communication).

CURRENT STATUS: The site is owned by the Bureau of Land Management. No formal protection is provided.

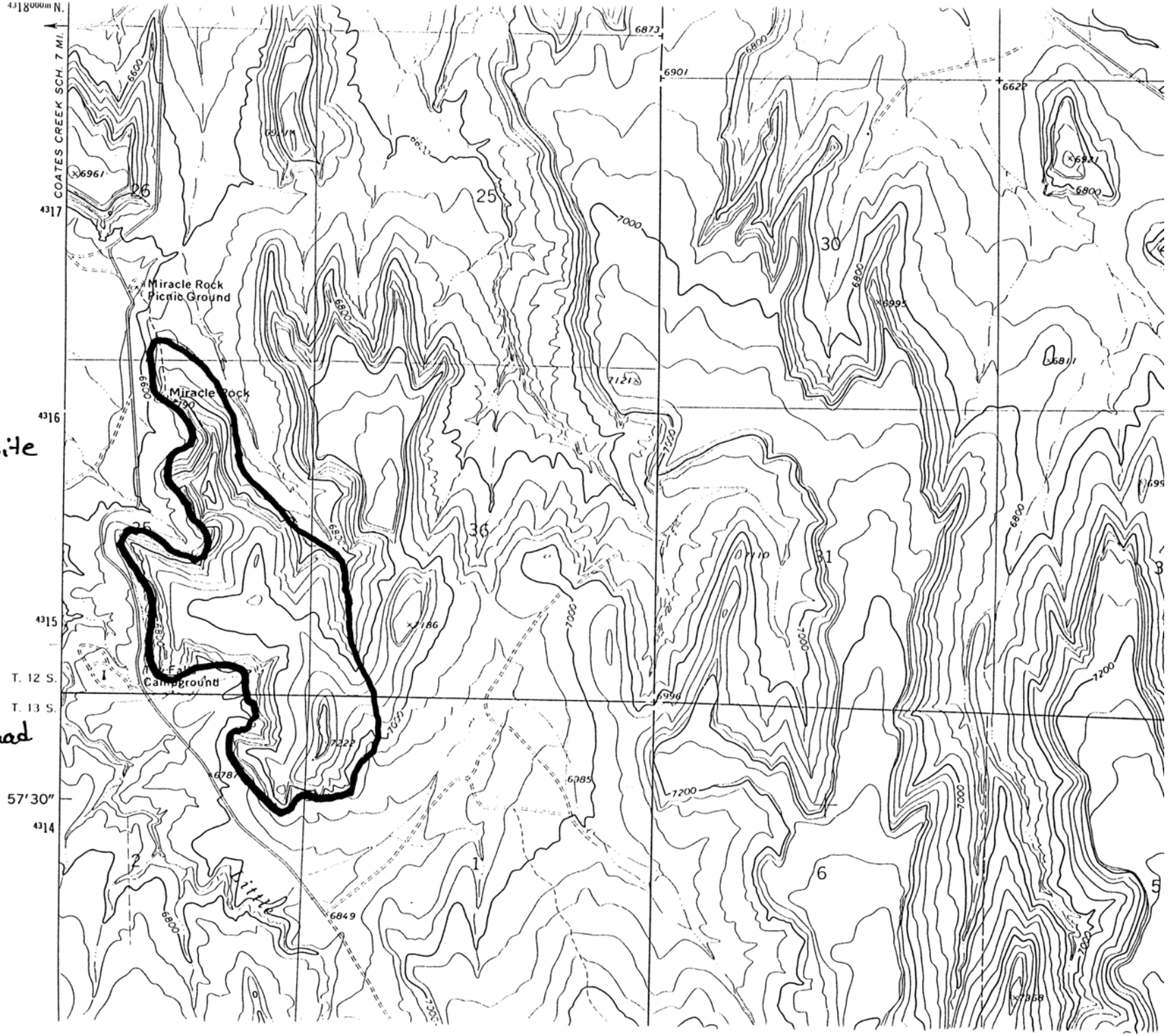
BOUNDARY JUSTIFICATION: The current boundary would protect the occurrences from direct impact, and encompasses the mesa top and slopes. Other than direct impacts, such as chaining and fire, these communities are most influenced by climate (West and Van Pelt 1987). Small, isolated mesa were shown to have less diverse small mammal populations than large mesas and may not be representative of some animal communities (Van Pelt 1993). Small mesas may protect representative communities of other groups such as invertebrates.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Fire may be one of the most important factor influencing the plant associations. Livestock impacts on the site are minimal probably because of the lack of water and available forage. Heavy recreational use could impact the cryptogamic soils and affect the nutrient and water dynamics of the community.

GENERAL COMMENTS:

Miracle Rock Site

Payne Wash Quad



CONSERVATION SITE PROFILE

SITE NAME: Mountain Island Mesa

SIZE: Approximately 600 acres

BIODIVERSITY RANK: B4 - moderate biodiversity significance. A B-ranked occurrence of a G5 community.

PROTECTION URGENCY RANK: P2 - threat expected within 5 years. Most of the site is owned by the Mountain Island Ranch but sale of the ranch in the near future is possible.

MANAGEMENT URGENCY: M5 - no serious management needs known or anticipated. A house is located at the base of the mesa to the north.

LOCATION: Mesa County, Colorado, Bieser Creek Quad (3810888). West of the town of Glade Park, Colorado.

GENERAL DESCRIPTION: The Mountain Island mesa site encompasses an isolated mesa overlooking the Little Dolores River valley. The vegetation is dominated by piñon-juniper woodlands on the slopes and mesa top. Elevations of the site range from approximately 6600 feet to over 7000 feet on the mesa top. The mesa is relatively inaccessible, especially the flats at the top. Several roads exist adjacent to the site and a county road passes nearby. The Little Dolores River floodplain has been heavily altered by agricultural practices and grazing.

NATURAL HERITAGE RESOURCE SIGNIFICANCE: The site contains a B-ranked occurrence of a G5 community.

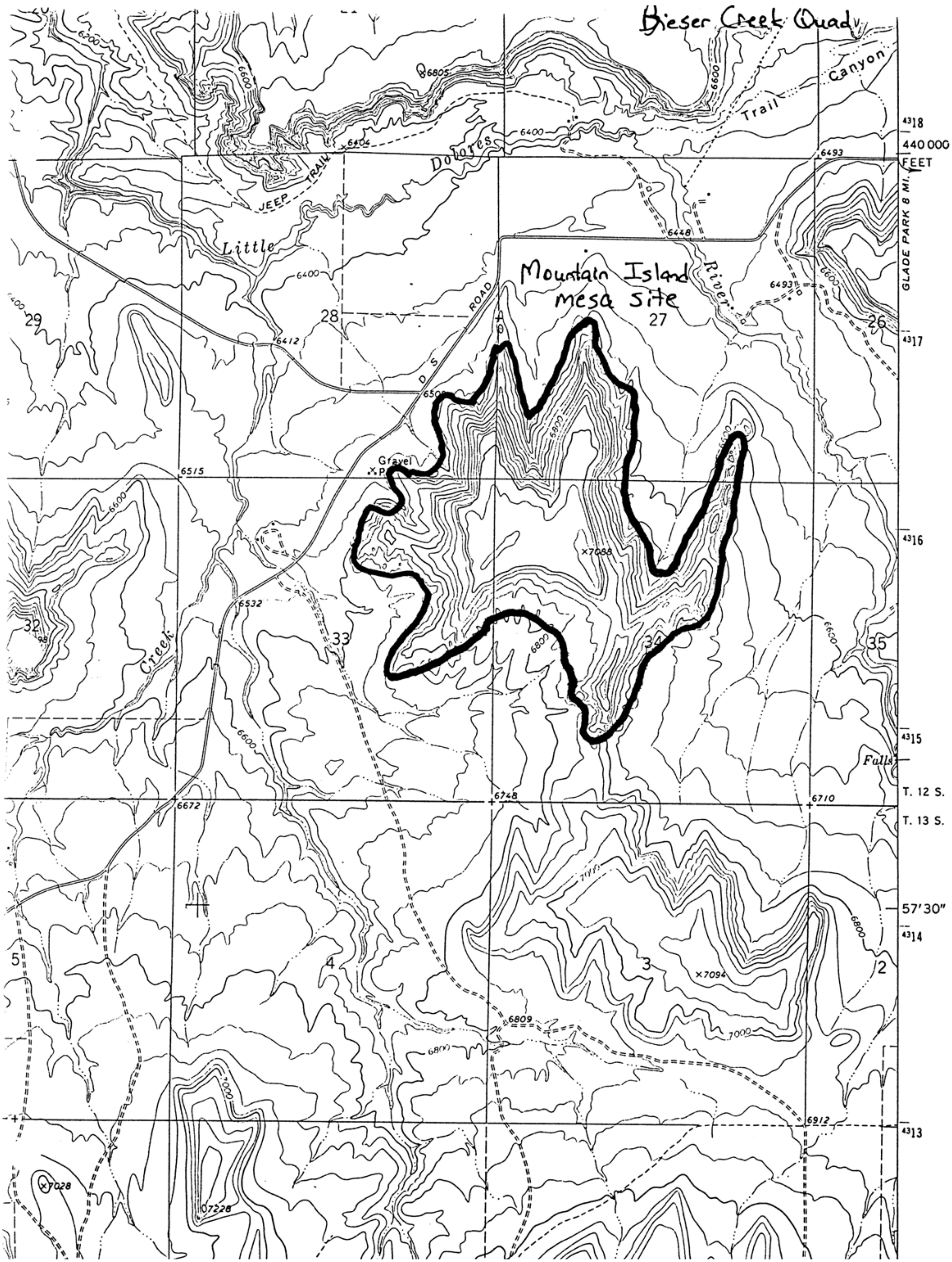
Pinus edulis/Cercocarpus montanus (G5/S5) - B-ranked occurrence.
Similar piñon-juniper woodlands are common and well protected throughout the Colorado Plateau, including the nearby Westwater area in Utah (Joel Tuhy - personal communication).

CURRENT STATUS: Most of the site is owned by the Mountain Island Ranch. No formal protection is provided.

BOUNDARY JUSTIFICATION: The current boundary would protect the occurrences from direct impact, and encompasses the mesa top and slopes. Other than direct impacts, such as chaining and fire, these communities are most influenced by climate (West and Van Pelt 1987). Small, isolated mesa have been shown to support small mammal communities that are less diverse and not representative of larger mesas (Van Pelt 1993). Small mesas may support representative animal communities of other groups such as invertebrates.

PROTECTION AND MANAGEMENT CONSIDERATIONS: Fire may be one of the most important factor influencing the plant association.

GENERAL COMMENTS:


Bieser Creek Quad
Mountain Island mesa site
Trail Canyon
Dolores
JEEP TRAIL
Little
River
ROAD
D S
Gravel P
Creek
GLADE PARK 8 MI.
440 000 FEET
T. 12 S.
T. 13 S.
57'30"
Falls
6805
6404
6400
6493
6448
6412
6508
6515
6532
6672
6748
6710
x7088
x7094
6809
6912
x7028
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