

To: Benjamin Gaddis[bgaddis@gaddisconsultingllc.com]
Cc: William (Allan) Bate[abate@blm.gov]; Sean Stewart[s2stewar@blm.gov]; Jason Bybee[jimbybee@blm.gov]; Shakespear, Paula[pshakesp@blm.gov]; Scott Evans[sevans@cirruses.com]
From: Betenson, Matthew
Sent: 2017-08-16T14:55:23-04:00
Importance: Normal
Subject: Re: GSENN EAs - information provided to date
Received: 2017-08-16T14:55:55-04:00
Highway 89 South Water Catchment EA FINAL.doc

Hi Ben,
Attached is the HWY89 Water Catchment EA.

Thanks.

On Tue, Aug 15, 2017 at 5:43 PM, Benjamin Gaddis <bgaddis@gaddisconsultingllc.com> wrote:

Allen,

On the call earlier today I mentioned that I would send you a list of the items you sent me and Scott last week. This list is provided below. I have also provided follow up requests/questions in yellow highlight where applicable.

File name: "FONSI and Decision Regard FINAL" [Highway 89 South Water Catchments FONSI and DR]. **Allan, can you send us the EA as well?**

File name: "East Paunsaugunt Wildlife Water Enhancement EA Final"

File name: "Figure 1 Water Catchment Diagram and General Layout"

File name: "EA Short Form 6-30-10"

File name: "EA long form template 022714"

File name: "Internal Comment Template"

File name: "GSENM Decision Record Template"

File name: "Final EA Merrill's Bench"

File name: "Final Wire Pass Guzzler Modification CX"

File name: Link to GSENM Management Plan [Link leads to a BLM site to which non-BLM people appear not to have access]. Allen, I believe I can download the Management Plan

from the BLM's public site.

File name: "GSENM-RMP +GRSG"

File name: "EA Center Knoll Riparian Enhancement Project 3.2014 scanned" [Provided today by Matt]

File name: "Fivemile EA Long Form Final Adobe" [Provided today by Matt]

Next I'll send notes from today's meeting followed tomorrow by data/information requests.

Thanks!

Ben

Benjamin Gaddis, M.E.M., C.P.F.

Consulting Facilitation Training

Gaddis Consulting, LLC

(801) 259-3257

bgaddis@gaddisconsultingllc.com

 profile

--

Matt Betenson

Associate Monument Manager

Grand Staircase-Escalante National Monument
669 South HWY 89A, Kanab, UT 84741
435-644-1205 435-644-1250 fax

United States Department of the Interior Bureau of Land Management

**Environmental Assessment (EA)
DOI-BLM-UT-0300-2009-0001 EA**

December 18, 2009

Highway 89 South Water Catchment EA

Location: The Buckskin Water Catchment would be located at Township 43 South, Range 3 West, Section 22. The Five Mile Water Catchment would be located at Township 42 South, Range 2 West, Section 34. The Sink Holes Water Catchment would be located at Township 43 South, Range 3 West, Section 33. For reference see Map 1 *Highway 89 South Proposed Water Catchments*.

Applicant/Address: N/A

U.S. Department of the Interior
Bureau of Land Management
Grand Staircase-Escalante National Monument
190 East Center Street
Kanab, Utah 84741
435-644-4300
435-644-4350



CHAPTER 1

INTRODUCTION AND NEED FOR THE PROPOSED ACTION

INTRODUCTION

The Grand Staircase-Escalante National Monument (GSENM), Utah Division of Wildlife Resources (UDWR), Sportsmen for Fish and Wildlife, and the livestock operators on the Mollie's Nipple, Five Mile Mountain, Sink Holes, and Vermilion Allotments propose the construction of three livestock/wildlife water catchments in the Buckskin and Five Mile Mountain areas.

The proposed water catchments are within the boundary of the Paunsaugunt Deer Herd Management Unit which encompasses large portions of Garfield and Kane counties. UDWR estimates the mule deer population in this unit to be approximately 6,000. The vast majority of the deer spend the summer at high elevations (7,000 - 9,200 feet) on the Paunsaugunt plateau where forage and water are plentiful. In October, the deer begin migrating off of the plateau and onto traditional wintering grounds. An estimated 2,000 - 2,500 deer cross US Highway 89 and winter in the Buckskin Mountain and Five Mile Mountain areas (Personal Communication with UDWR Wildlife Biologist). The majority of the deer stay in this area from approximately November 1st through March 31st although some deer show up as early as October and stay as late as May.

The proposed water catchments are also within the boundaries of four allotments; Mollie's Nipple (Buckskin Pasture), Five Mile Mountain, Sink Holes and Vermilion (Government Reservoir) south of Highway 89. One catchment, Sink Holes, would serve three separate allotments; Sink Holes, Vermilion and Mollie's Nipple. Deer use coincides with cattle use on these livestock allotments.

There are few dependable (generally year round) water sources in the Buckskin and Five Mile Mountain areas; most water sources are ephemeral (transitory, existing only briefly). See Map 2 *Highway 89 South Existing Water Locations*. Of the four allotments in the project area, there are five dependable water sources; two of the five water sources are located on private land. One allotment, Five Mile Mountain Allotment, does not have a dependable water source.

The proposed livestock/wildlife water catchments would be comprised of a collection apron, storage tank, watering trough, wildlife drinkers and approximately 1/4 mile of barbed wire fence constructed around each project site (See Figure 1 *Water Catchment Diagram and General Layout*).

Deer and cattle numbers would not be increased as a result of the proposed project. Mule deer numbers are controlled by UDWR, not GSENM. UDWR actually plans to reduce the number of mule deer in this area by 200 in the short term. GSENM will continue to work closely with livestock operators to ensure compliance with the terms and conditions of their permits.

The Buckskin Water Catchment on the Mollie's Nipple Allotment would be located at Township 43 South, Range 3 West, Section 22. The Five Mile Water Catchment on the Five Mile Mountain Allotment would be located at Township 42 South, Range 2 West, Section 34. The Sink Holes Water Catchment would be located at Township 43 South, Range 3 West, Section 33.

NEED FOR THE PROPOSED ACTION

The purpose for the proposed action is to enhance habitat for cattle, deer, and other wildlife species by improving livestock and mule deer distribution in the Buckskin and Five Mile Mountain areas. The proposed project is needed to relieve resource impacts near water. The lack of dependable water sources forces the animals to congregate around existing dependable water, decreasing the overall habitat health. Recent Use Pattern Mapping conducted by local BLM officials confirms that use of vegetation by deer and livestock is heavy around permanent water sources and slight to moderate throughout the more arid parts of the allotments. Grazing pressure is not evenly distributed across the allotments. See Map 5 *Buckskin Use Pattern Mapping 2009*.

A secondary purpose for the project is to reduce deer/vehicle collisions along US Highway 89. Past studies have shown that most of the deer cross the highway along a seven mile stretch from milepost 39 to milepost 45. Each year, dozens of deer are hit and killed along this stretch as they cross over onto the Buckskin wintering area (Messmer and Klimack, 1999). This problem becomes exacerbated by the lack of water on the south side of the highway. When water is not available, deer cross back and forth daily from water on the north side of the road to feed on the south side. Dependable water sources are needed to lessen the need for deer to cross over the highway, reducing the number of deer killed and enhancing public safety on this heavily travelled road.

CONFORMANCE WITH BLM LAND USE PLAN(S)

The proposed water catchments are in conformance with the GSENM Management Plan (effective February 2000).

Specifically, the BLM's objectives in managing habitat for fish and wildlife are to:

Fish and Wildlife Objectives page 12

- *work in conjunction with the UDWR in managing fish, wildlife, and other animals to achieve and maintain natural populations, population dynamics, and population distributions in a way that protects and enhances Monument resources,*
- *work cooperatively with the UDWR to reestablish populations of native species to historic ranges within the boundaries of the Monument, and to take needed actions to protect and enhance the habitat of these native species,*
- *manage uses to prevent damage to fish and wildlife species and their habitats.*

In addition, the following Monument Management Plan decisions regarding fish and wildlife are cited:

FW-1 page 12

To meet the above objectives, the BLM will manage habitats for the recovery or reestablishment of native populations through collaborative planning with local, State and Federal Agencies, user groups and interested organizations.

FW-7 page 12

Water developments may be constructed for wildlife purposes if consistent with the overall objectives for fish and wildlife and with the water development policy discussed in the Water section.

The BLM's objective with respect to water resources is to:

Water Objective page 31

- *ensure that appropriate quality and quantity of water resources are available for the proper care and management of the objects of the Monument.*

The following Monument Management Plan decisions regarding water, and other Monument resources, are cited:

WAT-1 page 32

New water developments for other uses could be permitted for the following purposes: better distribution of livestock when deemed to have an overall beneficial effect on Monument resources, or to restore or manage native species or populations. These developments could only be done when a NEPA analysis determines this tool to be the best means of achieving the above objectives and only when the water development will not dewater springs or streams.

WDEV-1 page 55

Water developments can be used as a management tool throughout the Monument for the following purposes: better distribution of livestock when deemed to have an overall beneficial effect on Monument resources, including water sources or riparian areas, or to restore or manage native species populations. They can be done only when a NEPA analysis determines this tool to be the best means of achieving the above objectives and only when the water development would not dewater streams or springs. Developments will not be permitted to increase overall livestock numbers. Maintenance of existing developments can continue, but may require NEPA analysis and must be consistent with the objectives of this Plan.

FENCE-1 page 39

Fences may be used in certain circumstances to protect Monument resources, to manage visitor use, and to manage livestock, consistent with the Proclamation.

They will be designed and constructed in accordance with visual resource management objectives and the Monument Facilities Master Plan.

RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS

The Proposed and No Action alternatives are consistent with Federal, state and local laws, regulations, and plans to the maximum extent possible.

On September 18, 1996, GSENM was established by Presidential Proclamation. Objects for protection specifically identified in the Presidential Proclamation include: geology, paleontology, archaeology, and biological resources. The Secretary of the Interior was directed to complete a management plan for this monument. The GSENM Approved Management Plan and Record of Decision became effective February 2000. This action is consistent with the Presidential Proclamation.

On March 30, 2009 President Barack Obama signed into law the Omnibus Public Land Management Act of 2009 (P.L.111-11). The Act Congressionally established the BLM's National Landscape Conservation System (NLCS). The System provides a framework for managing BLM's specially designated conservation areas as part of the BLM's multiple-use mission. NLCS includes national monuments, national conservation areas and similar designations, wilderness, wilderness study areas, wild and scenic rivers, national scenic and historical trails, and the conservation lands of the California Desert. This action is consistent with P.L.111-11.

This EA also adheres to the following elements described in the Kane County, Utah General Plan (1998):

- “Conservation efforts will focus on the rehabilitation of the land base in order to improve the functioning of natural systems for the benefit of residents and visitors.”
- “Maintain or improve the primary landscape soil, vegetation, and watershed resources in a manner that perpetuates and sustains a diversity of uses while fully supporting the custom, culture, economic stability and viability of Kane County and our individual citizens.”
- “Implement rangeland improvement programs, including but not limited to; water developments, rangeland restoration, juniper/shrub control, and weed control to achieve forage and livestock grazing as well as other multiple use resource goals.”

CHAPTER 2 DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This EA focuses on the Proposed and No Action alternatives. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of implementing the proposed action. Two other alternatives were considered but eliminated from further analysis,

drilling water wells and constructing dams in the Buckskin and Five Mile Mountain areas. The water well alternative was eliminated because of the estimated depth of the water table (about 1,000 feet) and the cost (\$10,000 to \$20,000 annually) to pump the water once the wells were drilled. This alternative was also eliminated because even if water wells were drilled, there is no guarantee of finding water. Two water wells have been drilled previously in adjacent areas (the Five Mile Pasture of the Coyote Allotment and the Cockscomb Allotment) and both wells failed to locate water. The dam construction alternative was eliminated due to the inconsistent dependability of such water sources. Dams are reliant on the collection of overland water flow which, at times, is lacking. Dams are also vulnerable to loss of water due to evaporation and ground penetration.

PROPOSED ACTION

The Monument, with assistance from UDWR, Sportsmen for Fish and Wildlife, and livestock operators proposes to construct three livestock/wildlife water catchments in the Buckskin and Five Mile Mountain areas.

Money to purchase materials and the cost of labor required to install the proposed catchments would come from UDWR, Sportsmen for Fish and Wildlife and possibly from grants available to local livestock operators.

The catchments would be constructed in the months of March through November (when active grazing is not occurring and the majority of deer have left the area for the season) depending upon funding, weather conditions, and soil moisture.

All of the materials needed to build the proposed catchments would be hauled to the sites on either a flatbed trailer pulled by a heavy duty pickup truck, a semi truck, or a cement truck using existing roads. No new road construction would occur. The Buckskin sites proposed for water catchments (Buckskin, Sink Holes) are located adjacent to GSENM Roads 717 and 730. The Five Mile Mountain site is located adjacent to GSENM Road 711 (See Map 1 *Highway 89 South Proposed Water Catchments*).

All equipment would be washed, prior to entrance onto public lands, to minimize the spread of noxious weeds, in accordance with BLM policy. Additionally, should weeds be found at the proposed project sites, BLM would aggressively treat any and all noxious species.

The names and legal descriptions of the three proposed project sites (i.e. proposed catchments) are:

Buckskin	T. 43S., R. 3W., Section 22
Five Mile	T. 42S., R. 2W., Section 34
Sink Hole	T. 43S., R. 3W., Section 33

The three new catchments would be comprised of:

- A 40,000 square foot catchment (collection) apron;
- A storage tank of up to 125,000 gallons covered by a sheet metal lid;

- An approximately 300' x 300' barbed-wire protection fence with the bottom wire smooth to allow passage of wildlife, and wildlife drinkers installed within the protection fence; and
- A livestock drinking trough (with escape ramps) outside the protection fence.

The exact shape of the aprons would be determined by the lay of the land (i.e. the shape that best fits the contour of the specific catchment site).

Each collection apron would be placed in the center of an area approximately 250' x 250' that is leveled with a grader, bulldozer or other similar equipment. This would allow for an approximately 10 to 15' buffer zone around the perimeter of the collection apron. Additional fill material such as gravel or top soil may be brought in from an outside source by a semi truck using existing roads. The fill material would be used to cover areas of exposed bedrock where the apron would be constructed. This would protect and increase the life of the lining material. The collection apron would consist of black polythene sheeting (20' x 200' rolls). The sheeting would be rolled out across the prepared area. Seams between the rolls would be heat sealed.

The locations for the storage tanks would first be prepared by clearing and leveling an area approximately 80' x 80' using some of the equipment mentioned above. Each storage tank would be approximately 60 feet in diameter and 9 feet high and assembled on site. The bottom surface of the storage tank would consist of a concrete pad foundation approximately 1' thick hauled to the site using a cement truck. The sides of the storage tank would be made out of galvanized steel. The storage tank lid would consist of corrugated tin with metal supports that would be placed within the storage tank.

The livestock trough would be a 750 to 1000 gallon round or rectangle shaped trough. The trough would be located just outside the protection fence.

The existing livestock ring tank located in Township 43 South, Range 2 West, Section 34 would be moved to the proposed location for the Five Mile Mountain Catchment. Once the trough is moved, the area where it is currently located would be reseeded with native grasses, forbs, and shrub species.

The protection fence would consist of a four strand barbed-wire steel post fence, with cedar post H-braces. The bottom wire would be barbless, smooth wire approximately 18 inches above the surface of the ground. The top wire of the fence would not exceed 42 inches above the ground surface.

A wildlife drinker would be installed within the protection fence. An outlet pipe for the wildlife drinker would be below the outlet for the livestock watering trough to ensure that wildlife would always have water available from the storage tanks.

Just over two acres (2.06) would be disturbed for each catchment.

Disturbed areas would be seeded with native grasses, forbs, and shrub species shortly after construction activities are completed.

All gravel/fill materials would be of similar color to those occurring on site. Metal materials used in construction of catchments would be non-reflective and colored gray or dark brown. Light colored materials would not be used to construct the projects.

Range and vegetative monitoring, including annual monitoring of actual use and utilization, use pattern mapping, and trend monitoring every three to five years as staffing and funding permit would continue on all four allotments. Additional monitoring sites would be established by BLM as deemed necessary to ensure that the overall upland ecological sites and project resource objectives are met.

In addition, a multi-year migratory bird study could be implemented as staffing and funding allow. Baseline information, regarding which migratory bird species are using the area, when they arrive, and how long they stay, would be collected prior to project implementation. These same point counts would be re-read, and comparisons made to the original data collected, to determine what kinds of effects the additional water is having on migratory bird populations.

The expected life span of the water catchments would be at least 20 years. Required maintenance of the catchments during this time period would be shared between UDWR, wildlife groups, livestock operators and the BLM via a Cooperative Agreement.

NO ACTION

The No Action alternative would maintain current water conditions in the Buckskin and Five Mile Mountain areas. There would be no construction of new water catchments, and there would be no new water sources located within the Mollie's Nipple, Sink Holes, Five Mile Mountain, and Vermilion Allotments.

CHAPTER 3 AFFECTED ENVIRONMENT

INTRODUCTION AND GENERAL SETTING

The Buckskin Mountain sites proposed for water catchments (Buckskin and Sink Holes) are located approximately 35 miles east of Kanab, Utah, adjacent to GSENM Roads 717 and 730. The sites are located within an area of Utah juniper (*Juniperus osteosperma*) and pinyon (*Pinus edulis*) woodlands with an understory of cliffrose (*Purshia mexicana*) and sagebrush (*Artemisia spp*). The Buckskin site is located in an old burn. Some cutting of juniper and pinyon trees has occurred within the area in the past.

The Five Mile Mountain site is located approximately 40 miles east of Kanab, Utah, adjacent to GSENM Road 711. This site has had a long history of disturbance from a drill pad, limestone quarry, and earth-lined reservoirs. The area consists of barren exposures of limestone bedrock with thin pockets of brown clay soil and sparse cover of cliffrose and sagebrush. Areas with deeper loamy soils surrounding the limestone barrens are dominated by Utah juniper woodland and sagebrush grassland.

The affected environment was considered and analyzed by an interdisciplinary team as documented in the Interdisciplinary Team Checklist. The checklist indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis. Resources which could be impacted to a level requiring further analysis are described in Chapter 3 and impacts on these resources are analyzed in Chapter 4 below.

Resource A: Fish and Wildlife

A variety of terrestrial wildlife resources in the proposed project areas are typical of the Colorado Plateau physiographic province. The vegetation on the proposed project areas could be categorized as primarily sagebrush and pinyon-juniper woodland with small inclusions of oak. Mammalian species typical of these habitats include mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), jack rabbit (*Lepus ssp.*), cottontail rabbit (*Sylvilagus ssp.*) and several species of small mammals, including sagebrush vole (*Lagurus curtatus*) and the whitetail antelope squirrel (*Ammospermophilus leucurus*).

Many different species of reptiles may be present in the proposed project areas. The most common reptilian species include side-blotched lizard (*Uta stansburiana*), sagebrush lizard (*Sceloporus graciosus*), gophersnake (*Pituophis catenifer*), terrestrial gartersnake (*Thamnophis elegans*), and prairie rattlesnake (*Crotalus viridis*). None of these reptilian species is considered “sensitive” by the BLM or the State of Utah.

Some of these species obtain water from their food sources but certainly many of these species rely upon dependable water sources. Many of these species are found only near available water and are not capable of traveling several miles to obtain water. The lack of available water therefore restricts the amount of habitat these species can utilize.

For this analysis, wildlife focus will be primarily on mule deer since they are the major user of the proposed project area, closely tied to available water, and exert the most energy obtaining water.

Mule deer – The project area is within the Paunsaugunt Deer Herd Unit. There are few to perhaps no permanent resident mule deer within the project area. The vast majority use the habitat exclusively during winter months. It is estimated that approximately 2,000 to 2,500 mule deer winter in the Buckskin Mountain and Five Mile Mountain areas (Personal Communication with UDWR Wildlife Biologist). They usually stay in this area from about November 1st through March 31st. The habitat associated with the project areas is defined as “crucial winter habitat” by the UDWR. This habitat, which occurs at lower elevations where deep snows are not often present for long periods of time, is the final destination point for deer as winter sets in. Deer in the area appear to be healthy and the population is stable.

Deer are generally classified as browsers, with shrubs and forbs making up the bulk of their annual diet although their diet can be quite varied. The importance of various classes of forage plants varies by season. In winter, especially when grasses and forbs are covered with snow, their entire diet may consist of shrubby species. In spring and early summer, grasses and forbs become

increasingly important to nursing does with fawns and bucks for antler growth. Their appears to be sufficient forage on the allotments for both mule deer and cattle as no documented deaths have occurred due to lack of forage.

In this area, Big sagebrush (*Artemisia spp.*), Cliffrose (*Purshia mexicana*), and Serviceberry (*Amelanchier spp.*) are probably the most important browse species. Perennial grasses such as Indian ricegrass (*Acnatherum spp.*), bottlebrush squirreltail (*Sitanion hystrix*) and crested wheatgrass (*Agropyron cristatum*) are important when they are green in spring and not covered by deep snow. These perennial grasses provide diversity in the mule deer's diet. Forbs such as globemallow (*Sphaeralcea spp.*) and arrowleaf balsamroot (*Balsamorhiza spp.*) also provide needed diversity in the deer's diet.

Mule deer generally require up to two gallons of water per day depending upon temperature, diet, and other factors such as increased energy needs during the rut and birthing. Until snowpack begins to accumulate in late December, these deer are completely dependent upon the limited water sources in the area, many of which are ephemeral and not always available. Literature suggests that mule deer may travel up to 2.5 miles between foraging locations to obtain water (Olson 1992). However, personal observations made by BLM and UDWR officials suggest that mule deer in this area tend to stay much closer to dependable water. Recent Use Pattern Mapping confirms that deer are using areas within 1-1.5 miles much heavier than in surrounding dry habitat. This may be accounted for by the fact that mule deer are rutting at this time. During the rut, the deer expend much more energy and are therefore tied more closely to the dependable water sources.

Mule deer have access to all of the waters mentioned for livestock grazing (see Resource B Livestock Grazing), as well as a few more ephemeral sources that were built for and used exclusively by wildlife. The wildlife specific watering locations are described below (See Map 2 Highway 89 South Existing Water Locations).

Ephemeral Water Sources:

Five Mile Mountain Guzzler 1	Township 42 South, Range 2 West, Section 21
Five Mile Mountain Guzzler 2	Township 43 South, Range 3 West, Section 11
Buckskin Overlook Guzzler	Township 43 South, Range 2 West, Section 17
White Sage Guzzler	Township 44 South, Range 4 West, Section 1
Wire Pass Guzzler	Township 43 South, Range 2 West, Section 28

These guzzlers were constructed in the early days of guzzler construction. The guzzlers are too small, antiquated, high-maintenance and generally provide inadequate water storage for wildlife needs. For this reason, the guzzlers are considered to be ephemeral water sources as they are not consistently full of water.

There are two other watering locations just outside of grazing lands administered by the GSENM that are utilized by cattle and wildlife species that inhabit these areas: the Pine Hollow Reservoir 1 located at Township 44 South, Range 3 West, Section 11 and the Pine Hollow Water Catchment located at Township 43 South, Range 2 West, Section 31. The Pine Hollow Reservoir 1 is considered an ephemeral water source as it collects runoff rain water from an ephemeral

drainage. On dry years, this reservoir does not fill and therefore provides no water. The Pine Hollow Water Catchment is a dependable water source as it consists of a large collection apron and a 60,000 gallon water storage tank. This design is similar to the proposed catchments, suggesting that the need for additional dependable water could be met by the construction of the new catchments which would be larger in size and even more dependable.

Because of the ephemeral nature of many of these waters, habitat use by deer is centered around a few dependable waters. During limited moisture years, nearly all water is gone and water has to be hauled by volunteers to alleviate the shortage. Each fall, thousands of man-hours and dollars are spent trying to alleviate the water shortage. Even if all waters were dependable, there would still be many habitat gaps in which no water is available for many miles in any direction. This problem of inadequate water sources leads to poor mule deer distribution and heavy resource use around the few dependable water sources.

UDWR conducts mule deer classification at water sources within the analysis area on an annual basis. Deer use on artificial watering locations within the analysis area is well documented. For example on November 17, 2008, 46 mule deer were counted using the Pine Hollow Water Catchment. The previous day, 54 deer were counted using the Buckskin Overlook Guzzler. The previous year, 194 deer were documented in one day using the Mustang Reservoir which is also an artificial and ephemeral water (Paunsaugunt Unit Deer Classification Data 2007-2008).

Resource B: Livestock Grazing

Mollie's Nipple Allotment

There is one livestock operator on the Mollie's Nipple Allotment. The operator also owns the private land located within the Buckskin Pasture of the allotment. The livestock operator runs a cow/calf operation and calves are usually more than 2.5 months old when they are placed onto the Buckskin Pasture. There are 333 cattle authorized to graze within the Buckskin Pasture of the Mollie's Nipple Allotment from November 1st through April 30th for a total of 1,981 AUMs. Average actual use on the Buckskin Pasture between 1996 through 2006 was 810 AUMs and 217 cattle.

Existing livestock watering locations on the Buckskin Pasture are listed below.

Dependable Water Sources:

Jepsen Private Land Reservoir	Township 43 South, Range 3 West, Section 3
Buckskin Trough	Township 43 South, Range 3 West, Section 17

Ephemeral Water Sources:

Mustang Reservoir	Township 43 South, Range 3 West Section 13
Private Land Spring	Township 43 South, Range 3 West, Section 3
Buckskin 1 Reservoir	Township 43 South, Range 3 West, Section 9
Buckskin 2 Eagle Sink Reservoir	Township 43 South, Range 3 West, Section 20
Wire Pass Reservoir	Township 43 South, Range 2 West, Section 33

Cattle distribution on the Mollie's Nipple Allotment is a concern; cattle tend to congregate around the few existing dependable water locations.

The May 6, 1974 Mollie's Nipple Allotment Management Plan Revision Environmental Analysis states the following, "Water, specifically its distribution, is the most serious problem in the Mollie's Nipple Allotment. Buckskin Mountain is dry, with ponds furnishing all water except one 30 foot ring tank in the northwest corner of the pasture."

Of the 27, 546 acres in the Buckskin Pasture, 6,337 acres or 23% of the pasture is located within 1.5 miles of dependable water sources. If all of the ephemeral water sources have water, then 14,677 acres or 53% of the Buckskin Pasture is within 1.5 miles of either dependable or ephemeral water sources (See Map 4 *Highway 89 South Dependable and Proposed Water 1.5 Mile Buffer*).

In 2009, utilization on Cliffrose was slight (six-20%) to heavy (61-81%), with the heavier use occurring near the Jepsen Private Land Reservoir and lighter use occurring in the western portion of the Buckskin Pasture (See Map 5 *Buckskin Use pattern Mapping 2009*).

Five Mile Mountain Allotment

There is one livestock operator on the Five Mile Mountain Allotment. The operator runs a cow/calf operation and usually weans the calves before they come onto the allotment.

There are 64 cattle authorized to graze from November 1st through April 30th for a total of 383 AUMs. Average actual use between 1996 through 2006 was 207 AUMs and 35 cattle. This includes years that the operator took non-use for resource protection.

Existing livestock watering locations in the Five Mile Mountain Allotment are listed below.

Ephemeral Water Sources:

Five Mile Reservoir	Township 42 South, Range 2 West, Section 19
Five Mile 1 Reservoir	Township 43 South, Range 2 West, Section 10
Five Mile 2 Reservoir	Township 43 South, Range 2 West, Section 15
Five Mile Trough	Township 42 South, Range 2 West, Section 34

In the past, the livestock operator has hauled water to the above listed trough as it is not associated with a pipeline or with spring water.

Of the 17,848 acres in the Five Mile Mountain Allotment, 4,447 acres or 25% of the allotment is located within 1.5 miles of an ephemeral water source. There are no dependable water sources on this allotment.

Utilization of key species from 1980 through 1992 has averaged 42% on Cliffrose and 90% on Bitterbrush.

Cattle use has tended to be higher around Five Mile Reservoir because the reservoir has water more often than the other reservoirs.

Sink Holes Allotment

There is one livestock operator on the Sink Holes Allotment.

There are 22 cattle authorized to graze from September 1st through March 31st for a total of 154 AUMs.

Existing livestock watering locations in the Sink Holes Allotment are listed below.

Dependable Water Source:

Heaton Private Land Reservoir Township 43 South, Range 3 West, Section 36

Cattle use on the Sink Holes Allotment tends to be in the area adjacent to the private property, little cattle use has been observed in the eastern and southeast portion of the allotment. Livestock distribution is a concern on this allotment.

Of the 7,512 acres in the Sink Holes Allotment, 613 acres or 8% of the allotment is located within 1.5 miles of a dependable water source.

Utilization of key species from 1976 through 1993 has averaged 26% on Cliffrose, 40% on Brigham Tea, 55% on Crested wheatgrass, and 80% on Fourwing saltbush.

Vermilion Allotment

There are two livestock operators on the Vermilion Allotment. They are authorized to graze under the following schedule:

283 Cattle from 02/16 through 05/15	828 AUMs
283 Cattle from 06/01 through 09/15	996 AUMs
283 Cattle from 10/01 through 01/15	996 AUMs

One operator is authorized to graze 2,822 AUMs, the second operator is authorized to graze 27 AUMs (these AUMs are located on an old state section that the Monument acquired in 1999 from the School Trust Lands). The total AUMs for the allotment is 2,849.

The allotment is managed under an eleven (11) pasture deferred grazing system. The Government Reservoir Pasture is usually grazed during the winter and springs months of the year.

Existing watering locations in the Government Reservoir Pasture are listed below.

Dependable Water Sources:

Government Reservoir Trough Township 43 South, Range 3 West, Section 30

Ephemeral Water Sources:

Government Reservoir

Township 43 South, Range 3 West, Section 30

The Government Reservoir Trough is filled from the Seaman Wash Pipeline.

The Government Reservoir collects water during the summer months when monsoonal rain occurs. There is generally water in the Government Reservoir Trough and the Government Reservoir when the Government Reservoir Pasture is grazed.

The majority of cattle use in the Government Reservoir Pasture occurs in the seeded portion of the pasture with little use occurring in the southeast portion of the pasture except when snow is available.

Of the 2,864 acres in the Government Reservoir Pasture, 2,237 acres or 78% of the pasture is located within 1.5 miles of a dependable water source.

Utilization of key forage species from 1980 through 2001 has averaged 32% on Needle-and-thread Grass, 54% on Indian Ricegrass, 58.2% on Crested wheatgrass, 60% on Spike dropseed, 68% on Bitterbrush, and 80% on Fourwing saltbush.

Resource C: Migratory Birds

There are dozens of migratory bird species that use the pinyon/juniper and sagebrush habitats associated with the proposed project areas for a portion of their lifecycle. Some of these species are: ash-throated flycatcher (*Myiarchus cinerascens*), Bewick's wren (*Thryomanes bewickii*), black-billed magpie (*Pica hudsonia*), black-throated gray warbler (*Dendroica nigrescens*), blue-gray gnatcatcher (*Polioptila caerulea*), bushtit (*Psaltiriparus minimus*), Brewer's sparrow (*Spizella breweri*), ferruginous hawk (*Buteo regalis*), gray flycatcher (*Empidonax wrightii*), gray vireo (*Vireo vicinior*), juniper titmouse (*Baeolophus ridgwayi*), loggerhead shrike (*Lanius ludovicianus*), chickadee (*Poecile spp.*), pinyon jay (*Gymnorhinus cyanocephalus*), sage sparrow (*Amphispiza belli*), sage thrasher (*Oreoscoptes montanus*), western bluebird (*Sialia mexicana*), and western scrub jay (*Aphelocoma californica*).

Cattle and deer are not in the area when most migratory birds are present. Migratory birds typically arrive by May when all of the cattle and nearly all deer are gone. Because of the heavy use by these ungulates near dependable water, much of the migratory bird habitat for ground and shrub nesters within .25 mile of water is rendered unsuitable for nesting purposes due to lack of vegetation for nest concealment. Birds nesting in pinyon/juniper are less affected by the heavy use as the abundance of trees allows for suitable nest concealment. Even in its altered state, migratory birds still readily use these water sources and are able to move back and forth between nesting habitat and available water due to their ability to fly.

Resource D: Recreation

The main recreational activities taking place on Buckskin Mountain and Five Mile Mountain include mule deer hunting, gathering shed antlers, and wildlife viewing. Other, less popular recreational activities include, camping, hiking, picnicking, photography, ATV riding, and horseback riding. The heaviest visitor use occurs in the spring and fall.

According to regular BLM patrols, recreation use level within the project area is low. The Eagle Sink located on the western side of Buckskin Mountain is featured as a point of interest in the GSENM Visitor Information brochure. Visitation to Eagle Sink is also considered low.

According to the GSENM Management Plan, Buckskin Mountain and Five Mile Mountain are within the Outback Management Zone. Visitor group size is limited to 25 people.

Resource E: Soil/Watershed

Average annual precipitation at the proposed water catchment locations ranges between 9.49 to 11.61 inches (See Map 6 *Highway 89 South Precipitation Zones*). The amount of precipitation that is used in this analysis is 9.49 inches.

Soils in the vicinity of the proposed water developments are derived from the Timpoweap Member of the Moenkopi Formation and consist primarily of gravelly or cobbly loams, with minor amounts of sandy loams (NRCS, 2005). Due to their shallow depths and high cover of bare rock surfaces, these soils have very high potential for generating surface runoff. Ephemeral channels (i.e., channels that flow only after precipitation events capable of generating runoff) are common in the vicinity of the proposed developments. Field observations indicate that these channels are generally at equilibrium and are vertically stable. There were no signs of headcutting or excessive erosion, and the upland rangeland health assessment sites located closest to the proposed water developments are meeting Utah Standards for Rangeland Health (see GSENM Draft Monument Management Plan Amendment and Draft Rangeland Health Environmental Impact Statement, October, 2008).

Resource F: Vegetation

All of the proposed catchments would be located in disturbed pinyon-juniper woodland-dominated sites. These previously disturbed sites are dominated by the exotic forbs storksbill (*Erodium cicutarium*), tumble mustard, (*Sisymbrium altissimum*) and cheatgrass (*Bromus tectorum*). This annual forb dominated community is typical of burned or otherwise cleared areas in the pinyon-juniper community on the northern Kaibab Monocline where no attempt was made at rehabilitation after the disturbance. Typical of these disturbed sites is the very slow recovery of sagebrush after fire or land clearing disturbance.

Cliffrose (*Purshia mexicana*) is a somewhat common component of the pinyon-juniper woodlands in all of the proposed catchment locations. Cliffrose is among the most highly valued plant in the project area.

The Five Mile Mountain Catchment location has had a long history of disturbance from a drill pad, limestone quarry and construction of earth-lined ponds. The area consists of barren

exposures of limestone bedrock with thin pockets of brown clay soil and sparse cover (ca 10%) of cliffrose and big sagebrush. Areas with deeper loamy soils surrounding the limestone barrens are dominated by Utah juniper woodland and big sagebrush grasslands. Several clay-lined depressions and old ponds (currently dry) are occupied by a big sagebrush/cheatgrass community. Other invasive plants are found within these depressions, including bur buttercup (*Ranunculus testiculatus*), storksbill (*Erodium cicutarium*), and flaxweed (*Descurainia sophia*).

No listed Threatened, Endangered, or BLM sensitive plant species are known in the project area.

Resource G: Visual

Visual Landscape Character

As viewed from interior roads on Buckskin and Five Mile Mountains, the landscape is rolling terrain in the foreground with the horizontal banding of the Vermilion Cliffs in the background. Dense stands of pinyon/juniper are prevalent in the foreground and mid-ground at the Five Mile, Sink Holes, and Buckskin sites. In those areas where the stands of trees are adjacent to the road, the view is shortened to the immediate surroundings and has a sense of enclosure.

The lines in the landscape are strongly horizontal and are formed by the landform edges. When viewed from roads on Buckskin and Five Mile Mountains, the background is predominantly horizontal but with some rounded and diagonal lines where vegetation composition changes.

The predominant colors of this landscape are grays, greens, and tans, with reds in the distant background. The grays are primarily medium tone and determined by the vegetation and soils, whereas the greens run the spectrum of sage to dark green because of the vegetation. The reds are primarily vermilion and the tans are mostly buff or brown, with some lighter and darker variations depending on the soil type and stone.

The texture of the landforms is primarily medium due to the rolling topography. The texture of the vegetation is medium to coarse, depending on the consistency of the vegetation spacing and density of the shrubs and trees.

There are few built environment elements within this landscape, but those that do exist include power lines and fences. The fences, power lines and their support structures (i.e. metal transmission tower or wooden poles) add vertical and horizontal lines to the landscape.

This project is proposed in a classic pinyon/juniper and cliffrose/sagebrush landscape in Southern Utah which creates a feeling of vastness and open space similar to many areas within the Colorado Plateau region.

Visual Resource Management Classes and Objectives

VRM classes were determined for GSENM lands during the Monument Management Planning process and are included in the GSENM Management Plan effective February 2000. All project site locations are located within VRM Class III.

The objective for VRM Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Any changes should repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

CHAPTER 4

ENVIRONMENTAL IMPACTS

DIRECT AND INDIRECT IMPACTS

PROPOSED ACTION

This section analyzes the impacts of the proposed action to those resources described in the Chapter 3 Affected Environment section described above.

Resource A: Fish and Wildlife

Small burrowing animals living in the direct footprint of the proposed projects may be directly impacted by construction activities. A few individuals may be forced to leave the area or possibly killed. Small wildlife species may be displaced in the habitat immediately surrounding the new catchments. These impacts would be at an individual level and not affect any population as a whole. Indirectly, noise disturbance and the loss of approximately six acres of habitat may cause wildlife to avoid the area in the short term. Cattle and deer use is expected to increase near the new available water sources. Use of the available forage by livestock is closely monitored by the BLM and enough forage would be available for cattle and wildlife use. No wildlife species are expected to decline in number due to lack of vegetation. In the long term, the catchments would be beneficial to wildlife species as animals requiring water would have to travel less distance to obtain it. Some wildlife species may see a slight increase as more habitat with available water is opened up.

There would be no direct impacts to mule deer as the projects would be constructed outside of the winter season when they use this habitat. As deer find and begin to use the newly completed catchments, deer use would be spread out more evenly across the area. Heavy deer use around current existing waters would be reduced and deer use across the remaining habitat would increase. Deer would have to travel less distance to water which is important during an already stressful time when their energy requirements are at a high and nutritional value is at a low. Their habitat would be improved as heavy grazing pressure would be alleviated near the few dependable water sources. Additionally, deer/vehicle collisions previously caused by a lack of water in the Buckskin and Five Mile Mountain areas would be reduced, if not eliminated.

Resource B: Livestock Grazing

Mollie's Nipple Allotment

The proposed Buckskin and Sink Holes Water Catchments in the Buckskin Pasture would not increase the active preference on the Mollie's Nipple Allotment.

The proposed action would improve cattle distribution on approximately 40% of the Buckskin Pasture, especially in the southwest portion. The proposed Buckskin and Sink Hole Catchments would increase the number of acres that would be within 1.5 miles or less from a dependable water source from 6,337 acres or 23% of the pasture to 10,882 acres (3,771 acres around the Buckskin Catchment and 774 acres around the Sink Holes Catchment) or 40% of the pasture.

Cattle use of the key forage species would increase by approximately 15-25% around the proposed Buckskin and Sink Holes Water Catchment locations, but still would be within the limits of the allowable use for each of the key species that are monitored on the Mollie's Nipple Allotment. Also, cattle use around the Jepsen Private Land Reservoir and the Buckskin Trough would be reduced by 15-25% because fewer cattle would be grazing near and around this livestock watering location. The amount of cattle use on key species is an estimate based on the assumption that there would be 15-30% less cattle using the existing water locations in the Mollie's Nipple Allotment.

Five Mile Mountain Allotment

The proposed Five Mile Water Catchment would not increase the active preference on the Five Mile Mountain Allotment.

The proposed action would improve cattle distribution on approximately 25% of the allotment, especially on the eastern and southern portion. The proposed Five Mile Mountain Catchment would increase the number of acres that would be within 1.5 miles from a water source from 4,447 acres (ephemeral) to 8,728 acres (ephemeral and dependable) or 49% of the allotment.

Cattle use of the key forage species would increase by approximately 15-25% around the proposed Five Mile Mountain Catchment location, but still would be within the limits of the allowable use for each of the key species that are monitored on the Five Mile Mountain Allotment. Also, cattle use around the Five Mile Mountain Reservoir would be reduced by 15-25% because fewer cattle would be grazing near and around this livestock watering location. The amount of cattle use on key species is an estimate based on the assumption that there would be 15-30% less cattle using the existing water locations in the Five Mile Mountain Allotment.

Sink Holes Allotment

The proposed Sink Holes Water Catchment would not increase the active preference on the Sink Holes Allotment.

The proposed action would improve cattle distribution on 21% of the allotment, especially in the northeastern and eastern portion. The proposed Sink Holes Catchment would increase the number of acres that would be within 1.5 miles from a water source from 613 acres to 2,180 acres or 29% of the allotment.

Cattle use of the key forage species would increase by approximately 15-25% around the proposed Sink Holes Catchment location, but still would be within the limits of the allowable use for each of the key species that are monitored on the Sink Holes Allotment. Also, cattle use in the northwestern portion of the allotment would be reduced by 15-25% because fewer cattle would be grazing near and around the existing private land water source. The amount of cattle use on key species is an estimate based on the assumption that there would be 15-30% less cattle using the existing water location on the private land adjacent to the Sink Holes Allotment.

Vermilion Allotment

The proposed Sink Holes Catchment would not increase the active preference on the Vermilion Allotment.

The proposed action would improve cattle distribution on 24% of the Government Reservoir Pasture. The proposed Sink Holes Catchment would increase the number of acres that would be within 1.5 miles from a water source from 2,237 acres to 2,859 acres or 100% of the pasture.

Cattle use of the key forage species would increase by approximately 15-25% around the proposed Sink Holes Catchment location, but still would be within the limits of the allowable use for each of the key species that are monitored on the Vermilion Allotment. Also, cattle use around the Government Reservoir and Government Reservoir Trough would be reduced by 15-25% because fewer cattle would be grazing near and around these livestock watering locations. The amount of cattle use on key species is an estimate based on the assumption that there would be 15-30% less cattle using the existing water locations in the Vermilion Allotment.

Resource C: Migratory Birds

The proposed water catchments may have effects on migratory birds; however these effects would be limited in time and space. Construction of the three water sources would remove slightly more than six acres of woodland/sagebrush habitat in 45,000 acres of this habitat type (.00013%). Construction occurring outside of the breeding season (May 1st – July 31st) would pose no direct effect to breeding success of migratory birds. The removal of approximately six acres of habitat may have indirect effects to a few individuals by causing them to relocate breeding or foraging territories as a result of the habitat reduction. Construction occurring during breeding season, may lessen reproductive success within approximately 0.25-mile radius as a result of disturbance from construction activities and equipment noise. Any nest sites within the footprint of the construction area would be destroyed as a result of construction activities, and reproduction lost. Although this potential impact is a concern for a few individual birds, it would not be concerning to any population as a whole. Increased cattle and deer use around catchments would not displace migratory bird species as they are not in the area at the same time. Use of additional habitat near the proposed water catchments may increase slightly but due to their ability to fly, migratory birds are already disbursed across the entire area. The addition of water to the landscape as a result of the construction would have a beneficial effect to migratory birds as use of existing artificial waters by migratory birds is already well documented.

Resource D: Recreation

The proposed action would benefit recreational resources in the Buckskin and Five Mile Mountain areas. The new water catchments would improve wildlife habitat which would lead to additional recreational opportunities related to hunting, wildlife viewing, and gathering shed antlers.

The availability of new water sources would distribute livestock and wildlife more evenly resulting in improved condition of vegetation. Visitors would benefit visually from improved range conditions.

Other recreational activities such as camping, hiking, picnicking, photography, ATV riding, and horseback riding would continue to occur according to current trends and market forces. The casual visitor would likely not notice the water catchments due to vegetation screening from open roads. The project areas are a minute fraction of the amount of available public lands. Recreationists would not be displaced or negatively impacted if the proposed action was implemented.

Resource E: Soil/Watershed

No springs or seeps will be dewatered as a result of the proposed action.

Although the proposed project would disturb slightly more than six acres of soil, the overall impact would be minimal because of the type of soils that are located in these individual project sites and the type of construction that is planned. The potential for soil erosion is very low because of the low gradient of the individual project sites, the presence of shallow bedrock, and the covering of bare soil areas with aprons and restored vegetation.

The amount of water that would be collected by each of the proposed catchments was calculated.

The formula to determine the amount of precipitation that a particular water catchment apron would collect is the following: $R=5.5 \text{ PAE}$ (1986: Frasier and LE Myers)

Buckskin Catchment:

R= Run Off in Gallons

P= Precipitation in inches 9.49 inch precipitation zone

A= Catchment area in square yards 200 feet by 200 feet = 40,000 square feet/9 feet/yard = 4444.44 square yard.

E= Catchment efficiency Black PE Sheeting is 95% efficient.

$R = 5.5(9.49)(4444.44)(.95) = 220,378.66$ gallons collected each year

Five Mile Catchment:

R= Run Off in Gallons

P= Precipitation in inches 9.49 inch precipitation zone

A= Catchment area in square yards 200 feet by 200 feet = 40,000 square feet/9feet/yard = 4444.44 square yard

E= Catchment efficiency Black PE Sheeting is 95% efficient.

$R = 5.5(9.49)(4444.44)(.95) = 220,378.66$ gallons collected each year

Sink Holes Catchment:

R= Run Off in Gallons

P= Precipitation in inches 9.49 inch precipitation zone

A= Catchment area in square yards 200 feet by 200 feet = 40,000 square feet/9feet/yard = 4444.44 square yard

E= Catchment efficiency Black PE Sheeting is 95% efficient.

$R = 5.5(9.49)(4444.44)(.95) = 220,378.66$ gallons collected each year

Resource F: Vegetation

Impacts to vegetation from developing a catchment at the Buckskin site would increase due to the grazing and browsing pressure exerted by both cattle and deer. The greatest impact would be to the Cliffrose which is selected for by both cattle and deer during the winter. This area is currently grazed only lightly according to the use pattern map (See Map 5 *Buckskin Use Pattern Mapping 2009*). Utilization in the vicinity of this site would likely be in the moderate category under the proposed action. Sagebrush utilization by deer in the vicinity would be heavier than without the proposed action.

The Sink Holes site is located in an area that has historically had very little use. Utilization in the vicinity of the proposed site has been none to slight because of the distance from water and typical animal movements. Utilization of the vegetation within one mile of this site would likely increase within a few years after construction to the moderate category.

The Five Mile Mountain site currently gets used only by deer. Livestock have not used the allotment in over five years because of restoration activities and generally limited forage where reliable water is present. With the addition of this catchment, utilization of the vegetation within one mile of this site would likely be moderate (41-60%) because of cattle and deer use.

Overall, improving the distribution of livestock and deer by adding the proposed water sites would result in many more acres in all allotments being used properly (<55%). Much of the Buckskin Mountain Pasture that is in the heavy (61-80%) category, would be reduced to the moderate (41-60%) category. This reduction in use would better allow reproduction for Cliffrose and sagebrush by allowing more shoots on each plant to remain ungrazed. Ungrazed shoots of the previous growing season are those that bear seed during the next season for Cliffrose. More seed would be produced by allowing each plant to keep more of its nutrient reserves from the previous year which would allow more plant resources to be used in producing seed. Properly used key species result in plant communities that are productive as well as sustainable, and this

action would ensure that utilization levels are consistently within the Standards and Guidelines set forth in 43CFR 4180 Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.

Resource G: Visual

The elements of these projects that would be visible to the casual observer include the catchments, fencing, storage tanks, troughs, and wildlife drinkers. Due to the height of the facilities, their color (grays, black, and browns) and their placement within the natural terrain and vegetation, most of the project elements would only be seen by the casual observer when traveling along the roads that are adjacent to the project locations. In all instances the facilities are not located immediately adjacent to the road, so it not likely that they would draw the observer's attention. However, it is possible that from some locations along the rim of the Vermilion Cliffs to the far north (which is inaccessible to vehicular traffic in most locations), under the right lighting conditions, a glint could be seen from the reflection off the collection aprons.

The Buckskin, Five Mile, and Sink Holes sites are located in areas with low recreational visitation, primarily hunters and OHV/ATV use. Those individuals managing cattle in the area, hunters, and the OHV/ATV users are the primary travelers of the dirt roads that pass through these areas and thus define the casual observers.

These types of facilities are located in other areas within the Monument and are often viewed as positive additions to the landscape by the predominant type of casual observer using these areas because of the services they provide. It is unlikely that these facilities would draw the attention of the "casual observer", due to their locations which are screened by either landforms or vegetation or both. The proposed projects, with their gray, black and brown colors, and predominately horizontal features, would repeat the basic elements found in the natural features of the characteristic landscape, and would meet VRM objectives for the areas in which they are proposed to be located.

NO ACTION

Resource A: Fish and Wildlife

No direct impacts to wildlife species would occur as the project would not be implemented. Indirectly, the habitat on which these species depend would continue to suffer around existing dependable water. Mule deer distribution would continue to be problematic. Animals would have to travel farther to obtain water and collisions between deer and vehicles would occur.

Resource B: Livestock Grazing

The proposed catchments on the Buckskin and Five Mile Mountains would not be constructed. Cattle distribution would continue to be a problem in the Mollie's Nipple, Five Mile Mountain, Sink Holes, and Vermilion Allotments.

Resource C: Migratory Birds

No direct impacts to any migratory bird species would occur as the project would not be implemented. Indirectly, the habitat on which these species depend would continue to suffer around existing dependable water.

Resource D: Recreation

The recreation experience would not be enhanced by additional wildlife viewing in the area. Wildlife viewing and hunting would not benefit from broader distribution of wildlife and utilization of habitat.

Resource E: Soil/Watershed

No ground disturbance would occur if the proposed project were not implemented, nor would the soil biological community be affected. There would be no potential to increase runoff and erosion from disturbed areas.

Resource F: Vegetation

Improper grazing levels would continue to occur in those areas near existing water. Improper grazing levels are not sustainable and will result in plant community change to a less desirable state.

Resource G: Visual

Visual resources would not be impacted under this alternative because no changes to the existing landscape character would occur.

CUMULATIVE IMPACTS

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

The Monument is in the process of completing a Rangeland Health Environmental Impact Statement (EIS). The *Grand Staircase-Escalante National Monument Draft Monument Management Plan Amendment and Draft Rangeland Health Environmental Impact Statement* was released in October 2008 for a ninety public comment period. The BLM is currently analyzing the public comments.

There are habitat improvement projects in the pinyon/juniper and sagebrush communities that have recently been completed, or are ongoing, in the Buckskin and Five Mile Mountain areas. The proposed catchments in the Buckskin and Five Mile Mountain areas would allow more wildlife and livestock to use areas that they have not previously used due to a lack of water. As a result, there would be a beneficial cumulative impact to livestock and wildlife in general from implementing this project.

CHAPTER 5

PERSONS, GROUPS, AND AGENCIES CONSULTED

On December 23, 2008, the public was notified of the proposed project on the ENBB. Thirty-two scoping letters were mailed on December 19, 2008 to Native American Tribes, Congressional representatives, local elected officials, State of Utah agencies, livestock operators, environmental groups, and sportsmen organizations.

Table 5.1. List of Tribal Governments and Agencies Consulted

Table 5.1 List of Tribal Governments and Agencies Consulted		
Utah State Historic Preservation Office (SHPO)	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	Response letters were received from SHPO August 19, 2003, November 21, 2003 and May 04, 2004. SHPO's responses did not identify any concerns.
Paiute Tribes of Utah	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	A letter was sent on December 19, 2008. The Tribe did not respond identifying any concerns. Lack of response is interpreted by BLM to indicate that the Tribe has no concerns relative to the proposed action.
Kaibab Paiute Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	A letter was sent on December 19, 2008. The Tribe did not respond identifying any concerns. Lack of response is interpreted by BLM to indicate that the Tribe has no concerns relative to the proposed action.
Hopi Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	A letter was sent on December 19, 2008. The Tribe's response did not identify any concerns.
Navajo Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	A letter was sent on December 19, 2008. The Tribe's response did not identify any concerns.
Ute Indian Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	A letter was sent on December 19, 2008. The Tribe did not respond identifying any concerns. Lack of response is interpreted by BLM to indicate that the Tribe has no concerns relative to the proposed action.
Zuni Pueblo	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	A letter was sent on December 19, 2008. The Tribe did not respond identifying any concerns. Lack of response is

		interpreted by BLM to indicate that the Tribe has no concerns relative to the proposed action.
Utah Division of Wildlife Resources	Information regarding management of wildlife species.	Data regarding big game species was incorporated into the EA.

Table 5.2 List of Persons, Organizations, and Permittees Contacted

On December 23, 2008, the public was notified of the proposed project on the ENBB. Thirty-two scoping letters were mailed on December 19, 2008 to Native American Tribes, Congressional representatives, local elected officials, State of Utah agencies, livestock operators, environmental groups, and sportsmen organizations.

Table 5.1. List of Tribal Governments and Agencies Consulted

Following is a list of public comments received and the BLM's responses.

Commenter	Issue	Response
Wilderness Society	Thus, in the NEPA analysis for the proposed eight catchments, BLM has the burden to show that this project follows the directives of the proclamation by conforming to the objectives stated in the MMP—namely, the protection and enhancement of Monument resources. If it is shown that any part of the project does not protect and enhance these resources, or that the project is not the best means of protecting the objects of the Monument, then the project must be denied.	This EA proposes the construction of three new water catchments in the Buckskin and Five Mile Mountain areas. See the Interdisciplinary Team Checklist and Chapter 3 Affected Environment and Chapter 4 Environmental Impacts of the EA.
Wilderness Society	For the NEPA analysis of these eight water catchments, BLM must provide the public with detailed and quality scientific data, including but not limited to: information showing the necessity for each catchment, how each catchment will support better distribution of big game and cattle, and the effects to the Monument resources that will occur from each catchment, and the research upon which the agency's findings are based.	Please see the EA, including Chapter 1 Purpose and Need and Chapter 4 Environmental Impacts.
Wilderness Society	We strongly recommend	The recommendation is now

	that this project include a wilderness inventory and proper protections of the Nephi Point proposed unit to accompany the proposal for the Wildcat catchment.	beyond the scope of the Proposed Action. The Wildcat and Deer Trails proposed catchments were removed from the proposed action.
Wilderness Society	The development of water catchment facilities such as Deer Trails is incompatible with the primitive zone and would not be in conformance with the MMP.	The Deer Trails proposed catchment has been removed from the Proposed Action and is therefore not analyzed in this EA.
	The Wildcat, Mustang, and Buckskin 2 proposed catchments require amendments to the MMP for the addition of new roads.	No additional roads are being proposed to be constructed as part of this EA.
Great Old Broads for Wilderness	The last thing the monument needs is to increase infrastructure to service the livestock industry, and the afterthought that this will benefit wildlife is debatable.	The MMP allows the development of water to improve cattle distribution. There is no natural water in the area for wildlife. Wildlife depend entirely on stock ponds and water catchments until snowpack is sufficient to disburse. Their use, as well as the need for additional waters, is documented in this EA.
Rusty Aiken, member of the Pansaugant Planning Committee 2008, Sportsmen for Fish and Wildlife, and Friends of the Paunsaugunt	These projects are critical to the current habitat situation. Currently the water resources in this area are very limited. There is no live water south of Highway 89 and therefore, livestock and wildlife are limited to very few water sources which causes great pressure on the surrounding habitat.	The proposed water catchments in the Buckskin and Five Mile Mountain areas would provide three additional dependable water sources.
Wade Heaton, Alton Coordinated Weed Management Unit	For years the most limiting factor for this Paunsaugunt deer herd has been winter range water. The Buckskin mountain serves as winter range for a large portion of the Paunsaugunt herd. A consistent, sustainable and reliable water source(s) on this mountain would be a tremendous shot in the arm to this deer herd and all other animals that use the Buckskin mountain.	The proposed water catchments in the Buckskin and Five Mile Mountain areas would provide three additional dependable water sources for the Paunsaugunt deer herd.
Calvin C. Johnson and Que Johnson, Livestock Operators,	We are in favor of the eight catchments and protection fences	Thank you for your comment.

Mollie's Nipple Allotment	that are proposed in the Buckskin Mountain and Five Mile Mountain areas.	
Norman McKee, retired UDWR Wildlife Biologist	It has always amazed me how early in the fall the deer from the Paunsaugunt Plateau and North Kaibab deer herd migrate from their summer ranges onto the winter rangelands of the Buckskin Mountain. Nevertheless, in October, winter snow is still mostly absent and the deer are stressed by lack of surface water. The few springs and developments are heavily impacted by both deer and livestock, and other wildlife. Population distribution is a problem.	The proposed water catchments in the Buckskin and Five Mile Mountain areas would provide three additional dependable water sources for the Paunsaugunt deer herd and other wildlife species.
John B. Keeler, Utah Farm Bureau Federation	We are supportive of projects on public lands that help to improve the rangeland and are beneficial to livestock and wildlife.	Thank you for your comment.
Micky Houston	Very Supportive of the project.	Thank you for your comment.
Norris Brown, Livestock Operator, Vermilion Allotment	Supportive of the project.	Thank you for your comment.
Southern Utah Wilderness Alliance	MMP WDEV-1 at 55 (emphasis added). Thus, the EA must analyze the impacts to all monument resources that could potentially be affected by the water catchments, and the analysis must determine that the water catchments are the best means of achieving beneficial effects on Monument resources.	See Interdisciplinary Team Checklist and Chapter 2 Proposed Action, Chapter 3 Affected Environment, and Chapter 4 Environmental Impacts in the EA.
Southern Utah Wilderness Alliance	The EA should include a detailed explanation, supported by objective scientific data and analysis, that supports BLM's theory that increased water supplies and a greater distribution of livestock and wildlife will have beneficial effects on Monument resources (including soils, vegetation, wildlife, water resources, cultural resources).	See Interdisciplinary Team Checklist and Chapters 3 and 4 in the EA.
Southern Utah Wilderness Alliance	The EA must analyze the impacts the water catchments will have on vegetation near the catchments, and assess whether these effects	See Interdisciplinary Team Checklist and Chapters 3 and 4 in the EA.

	are beneficial to Monument resources. Please provide quantitative data that shows that there is adequate vegetation and forage to support additional use by livestock and wildlife.	
Southern Utah Wilderness Alliance	The EA must analyze the impacts the water catchments will have on soils near the water catchments (including trampling of biotic soil crusts, and compaction), and whether these are beneficial to Monument resources.	See Interdisciplinary Team Checklist and Chapters 3 and 4 in the EA.
Southern Utah Wilderness Alliance	Catchments make it more likely that livestock will graze in the areas with catchments. The EA must assess whether livestock use will displace various species of wildlife, or reduce wildlife numbers due to less vegetation available for wildlife as a result of more vegetation being consumed by livestock, and any other effects the water catchments will have on wildlife.	Cattle and wildlife have been co-existing in this area for over a century. While it is true that cattle use will increase near the new water, the same can be said of wildlife use. Lack of vegetation for cattle and wildlife to co-exist is not a concern at this time. Vegetation is closely monitored by the BLM and enough is allowed for cattle and wildlife use. The main concern is degradation of habitat near water because it is so limited. See Chapter 4 in the EA.
Southern Utah Wilderness Alliance	Native wildlife have existed in this area throughout history without water catchments. What data does BLM have that demonstrates that wildlife need these catchments and that the catchments will provide a long-term, sustainable beneficial effect for wildlife?	Use Pattern Mapping data suggests that a lack of available water has led to heavy use by wildlife near scarce water. This has caused habitat concerns which could be alleviated by better distribution of both wildlife and livestock. See Chapter 1 Purpose and Need, Chapter 3 Affected Environment and Chapter 4 Environmental Impacts in the EA.
Southern Utah Wilderness Alliance	Does BLM have documentation that shows a decrease in wildlife numbers or species diversity in the areas proposed for water catchment? If yes, BLM must ascertain the cause of the decline and report this information in the EA, and assess if water	There is no available data suggesting decreases in wildlife numbers. Mule deer data obtained annually from the UDWR suggests a stable herd that is kept in check through hunting excess animals.

	catchments for livestock and wildlife will appropriately address the problem, or exacerbate the problem if livestock are competing with wildlife for the scarce vegetation of the area.	<p>Available data suggests a decrease in habitat quality near the scarce available water due to overuse.</p> <p>Lack of vegetation is not a concern in the area.</p> <p>See Chapter 1 Purpose and Need in the EA.</p>
Southern Utah Wilderness Alliance	The EA must assess whether the catchments will increase wildlife numbers, including the Paunsaugunt deer herd, beyond the land's natural carrying capacity. This chain of events could eventually result in a scarcity of vegetation and an overpopulation of deer. Please provide quantitative data on carrying capacity, deer herd numbers, and other wildlife species and population numbers in the EA.	See Chapter 1 Purpose and Need, Chapter 3 Affected Environment, and Chapter 4 Environmental Impacts in the EA.
Southern Utah Wilderness Alliance	The EA must include quantitative baseline data on all wildlife species in the area, vegetation, soil, groundwater, and riparian resources to equip the decision-maker and the public with adequate information to make an informed decision as to the effects of the proposed water catchments.	See Interdisciplinary Team Checklist and Chapter 4 Environmental Impacts in the EA.
Southern Utah Wilderness Alliance	The EA must disclose and analyze the annual precipitation, and assess the sufficiency of this precipitation for the proposed catchments.	The three proposed catchments are within a precipitation zone that averages between 9.49 to 11.61 inches of precipitation per year. Using the formula from the Handbook of Water Harvesting By Gary W. Frasier and Lloyd E. Myers, a 40,000 square foot apron would collect up to 219,217.75 gallons of water per year. The annual precipitation is adequate to collect and store water at the proposed water catchment locations.

Southern Utah Wilderness Alliance	The EA must describe how the catchment areas will be accessed, and analyze the impacts to the Monument resources from motorized vehicle use of closed and/or new routes if such will be used for construction and maintenance.	The proposed catchment locations would be accessed along existing routes and open roads described in the MMP. No new roads or routes would be constructed to the proposed water catchments.
Southern Utah Wilderness Alliance	The EA must describe and analyze how the proposed catchments will impact the Outback zone (“intended to provide an undeveloped, primitive visitor experience . . . facilities will be rare and provided only when essential for resource protection”) and Primitive zones (“intended to provide an undeveloped, primitive visitor experience . . . [f]acilities will be non-existent.” MMP at 9.)	The intention of the catchments is to improve cattle and wildlife distribution in the Buckskin and Five Mile Mountain areas. The catchments would enhance the visitor experience of wildlife viewing, shed collection and hunting. The proposed catchments in this EA are in the Outback Management Zone.
Southern Utah Wilderness Alliance	The EA must disclose the expected life span of the catchments and must analyze the impacts and functionality of the catchments for the life of the catchments.	The expected life span of the water catchments would be approximately 20 years. The catchments would be maintained via a Cooperative Agreement between UDWR, sportsmen groups, livestock operators and the BLM.
Southern Utah Wilderness Alliance	The EA must analyze the potential impacts (including indirect and cumulative) of climate change on the water catchments, the surrounding vegetation and soils, and wildlife – including the distribution and population changes as a result of expected climate change effects. ¹	See the Interdisciplinary Team Checklist.
Southern Utah Wilderness Alliance	The EA must analyze the impacts to wilderness characteristics of the areas in which these water catchments are proposed (including not only the impacts of the facility itself, but the impacts to soils, vegetation, naturalness, and solitude), giving special	The Deer Trails, Wildcat, and Powerline Catchments are not included in the proposed action of this EA. The Sink Holes Proposed Catchment is not within a WSA, Wilderness Character area or within the citizens’ wilderness proposal.

	attention to the Wildcat catchment (located in the Nephi Point unit of the citizens' wilderness proposal) and the Deer Trail catchment (located in the Paria-Hackberry Canyons unit of the citizens' wilderness proposal), and the Powerline and Sink Hole catchments located near the Pine Hollow unit of the citizens' wilderness proposal.	
Southern Utah Wilderness Alliance	BLM must provide a map and detailed descriptions of the existing water sources (type, age, functioning or not), and how the proposed catchments will interact with the existing water sources.	Please see Project Maps.
Charlie Heaton, Livestock Operator, Sink Holes Allotment	Supportive of the project.	Thank you for your comment.
Brent Roundy, Livestock Operator, Five Mile Mountain Allotment	Supportive of the project.	Thank you for your comment.

Several federal entities have published studies that confirm and reinforce the impacts associated with climate change. Recent studies include: 1) U.S. Climate Change Science Program Final Report, Synthesis and Assessment Product 4.4, "Preliminary Review of Adaptation Options for Climate Sensitive Ecosystems and Resources" (June 2008), *available at* http://www.epa.gov/ord/npd/pdfs/gcrp_factsheet_SAP_4_4.pdf; 2) Committee on Environment and Natural Resources, National Science and Technology Council, "Scientific Assessment of the Effects of Global Change on the United States" (May 2008), *available at* <http://www.climate-science.gov/Library/scientific-assessment/>; and 3) U.S. Climate Change Science Program, Synthesis and Assessment Product 5.2, "Best Practice Approaches for Characterizing, Communicating and Incorporating Scientific Uncertainty in Climate Decision Making," (April 2008), *available at* http://www.climate-science.gov/Library/sap/sap5_2/public_review_draft/default.htm. These studies provide significant new information about the impacts of climate change on lands like those in the GSENM, as well as emerging new best management practices to employ in the face of climate change.

The June 2008 report, prepared by the Environmental Protection Agency, specifically "identifies strategies to address management challenges posed by climate change for a subset of federally protected lands and waters. These strategies can also be broadly applied to other lands and waters managed by governmental or nongovernmental entities." U.S. Climate Change Science Program Final Report, Synthesis and Assessment Product 4.4, "Preliminary Review of Adaptation Options for Climate Sensitive Ecosystems and Resources" (June 2008), *available at* http://www.epa.gov/ord/npd/pdfs/gcrp_factsheet_SAP_4_4.pdf. This information should have been included in the analysis of the water catchments and the alternatives (including the no action alternative) in order to adequately address climate change.

Table 5.3. List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Allan Bate	Rangeland Management	Team Lead and Livestock Grazing Impacts

	Specialist	
Allysia Angus	Landscape Architect	Visual Resources
Dustin Rooks	Botanist	Vegetation Impacts
Paul Chapman	Writer/Editor/NEPA Coordinator	NEPA Adequacy and Document Review
Cameron McQuivey	Wildlife Biologist	Wildlife, Special Status Species, Migratory Birds
Clay Stewart	Outdoor Recreation Planner	Recreation Impacts
James Holland	Hydrologist	Watersheds and Soils Impacts

References Cited:

- 1) Frasier, GW and LE Myers 1986. Handbook of Water Harvesting. USDA Agriculture Research Service, Agriculture Handbook Number 600.
- 2) Utah Big Game Range Trend Studies 1997 Volume 2., State of Utah, Department of Natural Resources, Division of Wildlife Resources., Publication Number 98-21, Report for Federal Aid Project W-135-R-18.
- 3) Holechek J. L., R. D. Pieper and C.H. Herbel. 2004. Range Management Principles and Practices. Chapter 10.
- 4) Messmer, Terry A. and Paul W. Klimack 1999. Summer Habitat Use and Migration Movements of the Paunsaugunt Mule Deer Herd. Cooperative Agreement number LR95-1099-LNR.
- 5) Olson, Rich 1992. Mule Deer Habitat Requirments and Management in Wyoming. Wyoming Department of Renewable Resources, technical report B-965.
- 6) Grand Staircase-Escalante National Monument Draft Monument Management Plan Amendment and Draft Rangeland Health Environmental Impact Statement, October, 2008.

Attachments:

Appendix A	Interdisciplinary Team Checklist
Figure 1	Water Catchment Diagram and General Layout
Map 1	Highway 89 South Proposed Water Catchments
Map 2	Highway 89 South Existing Water Locations
Map 3	Highway 89 South Dependable Water 1.5 Mile Buffer
Map 4	Highway 89 South Dependable and Proposed Water 1.5 Mile Buffer
Map 5	Buckskin Use Pattern Mapping 2009
Map 6	Highway 89 South Precipitation Zones