

DRAFT Knolls

Recreation Area Management Plan



Department of the Interior
Bureau of Land Management
Salt Lake Field Office



DRAFT
Recreation Area Management Plan
for
Knolls
Special Recreation Management Area

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Bureau of Land Management
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CHAPTER 1- INTRODUCTION

Location and Setting

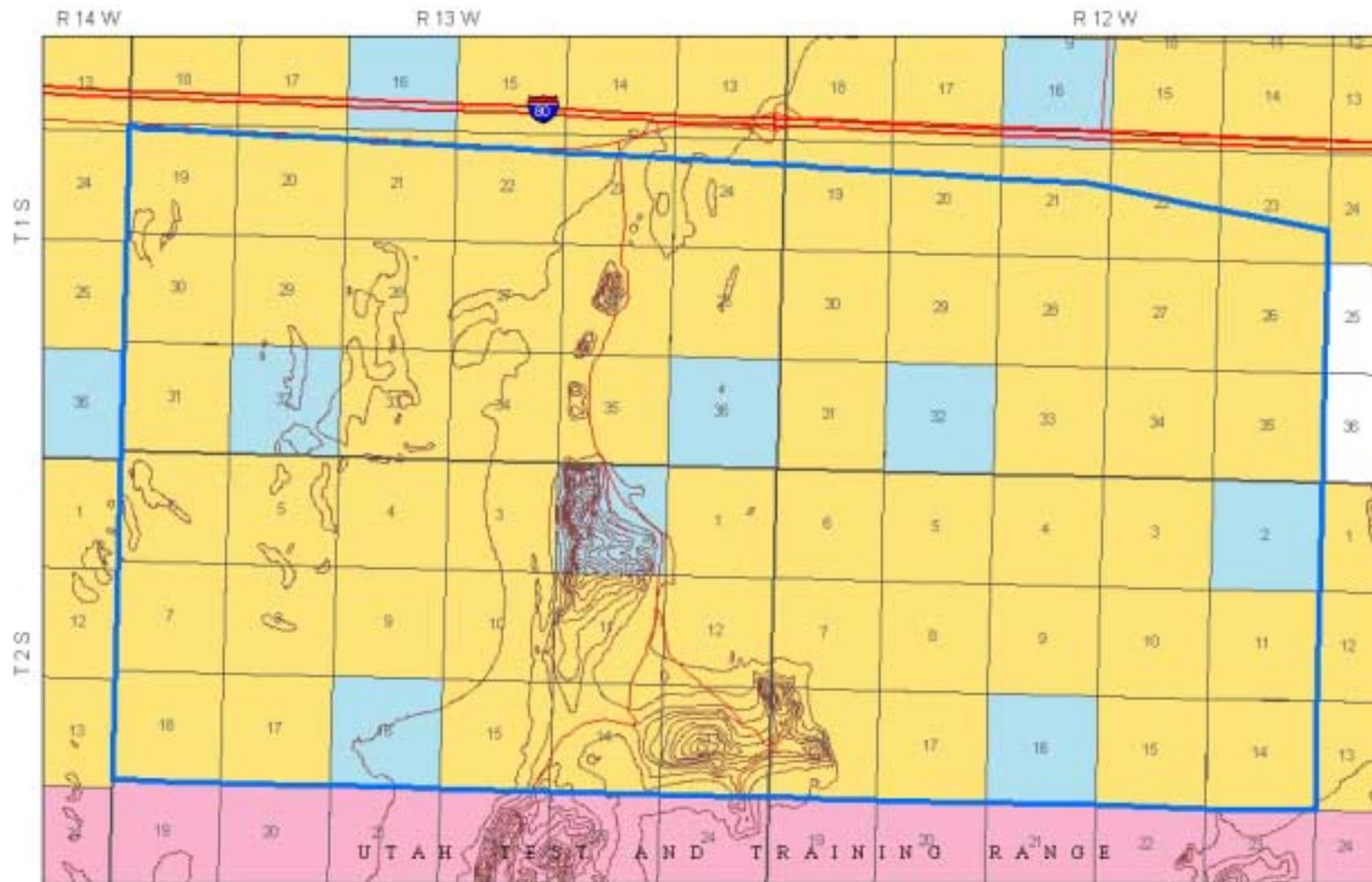
The Knolls Special Recreation Management Area (SRMA) is located in Tooele County, Utah approximately 80 miles west of Salt Lake City, Utah (see Map 1) and is managed by the Bureau of Land Management (BLM), Salt Lake Field Office. This area was designated as an off-highway vehicle (OHV) SRMA in the Pony Express Resource Management Plan (RMP) in 1990 and consists of 35,877 public land acres. Within the boundary of the SRMA, there are seven sections of land, totaling 4,484 acres, that are managed by the School and Institutional Trust Lands Administration (SITLA) and there are no private lands. The boundary of the SRMA follows section lines, except for the north boundary, which is located south of the railroad right-of-way (100 feet from the centerline of the railroad). Knolls is located north of the U.S. Air Force Range in the basin and range province between Salt Lake City, Utah and Wendover, Nevada. The closest services to the Knolls area are in Delle, Utah and Wendover and Knolls is accessed along one road, which extends south of I-80 off Exit #41.

Knolls is a popular OHV destination that consists of a combination of sand dunes, gravel bars, hills, and mud flat areas. The mudflats common to the Knolls area formed during the last 12,000 years due to erosional processes associated with alternating wet and dry climatic cycles. The low hills, or knolls, which rise above the mudflat surface, are erosional remnants of a buried mountain block. The gravel bars are remnant shorelines formed during highstands of Lake Bonneville between 24,000 and 10,000 years ago. Of particular note is the gravel bar associated with the Gilbert shoreline at approximately 4,250 feet in elevation. The dune fields that occur in the Knolls area are composed primarily of sand sized gypsum crystals that have formed from the evaporation of surface brines on the Salt Lake Desert and are blown eastward by the prevailing winds to be deposited as dune sands along the western flank of the Knolls area.

Need For the Management Plan

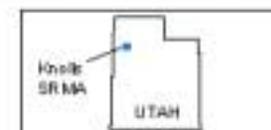
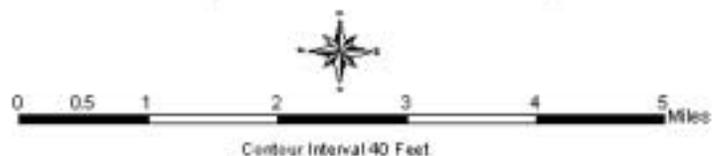
The Knolls SRMA was designated in the 1990 Pony Express RMP, but a Recreation Area Management Plan (RAMP) has not been developed until the development of this plan. Along with other public lands in the state of Utah, Knolls has seen an increase in OHV use over the last several years. OHV registrations in the State of Utah have increased by 147% from 1998-2002 (Utah State Parks, 2003). Knolls is in close proximity to the Wasatch Front, where the majority of Utah's population resides (State of Utah, 2003). As the use of OHVs becomes more popular, demand for areas where motorized use is allowed has increased.

This RAMP will set forth direction for the management of Knolls and identify specific management actions to be taken to manage recreation use in the Knolls SRMA. This RAMP also includes detailed project plans for the installation and construction of facilities, improvements, and signs proposed to meet the management objectives and planned actions outlined in the RAMP below. Specific project plans normally occur after the completion of a RAMP, but because the Salt Lake Field Office (SLFO) was ready to install facilities to meet user demand at Knolls, the RAMP and project plans were combined together.



- SRMA BOUNDARY
- BLM
- MILITARY RESERVATIONS
- PRIVATE
- STATE

MAP 1: Knolls Special Recreation Management Area



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Background Information

The Knolls area was designated as a SRMA in order to provide riding opportunities for off-highway vehicle users and provide an area for permitted competitive races. No specific directives were outlined in the RMP for the Knolls SRMA. In the 1992 Pony Express RMP OHV amendment, the entire SRMA was designated as “open to all motorized vehicle use”.

Minimal infrastructure has been placed at Knolls in the past, including a toilet, picnic tables, and signs. These facilities were subsequently vandalized and/or burned throughout the years and all of the facilities were eventually removed by February of 2001.

Knolls was designated in 1995 as a large group camping site along with eight other areas within the SLFO. Groups of 25 or more people, with more than 8 vehicles, and which are not commercial or competitive, are directed to designated camping areas and a large group camping permit is required. Groups are required to fill out a permit form, agreeing to specific conditions of use and no fee is required.

In April of 2000, the SLFO entered into a cooperative agreement with State of Utah Division of Parks and Recreation to cooperatively plan, develop, and manage OHV and related use at Knolls. Contributed funds from Utah State Parks in the amount of \$10,000 were given in June of 2000 to the SLFO in order to conduct a cultural resources survey. A second agreement was entered into with Utah State Parks in February of 2002 that provided for trail maintenance activities at Knolls in 2002 and \$5,000 was contributed by State Parks in April of 2002 in order to perform the needed trail maintenance. In 2003, Utah State Parks granted the SLFO \$80,000, through the “Close to Home” fund, for the access road maintenance, signing, and future infrastructure needs at Knolls. The SLFO also entered into a cooperative agreement in 2002 with the Utah Desert Foxes, a Salt Lake City-based motorcycle club, for the development and maintenance of OHV recreation opportunities in the SRMA.

On July 5, 2000 a notice was published in the Federal Register closing the Knolls SRMA to target shooting under an emergency closure in order to protect the health and safety of individuals and groups visiting and utilizing the network of off-highway vehicle trails in the area. This emergency closure was put in place, until revoked or replaced by supplemental rules, pursuant to 43 CFR 8365.1-6.

A recreational visitor survey was conducted at Knolls in 2001 by the BLM. The survey asked opinions on the management of the SRMA, facilities, interpretation, etc. and gathered demographic information about user groups who recreate at Knolls. A hundred and twenty-nine surveys were filled out and Cory Gurnitz Consulting analyzed the responses.

Recreation Use in the Management Area

Facilities

The existing infrastructure in the Knolls SRMA consists of a sign identifying the SRMA, a visitor sign-in box, and bulletin board, all at the entrance of the SRMA. The access road into the area extends down to the U.S. Air Force boundary, but is only maintained for approximately three miles.

Motorized Use Resources

Motorized use occurs throughout the 40,361 acres in the Knolls SRMA, with the highest concentration occurring within a mile of the access road. The sand dunes are an attraction to OHV users and provide an appropriate area for cross-country OHV use.

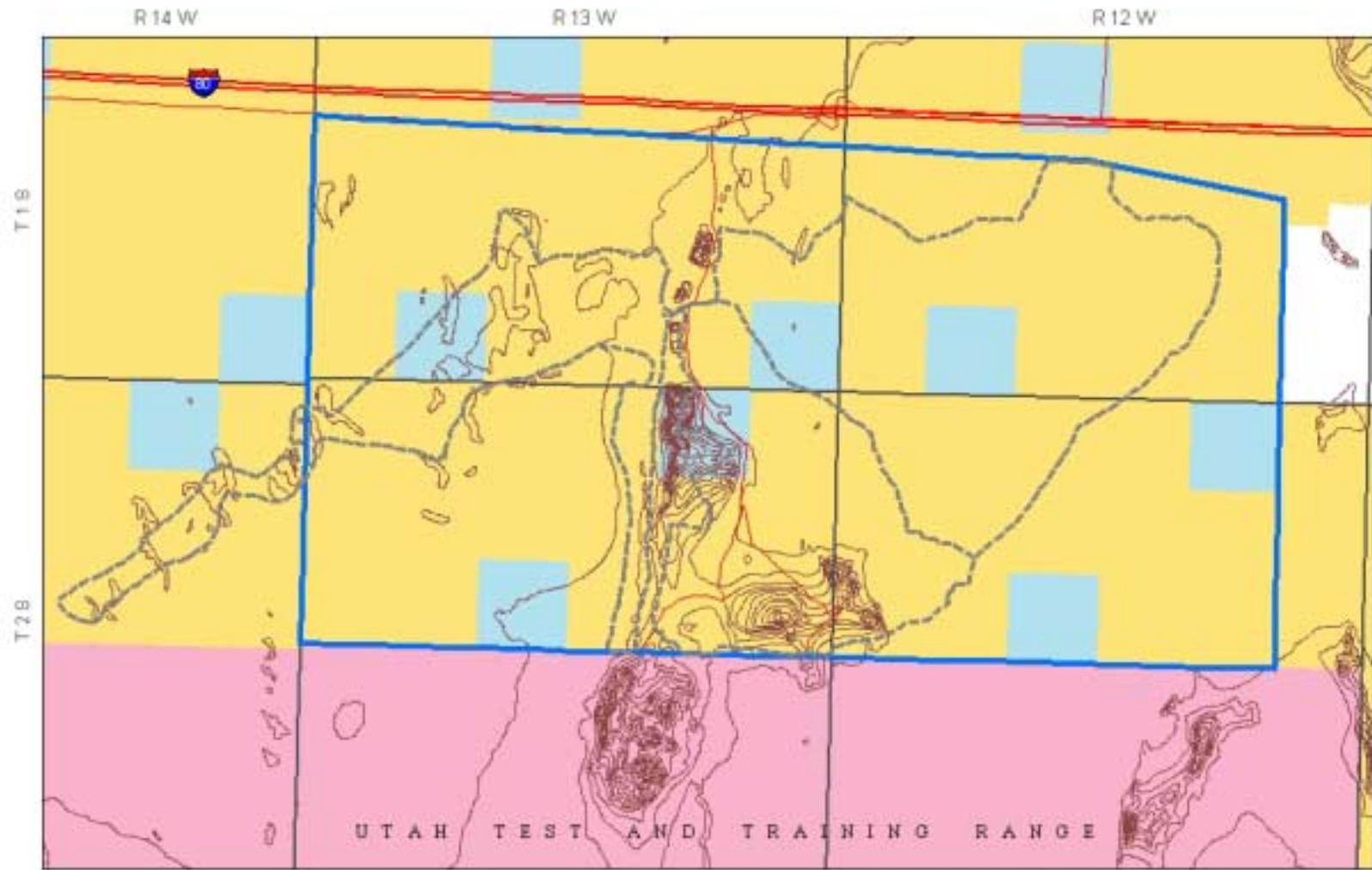
There are no designated trails in Knolls, since it is an area that is open to all OHV use. The competitive motorcycle race, held by the Desert Foxes, follows a defined racecourse each year, which can vary (see Map 2, which shows the racecourse in 2000). An agreement was entered into with Utah State Parks in February of 2002 that provided for maintenance of the trails at Knolls. Those trails that had developed dips were smoothed out. The SLFO provided personnel and equipment and State Parks provided the funding for salaries and specialized equipment use for the trail maintenance.

Camping Resources

Dispersed camping is allowed in the Knolls area. Although it was designated as a large group camping area, few permits are requested for this use. The area does receive small group camping, especially on holiday weekends, such as Easter and Memorial Day. Campers usually access the area in large recreational vehicles (RVs), campers, and trailers. Most people camping in the area pull off of the access road in the main OHV “staging” areas. Because of the type of vehicles that are brought into the area, the rough condition of the access road can be difficult to navigate with large and long vehicles. An inventory of dispersed camping areas was conducted by the BLM in December 2003. Approximately 105 acres were identified as currently receiving camping use, as determined by knowledge from visitor use patrols and the evidence of fire rings in the area (see Map 3). The rest of the SRMA is receiving a limited amount of dispersed camping use, due to the rough access past the first 3 miles of the main access road. Numerous fire rings are present throughout the 105 acres inventoried, some of which are located in the dune areas where riding occurs. The presence of these abandoned fire rings can be an issue, as burning coals and burned trash are left in high use locations.

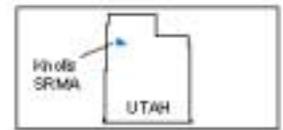
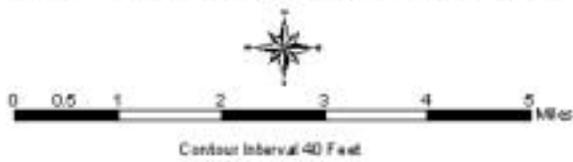
Visitor Use

Estimates of recreation visits at Knolls have been entered into the BLM’s Recreation Management Information System (RMIS) for each fiscal year. Visitation to the Knolls area occurs year-round, with the highest concentration of users occurring in the spring and late summer/fall. Many of these visitors are day use visitors only. As OHV use increases around the



MAP 2: Utah Desert Fox Motorcycle Race Course 2000

- RACE COURSE
- SRMA BOUNDARY
- BLM
- MILITARY RESERVATIONS
- PRIVATE
- STATE

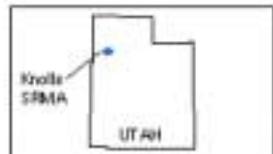


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- CAMPING AREA
- SRMA BOUNDARY
- BLM
- MILITARY RESERVATIONS
- PRIVATE
- STATE

MAP 3: 2003 Inventoried Camping Areas



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State, visitation at Knolls has also steadily increased (see Table 1). Most recreational use in the area includes motorcycling, four-wheeling, dune buggy use, and modified 4X4 type vehicle use (Baja type vehicles).

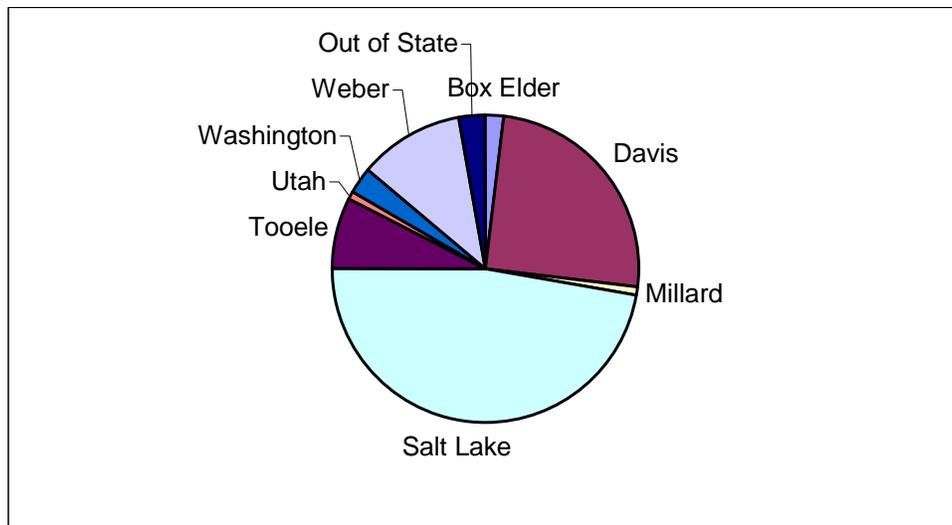
Table 1- Knolls Visitation Entered in RMIS

Year	Visitation Numbers
2000	16,355
2001	18,908
2002	20,932
2003	23,888

Dispersed camping is the second most common recreational use at Knolls. Motorized users and others visiting the area camp throughout the Knolls area, mostly in or around the dune areas. Large RVs, trailers, campers, and tents are used for camping. Other recreational uses that occur at Knolls include sightseeing, hiking, flying model airplanes, and over flights by aviation hobbyists.

According to the 2001 survey, 84% of the visitors to the Knolls area come from the Wasatch Front (See Figure 1) and respondents averaged 6 visits to the SRMA per year. In 2002, site registers taken from the visitor sign-in box at the entrance indicate an average group size of 5 people visiting Knolls.

Figure 1- Knolls 2001 Survey Respondents by County



A Special Recreation Permit (SRP) for a competitive motorcycle race sponsored by Utah Desert Foxes has been authorized at Knolls every year since 1995. Participants at the race have averaged around 200, with 300-500 spectators at the event. On the day of the event, up to 300 vehicles are onsite (which also includes visitors not associated with the event). Most of these vehicles are located within the “pit” area, where the start and finish line is located.

Other events authorized at Knolls in the past include a SRP for a campout/concert and a letter of authorization for a firework training and demonstration by the Utah Pyrotechnic Association. Unauthorized events such as “rave” parties and events that would require a special recreation permit are more than likely occurring at Knolls. Rave parties are dance parties that feature fast-paced, repetitive electronic music and accompanying light shows.



Raves can also entail the use of a range of licit and illicit drugs (U.S. Department of Justice, 2002). Other SRP applications include an ATV Rodeo event, where participants test their skills on a series of challenge courses. This type of an event, which includes rodeos and organized rides, are more than likely occurring at Knolls, but organizers are not contacting the SLFO to receive a permit.

Resources in the Management Area

Air Quality

Knolls SRMA is located in an attainment/maintenance area or Airshed #1 (Utah Interagency Smoke Management Program). According to Utah-DEQ (2004), the eastern portion of Tooele County (adjacent to the analysis area) has exceeded health standards for particulates (PM10) and sulfur dioxide (SO₂). PM10 exceedances in Utah may be characterized as a wintertime problem, when strong temperature inversions trap air in the valleys. As particulates are emitted into this stagnant air, concentrations may rise to levels of almost twice the federal standard. Aggravating this problem is the conversion of gaseous emissions in the atmosphere, primarily sulfur dioxide (SO₂) and oxides of nitrogen (NO_x), into very small particles. Formation of this "secondary" PM10 is a phenomenon that is enhanced by cold damp conditions, such as those that persist during wintertime temperature inversions. The primary man-made sources of PM10 include windblown dust from motor vehicles, combustion of solid fuels, agricultural activities, and construction activities. Primary activity at Knolls would be occurring during the spring through summer seasons. Air quality concerns would be associated with smoke inversions/regional haze due to wildfires or localized windblown dust, known as fugitive dust, created by off-highway vehicles.

Cultural Resources

Human occupation of the Knolls area has a great time depth. Although only a small percentage of the area has been inventoried for cultural resources, a number of archeological sites have been located. Because of the presence of late Pleistocene Lake Bonneville shorelines, there is a high probability for cultural resources associated with the time period between 10,000 and 10,900 years ago. Prehistoric archeological sites are known to be present in dunes throughout the area. Historically, like other portions of the west desert, a prominent cultural signature at the Knolls SRMA are the remains of military training exercise associated with World War II and the early

parts of the Cold War era. Resources from this period include strafing and bombing targets, and associated artifact scatters.

Utah State Parks funded a class III cultural survey on approximately 2,000 acres in areas that are currently receiving a concentration of OHV use and where trail maintenance may be performed or is desired, which was conducted in 2000.

Fire Management

The Knolls SRMA is primarily within the Category “D” Fire Management Planning Area, as identified in the 1998 Salt Lake Field Office Fire Management Plan. Category D Planning Areas are areas where wildland fires may burn without constraints associated with resource conditions, social, economic, or political considerations. Most often the appropriate fire management response in these areas is to monitor the fire and let the fire play out its natural role in the ecosystem. Vegetation in the Knolls SRMA is sparse and there is little to no threat to resource values, improvements, or adjacent ownerships.

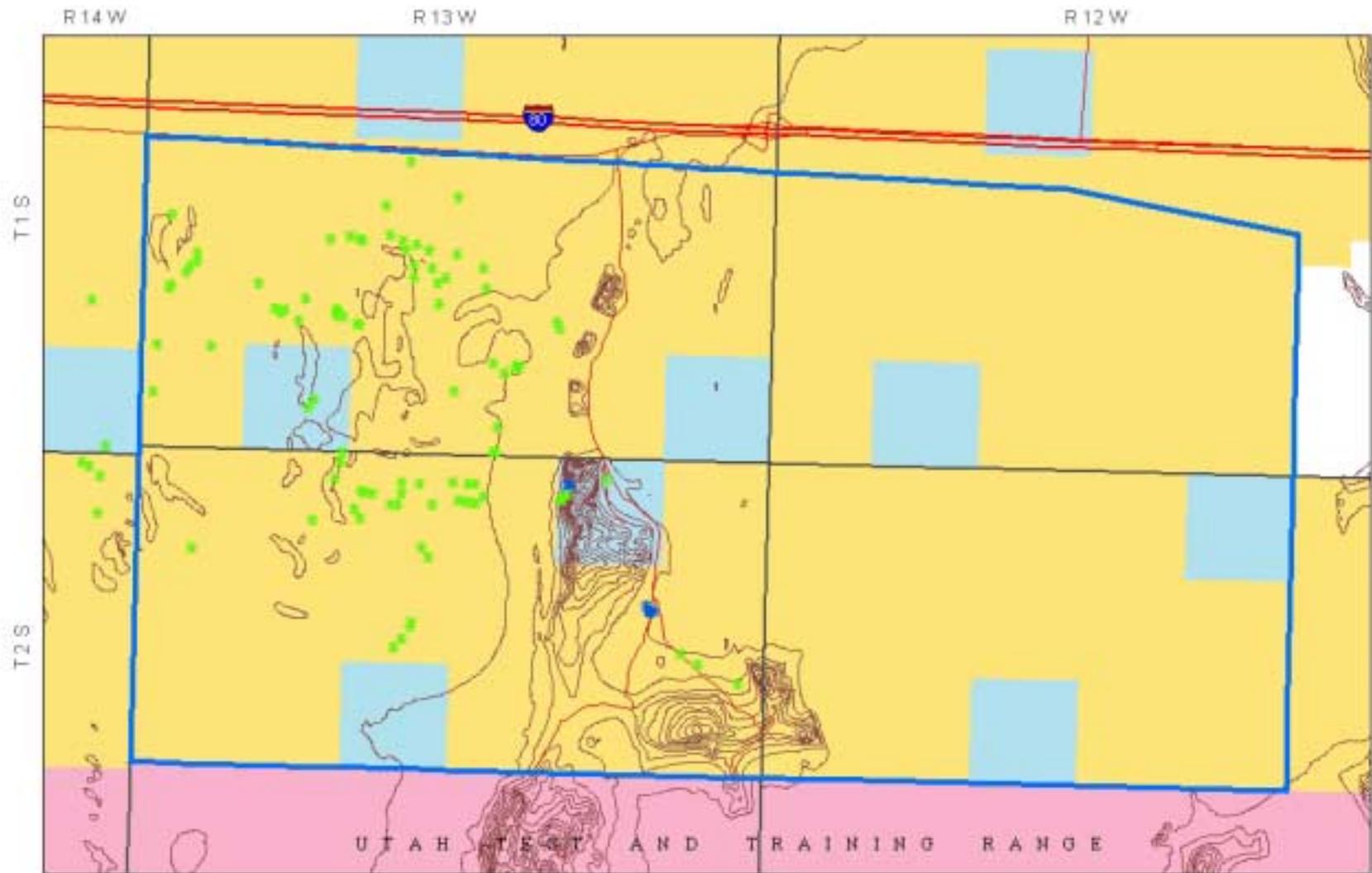
Hazardous Materials

During and following World War II, the United States War Department used various practice bombing sites in Utah and Nevada to train pilots in the art of bomb target accuracy and 50-caliber target accuracy. These past activities have left scrap metal and metal fragments and unexploded ordnance in numerous locations on lands managed by the BLM and the State of Utah, which surround the current Utah Test and Training Range (UTTR). The US Army Corps of Engineers (USACE) is the agency responsible for cleanup of former military sites transferred from the Department of Defense (DOD) possession prior to 1986. These sites, known as Formerly Used Defense Sites (FUDS), surround the UTTR and Knolls has been included as one of these areas.

During bombing, each practice bomb contained an inert material such as sand or concrete within a sheet-metal enclosure. Each practice bomb contained a small (*e.g.*, 5 pound) black powder spotting charge, which enabled observers to inform pilots of impact locations relative to the intended target location. The black powder spotting charges exploded upon impact with the ground surface and any powder residue is assumed to have dissipated over the intervening 40+ years since activities ceased in these areas (USACE, 2003).

There are currently two surface inventories of FUDS that have been performed in the Knolls SRMA:

- 1) BLM 1997, Formerly Used Defense Sites (FUDS) within Salt Lake District, 43 p. (See Map 4 and Appendix 1 for a listing of the Knolls area FUD sites take from the BLM inventory).
- 2) Department of the Air Force, Hill Air Force Base, Utah, 2002, Inventory of Formerly Used Defense Sites (FUDS) in the Vicinity of Utah Test and Training Range, (see Map 4).



- ◆ BLM FUDS INVENTORY
- U.S. AIRFORCE FUDS INVENTORY
- SRMA BOUNDARY
- BLM
- MILITARY RESERVATIONS
- PRIVATE
- STATE

MAP 4: Formerly Used Defense Site (FUDS) Survey



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No subsurface geophysical surveys, sweeps, or studies of the Knolls SRMA have taken place to help identify buried ordnance. It is possible that over time such buried ordnance may become exposed by natural erosion, through wind or water, of native materials. Unrecognized ordnance still present today may also become exposed through permitted or non-permitted human activities on BLM land. Additional subsurface geophysical sweeps for shallow ordnance are necessary in the Knolls area.

When ordnance is discovered on BLM lands in the Salt Lake Field Office, the Explosives Ordnance Disposal Unit (EOD) of the United States Army is contacted at a 24 Hour Emergency Response Center and a team is dispatched to the site. Explosive ordnance is usually detonated in place.

Lands Program

The Knolls SRMA consists of 35,877 public land acres. There are seven sections of land within the boundary of the SRMA, totaling 4,443 acres, which are managed by the School and Institutional Trust Lands Administration (SITLA). Activity on SITLA-managed lands include one gravel pit on T.2S., R.13W., section 2. A route that spurs off the main access route through Knolls accesses this gravel pit. These sections managed by SITLA are receiving OHV use in conjunction with the use on BLM land.

The southern boundary of the SRMA is contiguous to the U.S. Air Force South Range, an active bombing range. The Air Force has installed a wire fence along the length of the SRMA boundary. In the past, members of the public would cut through the fence in order to ride on sand dune areas on the military lands, presenting a major safety issue. The Air Force has since installed jersey barriers along the fence in some locations. This, along with increased patrols, has significantly decreased incidences of people entering military lands near Knolls. The BLM currently informs the Air Force when any major event, such as the motorcycle race, occurs at Knolls.

The north boundary of the SRMA runs south of the railroad right-of-way (100 feet from the centerline of the railroad). Public access is allowed across the railroad. Currently there are no crossing arms and flashing lights at the railroad crossing, but a stop sign is located at the crossing.

Other land use permits in the Knolls area include one filming permit in the late nine

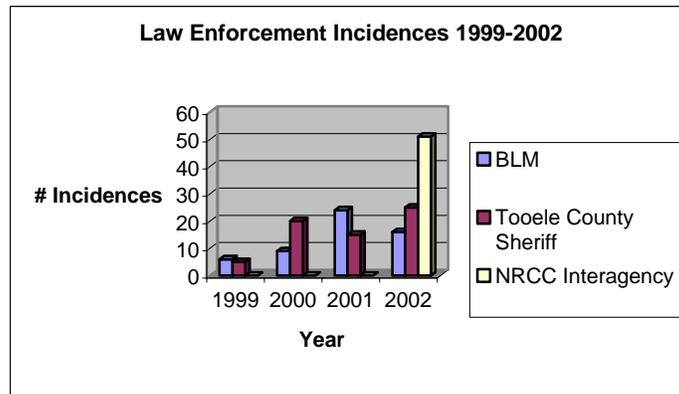
Law Enforcement

The Knolls SRMA is faced with several law enforcement issues. The SLFO currently has two law enforcement rangers to cover approximately 3.2 million public land acres. Patrol assistance at Knolls has been provided through the Natural Resources Coordinating Council's (NRCC) Interagency OHV Patrol. As part of these NRCC patrols, State Park and BLM law enforcement rangers have combined to patrol this area throughout the year. Beginning in 2002, Knolls has been part of this interagency patrol effort, with patrols scheduled three to four times per year. The Tooele County Sheriff's Office also responds to law enforcement incidences at Knolls.

Regular BLM law enforcement patrols at Knolls, apart from the interagency patrols, have decreased over the past year, largely due to increased workload in other areas managed by the SLFO.

The number of incidences at Knolls has significantly increased from 1999-2002 (see Figure 2). In 1999 there were a total of 11 incidences between agency law enforcement personnel, while in 2002 there were 92. This is largely due to the fact that the NRCC Interagency Patrol effort began in 2002, but the number of incidences increased 255% from 1999-2001, before the NRCC patrol effort.

Figure 2



Increased recreational use in the area has led to some law enforcement issues and concerns at Knolls. Fire vandalism and campfires ignited with gasoline have become an issue at Knolls. Nails left after pallet burning and glass bottles discarded in the dunes and in other areas cause flat tires and are a safety issue. Target shooting is also an issue that was addressed in the emergency closure posted in the Federal Register Notice in 2000, but a permanent closure to target shooting at Knolls has not been enacted.

Livestock and Grazing

The Knolls SRMA is not within a grazing allotment due to the lack of water and forage, so there are no grazing activities occurring or range improvements present.

Minerals

In the Pony Express RMP (1990), the Knolls SRMA was proposed to be withdrawn from locatable mineral entry in order to help protect and perpetuate the recreational and visual setting of the SRMA and minimize potential injury to recreational users from surface disturbances or equipment that are associated with mining activity. The withdrawal of the Knolls area has not been completed. Currently there are no known active or historic locatable (i.e. metallic and nonmetallic) mineral development and no known sodium, potassium, and oil and gas developments have occurred within the SRMA.

Soils

Soils in the Knolls area consist of lake playa, salt flats, and wind deposited sand and rock outcrops. Soils in the area are mainly sandy to silty loam in texture, depending upon topographic position within the Knolls area. Permeability is typically moderately slow to slow. Erosion hazard to water is characterized as slight to moderate and susceptibility to wind erosion is moderate to severe. A lack of permanent vegetation cover has resulted in increased erosion potential throughout much of the area. Two soils have been generally described, the desert alkali found on slopes less than 6% and semi-desert stony loam on slope of 10% or greater and around rock outcrops. These soils are highly erosive and are prone to becoming a moving sand dune.

Vegetation

The Knolls area is located at 4,250 feet in elevation and the climate is extremely arid (4" to 8" of rain per year). Vegetation in the knolls area is predominantly salt desert shrub type. The extreme valley bottoms are in the greasewood shrub type due to high exchangeable sodium, where grasses such as Indian Ricegrass, Bottlebrush squirreltail, Alkali sacaton, and dropseed are predominant. There are no known threatened or endangered plants in this area.

Visual Resource Management

Visual Resource Management (VRM) designations were established through the 1990 Pony Express RMP. Through this process, Knolls was designated as VRM Class IV. The objective for VRM Class IV is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Weeds

Invasive and nonnative weed species are a concern in the Knolls SRMA, specifically in stabilized dunes and hill areas covered with typical salt desert vegetation. An inventory of the western half of the SRMA revealed that four invasive plant species are currently within the Knolls SRMA. These species include, Cheatgrass (*Bromus tectorum*), Halogeton (*Halogeton glomeratus*), Salt Cedar (*Tamarix parviflora*), and Russian-olive (*Elaeagnus angustifolia*), none of which have been declared as noxious by either the State of Utah or Tooele County. Cheatgrass and Halogeton are more prominent in areas of high OHV activity, which occurs along and adjacent to the main road accessing Knolls. The majority of this infestation is in the northern two thirds of the hill area. The other two invasive species present are Salt Cedar and Russian-olive. Only one Russian-olive plant was discovered in the area, however, a large population of Salt Cedar is present, primarily along the transition zone of mud flat and stabilized dune. Other areas of infestation by Salt Cedar are located in areas where heavier soils have collected in low-lying sites where water stays longer.

Many invasive and nonnative weeds are early successional species that colonize recently disturbed sites (Baker 1986), such as those areas where livestock trampling, construction, and OHV activities occur. The density of weedy plants increases as the intensity of disturbance increases (Jensen 1995). The conversion of salt desert shrub and sagebrush communities to Cheatgrass is a big problem throughout the northern Great Basin. In the intermountain west, it is estimated that Cheatgrass has invaded and become the dominant plant species on more than 16.5 million acres (Mack 1981, Young and others 1987; Young and Tipton 1990).

Wildlife

The Knolls SRMA consists of a mosaic of upland habitats, playa, mudflats, sand dunes, and salt desert shrub. The uplands provide year-round and seasonal nesting and foraging habitat for resident and neotropical migratory songbirds. This area lies within the historical range of the Greater sage grouse, however no lek or nests sites occur here. While no raptors nest in the area, several species, including Golden eagles (*Aquila chrysaetos*), Peregrine and Prairie falcons (*Falco peregrinus* and *Falco mexicanus*, respectively), Redtail and Swainson's hawks (*Buteo jamaiscensis* and *Buteo swainsoni*, respectively), and Northern harriers (*Circus cyaneus*) use the area for foraging. Their prey base consists of small to medium-sized mammals (*Peromyscus spp.*, *Dipodomys spp.*, *Lepus spp.* and *Sylvilagus spp.*). A variety of herpetofauna typical of the Great Basin ecoregion are potentially found here.

The mudflats and associated playas provide habitat for a variety of migratory and resident avifauna. Species typically associated with these habitats include American avocet (*Recurvirostra americana*), Wilson's phalarope (*Phalaropus tricolor*), Black-necked stilt (*Himantopus mexicanus*), Long-billed dowitcher (*Limnodromus scolopaceus*), Marbled godwit (*Limosa fedoa*), Willet (*Catoptrophorus semipalmatus*), Baird's (*Calidris bairdii*), Least (*Calidris minutilla*), and Western sandpipers (*Calidris mauri*), and Greater yellow-legs (*Tringa melanoleuca*). The American avocet and Black-necked stilt are considered Priority Species by Utah Partners in Flight (PIF, Parrish, *et al.*, 2002). Avocets and stilts are migratory spending winters in the Southern U.S. and Mexico and are present in Northern Utah from March through September. Habitat risks include degradation associated with agricultural contaminants, urban development, and alterations due to off road vehicle use (Parrish *et al.* 2002).

Identification of Issues, Concerns, and Opportunities

The following issues and concerns were identified for the Knolls SRMA:

1. *What level or levels of recreation setting will be provided at Knolls?*

Currently the Knolls SRMA is largely undeveloped. The only existing recreation structures include a sign, bulletin board, and register sign-in box located at the entrance of the SRMA and the access route into the area is maintained for approximately three miles. Recreation opportunities at Knolls primarily consist of dispersed motorized use, with the main concentration of users on the dune areas and within a mile of the access route. Issues to be addressed include maintaining the access road, designating camping areas, placing restrictions on types of use in the area, etc.

2. *How much and what type of facility development is appropriate for the Knolls SRMA?*

As part of the recreation survey conducted in 2001, 74% of the respondents said that facilities at Knolls would improve their recreational experience. Bathrooms, dumpsters, shade structures, picnic tables, water, signs, access road improvements, and campsites were all listed as desired developments at Knolls. As shown in the past, facilities placed at Knolls are subject to vandalism.

3. *Should fees be charged to recreate at Knolls?*

There has been discussion of charging a recreational visitor use fee in order to help manage and maintain the Knolls SRMA. If fees are charged, money collected at the site would be incorporated into the Fee Demonstration Program and fees would be used on site. In the 2001 survey, 20% of respondents fully approved of fee collection, 14% responded as being between full approval and neither approving nor disapproving, 20% neither approved nor disapproved, 12% were between neither approving nor disapproving and not approving, and 33% did not approve of a fee collection at all.

4. *How will OHV recreation be managed in relation to other resources?*

This issue addresses concerns about how to manage recreational activity to minimize impacts on other resources such as wildlife, vegetation, soils, cultural resources, and other elements in the Knolls environment.

5. *How will public health and safety at Knolls be addressed?*

Recreational use in the area has led to some issues and concerns at Knolls such as fires started with gasoline, nails left after pallet burning, and glass bottles discarded in the dunes. OHV safety, target shooting, abandoned campfire rings, and human waste sanitation are also issues as more people visit and camp at Knolls.

Some lands within the Knolls SRMA are part of a Formerly Used Defense Site and unidentified unexploded ordnance may exist within the SRMA.

6. What level of signing and information should be provided at Knolls?

This issue addresses the levels and types of informational and interpretive materials needed in the Knolls SRMA. Wooden signs in the past have been vandalized and burned, yet signs are needed to provide warnings, area regulations, maps, and educational information, etc. Emergency services that are called to the Knolls area are sometimes unable to locate victims, additional signing may help to direct emergency personnel to the appropriate area.

7. Can the boundary of the Knolls SRMA be expanded to the south to include the dunes located on lands managed by the military and expanded to the north to include all lands south of I-80?

Members of the public have requested access to the dunes directly south of the SRMA on lands managed by the U.S. Air Force. In order for lands to be ceded to the BLM from the U.S. Air Force, an act of Congress is required. This issue goes beyond what can be resolved during this planning process and will not be analyzed further in this document.

The SRMA boundary, as established in the Pony Express RMP in 1990, follows the railroad grade right-of-way (see Map 1). This excludes lands directly south of I-80, which are receiving OHV use. Altering the boundary of the SRMA would involve an amendment to the RMP. The SLFO is currently constrained from going through the plan amendment process because of limitations resulting from the National Defense Authorization Act for FY 2000 (NDAA - Public Law 106-65), which prohibits the BLM from RMP level planning in or near a Military Operating Area. Because of this constraint, this issue will not be analyzed further in this document.

8. How can the BLM begin the process for withdrawing the Knolls SRMA from locatable mineral entry?

In the Pony Express RMP (1990), the Knolls SRMA was identified to be withdrawn from locatable mineral entry in order to help protect recreational use, but the withdrawal of the Knolls area has not been completed.

9. At what level are invasive, nonnative weeds occurring within the Knolls SRMA? What measures can be taken to reduce or eliminate them?

This issue addresses the infestation of invasive weeds within the SRMA and eradication methods.

10. How can air quality standards in the Knolls area be met?

The Knolls SRMA lies directly south of I-80 and motorized use on the road and sand dunes can create clouds of airborne dust particles.

11. *How will the BLM coordinate with the U.S. Air Force concerning management of their contiguous boundary on the south end of the SRMA?*

Lands owned by the U.S. Air Force lie directly south of the SRMA. Recreational users visiting the Knolls area have trespassed onto military property attempting to ride on sand dunes. The Air Force has subsequently fenced the boundary and placed jersey barriers in some locations, which has significantly decreased trespassers.

12. *How will BLM address management of state lands owned by SITLA within the SRMA?*

There are seven sections of land, totaling 4,443 acres, which are managed by the School and Institutional Trust Lands Administration (SITLA) within the boundary of the SRMA. One sections particularly, is within a high use area. Enforcement of federal regulations at Knolls on these SITLA sections needs to be addressed.

CHAPTER 2- MANAGEMENT DIRECTION, OBJECTIVES, AND PLANNED ACTIONS

Management Constraints

In October 1999, Congress passed the National Defense Authorization Act (“NDAA”) for FY 2000(PL 106-65) that had the effect of forestalling further Pony Express RMP plan amendments on lands near the Utah Test and Training Range (UTTR) and under the UTTR airspace, which includes the Knolls SRMA.

BLM does not have management authority over the seven School and Institutional Trust Land (SITLA) sections within the boundary of the SRMA.

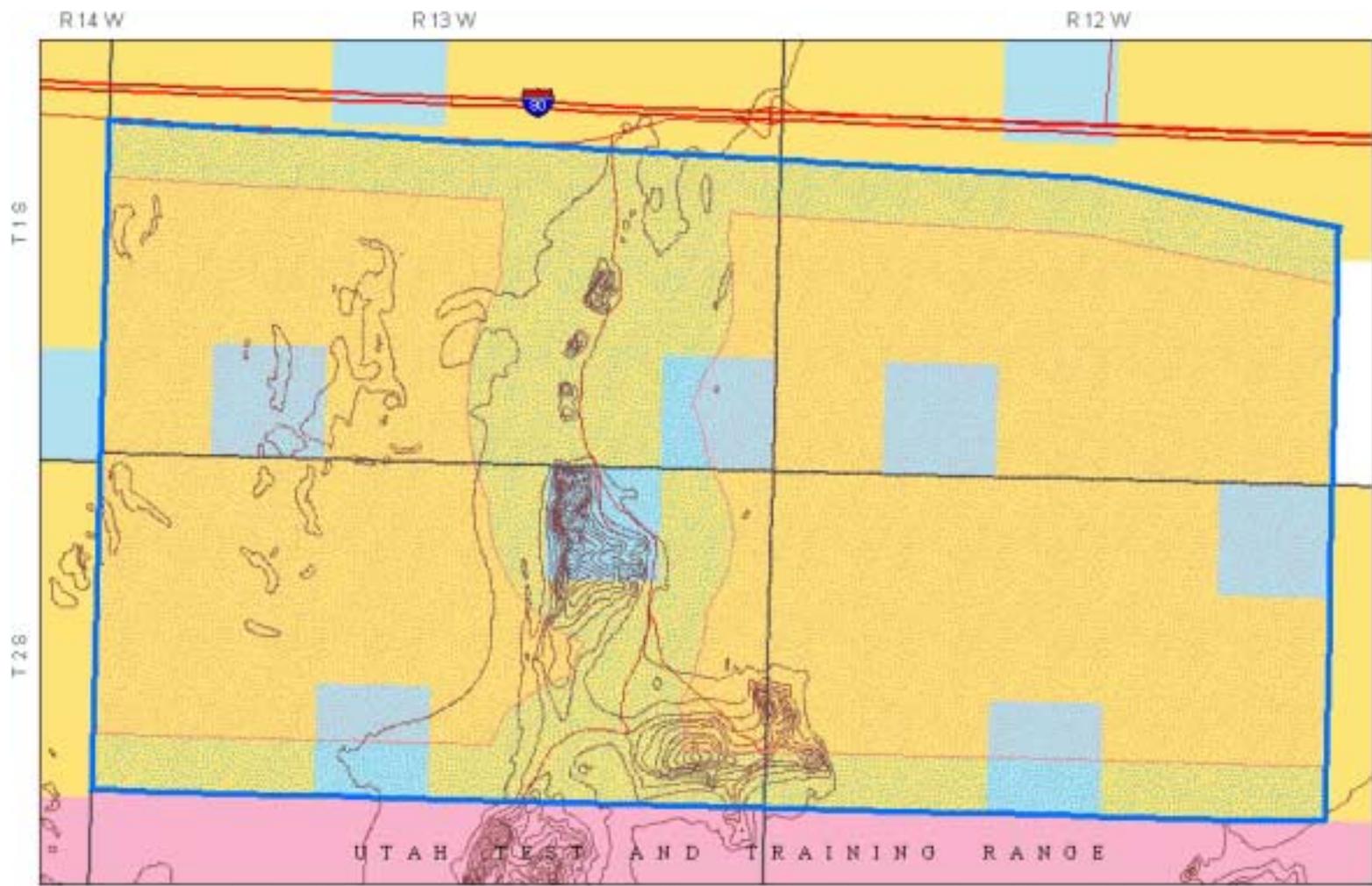
Management Direction

Department-wide goals for the management of recreation on BLM managed lands are to improve access to appropriate recreation opportunities, ensure a quality experience and enjoyment of natural and cultural resources, and provide for and receive fair value in recreation (BLM, 2003). Along with these goals, the overall goal for the management of the Knolls SRMA is to allow for safe recreation opportunities, with an emphasis on off-highway vehicle use, while minimizing impacts on other resources in the Knolls environment.

Recreation Opportunity Spectrum

A Recreation Opportunity Spectrum (ROS) analysis was conducted by the SLFO in 2003 for the Knolls area. The ROS provides a framework for defining classes of outdoor recreation opportunities in a certain area. Boundaries of classes are drawn according to a combination of the activity, setting, and experience opportunity found in the area. The recreation setting is used to determine the level of facilities and development appropriate for the area and the recreation experience opportunity for which the area will be managed.

The ROS classes identified in the Knolls area consist of a combination of Roded Natural and Semi-Primitive Motorized (see Map 5 and Table 2 below).



- ROADED NATURAL
- SEMI-PRIMITIVE MOTORIZED
- SRMA BOUNDARY
- BLM
- MILITARY RESERVATIONS
- PRIVATE
- STATE

MAP 5: Recreation Opportunity Spectrum (ROS)



This data may not meet BLM standards for accuracy and content. Different data sources and input scales may cause misalignment of data layers.

Table 2

Recreation Opportunity Spectrum			
Opportunity Class	Activity Opportunity	Setting Opportunity	Experience Opportunity
Semi-Primitive Motorized (SPM)	Off-highway vehicle use (4WD, Dune buggy, motorcycle, etc), camping, hiking, climbing, enjoying scenery or natural features, nature study, photography, and hunting (big game, and upland game).	Area is characterized by a predominantly unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Facilities are provided for the protection of resource values and safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is permitted.	Some opportunity for isolation from the sights and sounds of man, but not as important as primitive opportunities. Opportunity to have a high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills. Explicit opportunities to use motorized equipment while in the area.
Roaded Natural (RN)	All activities listed previously under SPM plus the following: picnicking, rock collecting, auto touring, interpretive use, and organized camps.	Area is characterized by a generally natural environment with moderate evidence of the sights and sounds of man. Resource modification and utilization practices are evident, but harmonize with the natural environment. Concentration of users is low to moderate with facilities sometimes provided for group activity. On-site controls and restrictions offer a sense of security. Rustic facilities are provided for user convenience as well as for safety and resource protection. Conventional motorized use is provided for in construction standards and design of facilities.	About equal opportunities for affiliation with other user groups and for isolation from sights and sounds of man. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities are not very important except in specific challenging activities. Practice of outdoor skills may be important. Opportunities for both motorized and non-motorized recreation are present.

The Roaded Natural area includes a ½ mile south of the railroad, ½ mile north of the fence and road along the U.S. Air Force boundary, a mile buffer around approximately the first three miles of the access road into Knolls, and a ½ mile buffer around the last mile of the access road (totaling 12,852 acres). The Semi-Primitive Motorized area comprises the remainder of the SRMA, totaling 27,509 acres. Management direction would be to maintain these ROS setting conditions. The ½ mile areas south of the railroad and north of the U.S. Air Force boundary and the Semi-Primitive Motorized area may have minimal infrastructure, such as signs. The “core” area, characterized by the Roaded Natural buffer through the middle of the SRMA would be the area where any facilities would be installed.

Knolls is an appropriate area for cross-country OHV use and an open OHV designation will be maintained. According to BLM policy, open areas are designated where there is no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country use (BLM, 2001). Implementing the objectives and actions outlined in this plan will ensure that Knolls remains a suitable area for cross-country OHV activity. Also, the BLM will provide only one main access route into the Knolls SRMA. This will allow the BLM to easily control access, provide information to all visitors to the area, and simplify BLM’s ability to charge an entrance fee.

During the survey conducted in 2001, visitors were asked how their experience at Knolls could be improved, 85% of respondents stated that some form of infrastructure would improve their experience. Desired improvements were bathrooms, access road improvement, water, signs, garbage collection, designated campsites, shade structures, picnic tables, and fire rings.

Management direction for Knolls will be to provide development to meet the appropriate ROS setting and the needs of recreational users. Any facilities that are planned for the Knolls area will be minimal. Most visitors enjoy the undeveloped atmosphere at Knolls and want basic facilities, such as toilets and tables. Knolls is prone to vandalism, so any infrastructure needs to be as vandalism/fire proof as possible. Future development not specified in this plan, such as additional facilities, could be added if the need arises due to higher use in the area. Any new infrastructure would have to be appropriate for the specified ROS setting.

The SLFO currently participates in the Recreational Fee Demonstration Program. As part of the program, 100% of the fees collected at a particular site remain with the SLFO recreation program to be used directly onsite. In order to manage the SRMA and provide and maintain needed facilities and services, an entrance fee would be implemented at Knolls. The current funding appropriated to the SLFO has not kept pace with visitation and user demand and charging a fee at Knolls will help to ensure the proper management of the area. Money collected as part of the Fee Demonstration Program would be used as intended by the legislation authorizing the program.

Management Objectives and Planned Actions

The following objectives and planned actions were developed for those resources that had issues, concerns, and opportunities:

Air Quality

Objective #1: Minimize impacts to air quality due to activities in the Knolls SRMA and adhere to Utah's Division of Air Quality's State Implementation Plan.

Management Action #1: Magchloride will be applied to the main access road and parking areas to provide dust abatement in the SRMA, as needed.

Management Action #2: See Recreation, Special Recreation Permits, Objective #1.

Rationale: Applying magchloride and monitoring air quality impacts from Special Recreation Permit events will help protect the safety of travelers on I-80 and minimize impacts to air quality in the area.

Cultural Resources

Objective #1: Minimize impacts to cultural resources in the Knolls SRMA, while allowing for recreational use in the area.

Management Action #1: Infrastructure in the SRMA will not be developed until a cultural survey is completed. If cultural resources are identified, developments will avoid these sites.

Management Action #2: See Recreation, Special Recreation Permits, Objective #1.

Rationale: Preventing development and Special Recreation Permit activities that would impact cultural resources from occurring in sensitive areas will help to protect valuable cultural resources identified in the Knolls SRMA.

Hazardous Materials

Objective #1: Allow for a safe recreational experience at Knolls, minimizing the hazards of possible unexploded ordnance in the area.

Management Action #1: Work with the Army Corps of Engineers to remove surface materials identified by the Air Force FUDS survey at Knolls. After surface materials are removed, the SLFO will continue to work with the Army Corps of Engineers to have subsequent inventories of subsurface materials performed. Any identified materials would be removed.

Management Action #2: Educate visitors to the SRMA about the dangers of unexploded ordnance through an education program. Post warning signs and develop information to be posted on bulletin boards explaining the basics of avoiding and reporting any suspicious item. If a suspicious item is reported, the SLFO will immediately work with the Army Corps of Engineers to get it removed.

Rationale: Removing those materials identified during the Air Force FUDS survey will clean up those surface items identified, but will not resolve the unexploded ordnance issue. Other items beneath the surface, which were not located, can resurface in the future. Educating visitors about the danger of such items will inform the public and help to prevent incidences involving unexploded ordnance.

Lands

Objective #1: Have consistent management of all lands within the Knolls SRMA.

Management Action #1: Pursue opportunities for an acquisition of SITLA lands within the SRMA. In the interim between the land exchange process and acquisition, enter into an agreement for the management of SITLA lands.

Rationale: Exchanging these sections would be the best option for resolving the management issue of state lands in the SRMA. Entering into a lease agreement with SITLA will allow law enforcement to enforce federal regulations on these sections in the interim.

Objective #2: Maintain and improve efforts to prevent visitors from entering U.S. Air Force lands at the southern end of the SRMA.

Management Action #1: Post informational material, such as posters and signs at the entrance of the SRMA to inform visitors of U.S. Air Force lands to the south.

Management Action #2: Relay all event information, such as Special Recreation Permit events, to the U.S. Air Force.

Management Action #3: Maintain coordination between U.S. Air Force at quarterly meetings, where management of the Knolls area is discussed. If issues regarding management of the fence along the boundary become more complex, a formal agreement with the U.S. Air Force will be considered.

Rationale: Members of the public entering Air Force lands is a major safety issue. Recent efforts by the Air Force have greatly reduced these occurrences and maintaining open communication with the Air Force will help to keep occurrences down. Posting information at the entrance of the SRMA will warn visitors before they get to the boundary and inform them of the dangers of entering the active bombing range.

Objective #3: Provide for safe access into the Knolls SRMA.

Management Action #1: Work with the Union Pacific to address safety issues at the railroad crossing.

Rationale: As visitor use increases, the railroad crossing may present a safety issue. Crossing arms may be needed to properly warn visitors of oncoming trains.

Law Enforcement

Objective #1: Provide for law enforcement personnel to enforce regulations that will allow for a safe recreational experience at Knolls.

Management Action #1: Publish a supplemental rule in the Federal Register Notice, which will accomplish the following objectives:

- Prevent the discharge of all dangerous weapons while target shooting to protect the safety of visitors at Knolls.
- Prevent glass containers from being discarded in the SRMA, which presents a safety hazard for vehicles tires in the area.
- Prevent metal materials, such as nails from wood pallets and construction debris, from being discarded in the SRMA. Such materials present a safety hazard for vehicles tires in the area.
- Address safety issues by preventing visitors from igniting a fire with an accelerant and driving through it on their OHV.

- Prevent the burning and/or ignition of any hazardous material or non-combustible material, which is a health and safety issue.
- Require any campfires to use a fire pan or other container to contain the fire's ashes or unburned fuel and to use for the proper disposal of the ashes. This will prevent burned trash and ashes from being left in riding areas. Large bonfires, which would go beyond the limits of a fire pan, could be authorized on a case-by-case basis and would require a special permit.
- Establish speed limits on the maintained roadway leading into the SRMA, and within a safe distance of people, animals, or vehicles located within the SRMA.
- Establish quiet hours within the SRMA for those people camping overnight within the SRMA in order to protect the visitor experience of others campers in the area.
- Require spark arrestor and mufflers on all ATV's and motorcycles in order to reduce a fire hazard and reduce levels of noise.
- Establish a user fee in order to provide and maintain improvements in the SRMA.
- In order to protect the pond located in the SRMA, camping would be prohibited near the pond in order to protect the water source and wildlife accessing the water.
- In order to prevent health and safety issues due to human waste, all camping trailers would need to be self-contained (sewage tanks cannot be dumped at Knolls).

Management Action #2: Increase BLM patrols and continue NRCC Interagency Patrols at Knolls. The optimal BLM patrol schedule would be one law enforcement officer three days per week, March through October and two days per week the remainder of the year. Recreation staff would assist law enforcement on major weekends.

Management Action #3: Work with State Parks to get a shared Law Enforcement officer between the two agencies. The BLM will write a Budget Planning System (BPS) submission to pay part of the salary for a State Park "Ranger Aide" to assist in patrols at Knolls. Look at additional funding methods for additional law enforcement personnel, such as Challenge Cost Share and grants.

Rationale: Instituting the above regulations will help to resolve some of the current safety issues at Knolls and publishing them as a supplemental rule in the Federal Register Notice will allow law enforcement personnel to enforce the regulations. Increased patrols at Knolls will help to enforce these and other regulations at Knolls. The target shooting prohibition will be exclusive of allowed hunting use. The fire pan requirement would be applied in a staged approach, following the publishing of the Federal Register Notice, an education period of approximately 6 months will allow users to become accustomed to the regulation without getting cited.

Minerals

Objective #1: Prevent locatable mineral entry (nuisance claims, etc) from occurring in the Knolls SRMA.

Management Action #1: Implement the withdrawal of public lands in the SRMA to locatable mineral entry.

Rationale: The withdrawal of the Knolls area to locatable mineral entry, identified in the Pony Express RMP (1990), has not been completed. Withdrawing the area will help protect and perpetuate the recreational and visual setting of the SRMA and minimize potential injury to recreational users from surface disturbances or equipment that are associated with mining activity.

Recreation

Carrying Capacity

Objective #1: Increase the accuracy of visitor data at Knolls.

Management Action #1: Install a traffic counter along the access road.

Management Action #2: Patrols by recreation staff will involve compiling visitor counts, identifying camping dispersion in the SRMA, reporting user conflicts, and identifying recreation activities (see Appendix 5, Visitor Use Study). After initial facilities are in place, an additional survey, similar to the study conducted in 2001, will be conducted to assess visitor needs and opinions about their experience at Knolls.

Rationale: Installing a traffic counter will provide a more accurate reporting of visits to the Knolls SRMA. More consistent and frequent patrols by recreation staff will provide important information about the recreation use at Knolls, and such information will be allow future management actions to be responsive to visitor needs and concerns.

Objective #2: Set up indicators for visitor use, which will activate alternative management actions and allow for the desired recreational experience at Knolls.

Management Action #1: A camping vehicle number indicator has been established for the areas currently receiving camping use (see Table 3), which will be used to trigger management actions in order to retain the dispersed camping opportunity at Knolls. Using the inventory of camping areas in 2003 (as shown on Map 3), 105 acres were identified as available for camping. It was determined that 2 acres was the estimated area needed per campsite. This was based on the ROS class for the area (Road Natural), which combines the management direction for the area and expected user experience (contact with other visitors, facilities desired, etc). Dividing the number of acres available for camping with the 2 acres/campsite, it was determined that there are 53

available campsites. It is common practice for groups to camp together at Knolls, so it was estimated that there are 6 vehicles per campsite. To determine the total number of campers that could be accommodated in the areas identified, it was assumed that there are 3.5 people per vehicle. The number of camping vehicles, which totals 318, will be used as the indicator for triggering management actions.

Table 3- Inventoried Dispersed Camping Areas (2003)

# of Acres	# of Acres per campsite	Maximum # of campsites	# Vehicles (Assumes 6 vehicles per campsite)	# Visitors (Assumes 3.5 people per vehicle)
105	2	53	318	1,113

If camping vehicle numbers exceed the supply of available campsites in the identified areas by 15% of the time during the high use season (March 1st through November 30th), management will take the following actions: 1) Begin an intense visitor use study and resource condition study to identify the extent of camping disturbance and impacts from such use and, 2) Conduct an evaluation to consider expanding the parking areas. This will help to concentrate day user’s vehicles and allow overnight campers to spread out.

When these measures are taken, and if after one use season the increase in camping vehicles still persists, the BLM will conduct a study to determine feasibility of designating campsites in the inventoried camping areas and upgrading the main access road further south and clearing additional areas for camping access.

In order to monitor dispersed camping use, numbers of overnight camping vehicles in the identified areas will be collected through visitor use studies (see Appendix 5). To the extent possible, numbers of vehicles will not include day use vehicles, but will only include those vehicles used to camp overnight, such as RVs, trailers, and cars next to tents. These figures will not include camping vehicle data taken on the day of the Utah Desert Foxes race day or other permitted events, as vehicles congregate in the “pit” area in order to be at the start and finish line for the race.

An intense visitor use study will be conducted in the first two years, which will include weekday vehicle counts. After a traffic counter is installed and the visitor use data is collected, the percentage of visitors who camp could be estimated from comparing the total number of vehicles recorded by the traffic counter with camping vehicle counts on the same day. This will allow the vehicle numbers from the traffic counter to be used to determine camping use on days not patrolled.

Management Action #2: After the visitor use study (outlined in Appendix 5) is conducted for two years, evaluate the dispersed camping indicator and other possible indicators, such as day use visitor numbers. If the visitor use study reveals that the dispersed camping indicator needs to be adapted or other visitor use indicators are needed, additional indicators and management actions can be identified and amended to this RAMP.

Rationale: Monitoring dispersed camping use and managing such use will allow for a primitive recreation experience at Knolls and prevent camping activities from infringing on popular riding areas. As visitor use increases, properly directing camping activities will also help to protect wildlife, soil, and vegetation.

Access and Facilities

Objective #1: Provide facilities to meet the management objective setting for the area and meet the needs of recreational users. As use and need increases, additional facilities will be installed, consistent with the appropriate ROS setting.

Management Action #1: Construct facilities at Sites #1-3 along the main access road into the Knolls SRMA (see Map 6 and Appendix 2, Knolls Development Concept Plan). Facilities include a double vault restroom at Site #1 and Site #3. After these bathroom facilities are installed, if both are pumped more than four times during a year, an additional bathroom facility would be installed at Site #2. Two sets of picnic tables, three at Site #2 and seven at Site #3 would be installed. Metal poles, which can be used in combination with a tarp or other material to provide shade, will be installed over two of the picnic tables. If these poles are used to provide shade and are not damaged, additional poles will be provided. Parking areas would be delineated at all three sites. Site #1 would accommodate twenty 60-foot long vehicles, Site #2 ten vehicles, and Site #3 twenty-five vehicles. To the extent possible, the parking areas would be located to avoid interfering with the racecourse used during the Utah Desert Foxes' motorcycle race. These parking areas would be used to access the bathroom, picnic tables, camping for RVs, and staging for OHVs. Also, a pull-off, delineated by boulders, would be constructed to access the self-service fee station. See Appendix 4 for the Knolls Facilities Maintenance Schedule.

Management Action #2: Improve the main access road for approximately three miles into the SRMA. The road would be improved to meet BLM's Class III road specifications. The road would not be realigned, but would be reshaped within the current 20-foot wide roadbed. Low spots will be filled in with material and a "mill base" material, consisting of recycled asphalt, would be applied and compacted to allow for a smoother road surface. The road would be maintained each year. Sand drifts would be removed from the roadbed and magchloride applied to the road and parking areas for dust abatement as needed. A speed limit would be determined after an appropriate engineering study and would be enforced on the main access road, as increased speeds due to the smoother surface is a safety hazard.

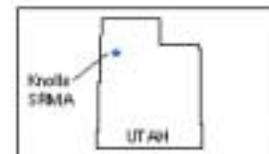
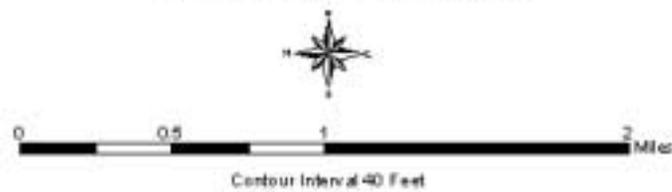
Management Action #3: Once the fee program is instituted at Knolls, an investigation will be performed to assess the economic feasibility of providing water.

Management Action #4: Perform an inventory of trail maintenance needs at Knolls. Identify which trails should be maintained to smooth out dips that have developed since the trail maintenance performed in 2002. The BLM will work with users to identify



-  SRMA BOUNDARY
-  BLM
-  MILITARY RESERVATIONS
-  PRIVATE
-  STATE
-  PROPOSED FACILITY SITE

MAP 6: Proposed Facilities



This data may not meet BLM standards for accuracy and content. Different data sources and input scales may cause misalignment of data layers.

which trails should be graded, as some users prefer dips on some trails at Knolls. Once maintenance needs are identified, a maintenance schedule, including costs and monitoring, will be developed.

Rationale: One of the main improvements to the Knolls area requested by the public was the addition of facilities. Providing facilities will not only meet the demands of visitors to the area, but developments such as outhouses will reduce human waste issues and protect resources in the area. Improving the access road to a Class III BLM road will make it easier for all vehicles to safely access the area. Also, several trails in the SRMA have developed numerous dips, but an inventory of these trails has not been conducted. Assessing the need for trail maintenance at Knolls will allow the BLM to identify costs of maintenance and prioritize needs. Smoothing out these trails will allow for a more enjoyable experience by riders.

Objective #2: Construct facilities in such a way as to minimize vandalism. For all facilities installed at Knolls, universal design and disability regulations and guidelines will be met, as appropriate.

Management Action #1: During the planning and design phase of all facilities to be installed at Knolls, vandalism prevention and universal design and disability regulations and guidelines will be incorporated into the design and construction of facilities.

Rationale: Minimizing opportunities for vandalism at facilities installed at Knolls will prevent the BLM from having to frequently replace and repair facilities, which will allow money to be spent on additional improvements to the area. The BLM is mandated by law and policy to comply with accessibility standards and guidelines, as appropriate. Providing accessible facilities will allow those with disabilities to access and use the facilities and benefit all visitors to the area.

Fees

Objective #1: Implement an entrance fee program for the Knolls SRMA. Fees collected at Knolls will be used to enhance the SRMA.

Management Action #1: Fees would be charged per primary vehicle for day use of the Knolls SRMA. Fees would not be charged for overnight camping, as OHV use is the main recreational use provided for at Knolls and many of the users are day use visitors only. The fee system would also include an annual pass and possibly a weekly pass, which would allow frequent visitors to purchase a single pass for the entire year. As part of the instigation of a fee program, a business plan would be written for fee collection and administration at Knolls. Specific directives in the business plan would include allowing money collected at the site to be used for facility installation and maintenance, fee collection and compliance, State and County Law Enforcement patrol assistance, and other uses consistent with the Recreation Fee Demonstration Program. A public notification and outreach program will be developed to inform the public of the fee program and its benefits. Fees will not be charged at Knolls until facilities are installed.

On the day of and SRP event, fees would not be charged to those who are participants and spectators of the event.

Fees could be collected through a variety of methods. Initially, a self-service fee station with an “iron ranger” fee tube would be installed at the entrance with instructions for how to pay fees. If funds are available, either a portable trailer or permanent fee station could be purchased. The portable trailer would be brought onsite on high use weekends (Easter, Memorial, Utah Desert Foxes race day), which would allow for public contact and fee compliance. A permanent fee station would be installed at the entrance to the SRMA.

Management Action #2: The BLM would communicate to users how money collected as part of the fee program is being used. This would be accomplished by posting the Recreational Fee Demonstration Program symbol at the entrance of the SRMA, talking to visitors, and posting information about the program on bulletin boards.

Rationale: Implementing a fee program at Knolls will help to improve visitors’ recreational experience. Fees collected will be used at Knolls in order to supplement funding shortages to provide facilities and maintenance of infrastructure.

Information and Interpretation

Objective #1: Develop an informational and interpretive sign program to educate the public about regulations, safety issues, general area information, and encourage responsible riding in the Knolls area, Leave No Trace camping and Tread Lightly! ethics.

Management Action #1: Design, order, and install signs throughout the Knolls SRMA in order to provide informational and interpretive messages regarding the area (see the Knolls SRMA Sign Plan, Appendix 3).

Rationale: Adequately signing and posting regulations and area information will inform the public of any safety issues and resource concerns, increase compliance with regulations, and improve the visitor experience at Knolls.

Objective #2: Improve information concerning Knolls on the SLFO’s Internet website.

Management Action #1: Post maps, general area description, regulation information, safety concerns, fee information, etc. on SLFO’s website.

Rationale: There is currently minimal information about Knolls on the SLFO website. The Internet is a valuable mechanism to provide information to a wide audience and improving the content of the website will provide important information to those wishing to visit the area.

Special Recreation Permits

Objective #1: Continue to authorize Special Recreation Permits (SRP), where such use is determined to be appropriate and consistent with other objectives of the Knolls SRMA.

Management Action #1: Proposals for SRPs would be analyzed and authorized with appropriate stipulations on a case-by-case basis. The following special stipulations will be required in the Knolls SRMA, as appropriate:

Cultural Resources: SRP activities would be authorized consistent with designated “cultural resource avoidance areas” in the Knolls SRMA. SRP activities that would impact cultural resources would not be allowed in these areas, which buffer out sensitive cultural resources. If an activity that requires a cultural survey were proposed in a location that has not been previously surveyed, the proponent would be required to fund a survey, which can be conducted by the BLM or an approved contractor. As cultural surveys are conducted in the future, additional cultural resource avoidance areas can be identified for the Knolls SRMA.

Air Quality: Permitted recreation events that may impact air quality would cease if wind conditions are causing the transport of dust particles across I-80 or otherwise creating a visual barrier or hazard to vehicular traffic on the interstate or within local communities. The activities would not take place if Utah Division of Air Quality (UDAQ) Clearing Index is 500 or below. If regional haze exists on the day(s) of the event, such event cannot contribute to air quality concerns. The SLFO Authorized Officer must be contacted if these conditions exist to allow for proper notice and coordination with UDAQ. National Ambient Air Quality Standards (Clean Air Act of 1970, as amended - 40 CFR Part 50) would not be exceeded and/or created for CO, NO₂, O₃, Pb, and SO₂; hazardous substances (etc) including asbestos, chromic acid, lead, dry cleaning chemicals, halogenated solvents, VOCs, and green house gases are also not generated by the event. Mobile sources of particulate matter would dissipate when activity ceases or would not contribute to a violation of any maximum allowable increase in annual or 24-hour averages. A fugitive dust permit or equivalent would be obtained and made part of the record. (Utah Administrative Code R307-205).

Exclusive Use: To help ensure public safety, the area of a permitted event will be closed to causal use, as determined by the authorized officer. The public will be notified of a closure on the bulletin boards, SLFO’s Internet site, and a press release to local newspapers. On the day of the event, access to the closure area will be regulated by BLM. Permittees for the SRP will have to pay an exclusive use fee, which is currently set at \$160, in addition to other SRP fees (this fee is periodically adjusted by BLM).

Rationale: One of the reasons for designating Knolls as a SRMA was to allow for permitted competitive events. Authorizing SRPs, with appropriate stipulations, allows the public to use and enjoy the area, while minimizing impacts to resources.

Objective #2: Minimize unauthorized events at Knolls that would require a SRP.

Management Action #1: See Law Enforcement, Objective #1, Management Action #2.

Objective #3: Continue to offer Knolls as a designated large group camping area.

Management Action #1: Authorize Large Group Use Authorization permits at Knolls, in accordance with the SLFO's Large Group Use Permit regulations.

Rationale: Knolls is an optimal setting for large group camping and has been designated as a large group area by the SLFO. Maintaining this designation will allow for continued use of the area.

Emergency Services

Objective #1: As no permanent emergency services will be offered at Knolls, improve the ability to perform emergency responses at Knolls.

Management Action #1: See Recreation, Access and Facilities, Objective #1, Management Action #2, improving the main access road.

Management Action #2: Mileage markers will be placed alongside the main access road and the parking areas will be designated and signed as "Parking Pad 1, 2, 3, etc.". This will help visitors to call in and direct search and rescue personnel to accident sites.

Management Action #3: Emergency contact info will be posted in the SRMA on bulletin boards.

Rationale: Improving the access road and providing signage will enhance emergency response to incidences in the Knolls SRMA. Emergency contact information on bulletin boards will inform visitors of who to contact in case of an emergency.

Administration

Objective #1: Seek additional funding for the Knolls SRMA above those base dollars appropriated to the SLFO.

Management Action #1: Continue to seek funding opportunities through grants from such entities as Utah State Parks and submit BLM Budget Planning System (BPS) applications to receive additional funding for projects at Knolls. The BLM will maintain partnerships and seek additional partners to maximize Challenge Cost Share opportunities for funding.

Rationale: As the SLFO has received less appropriated base funding, additional dollars through grants and BPS submissions has become necessary in order to implement projects at Knolls. The SLFO has received two grants from Utah State Parks for the

management of Knolls, and hopes to continue this partnership with Utah State Parks. Additional funding through BLM BPS submissions can also provide additional funding to the SLFO.

Objective #2: Maintain facilities and improvements at Knolls to allow for a safe and enjoyable visitor experience.

Management Action #1: Perform maintenance of facilities according to the Knolls Facilities Maintenance Schedule (Appendix 4). The maintenance schedule will be amended based on need, use, and if additional facilities are added.

Management Action #2: Conduct an annual condition assessment of the facilities and improvements at Knolls. The assessment will look at the condition of existing facilities (safety issues, repairs, etc.) and look at additional facilities needed. A summary of the condition assessment will be included in the Knolls RAMP file each year.

Rationale: Maintaining facilities and improvements at Knolls will improve the recreational experience of visitors and will save money by lengthening the life of the facilities.

Objective #3: Try to prevent illegal dumping at Knolls and clean-up garbage when illegal dumping does occur.

Management Action #1: See Law Enforcement Objective #1, Management Actions #1 and #2 (requiring camping vehicles to be self-contained and posting “No Dumping” on the bulletin boards in the SRMA).

Management Action #2: Work with volunteers to schedule general clean up and litter removal events at Knolls as need arises.

Rationale: Knolls is a “pack it in, pack it out” location, and does not have refuse containers and there have been incidences of illegal dumping, including abandoned cars and other garbage. Increased law enforcement and volunteer clean-up events will help to deal with this issue.

Objective #4: Maintain the adequate staff to properly manage the Knolls SRMA.

Management Action #1: Basic management of the Knolls SRMA will heavily involve the following personnel: One outdoor recreation planner, one recreation technician, two law enforcement rangers, and one facility maintenance employee. Other activities, such as implementing objectives in this RAMP and future monitoring, will also involve such personnel as a geologist, realty specialist, wildlife biologist, invasive weed specialist, archaeologist, and webmaster.

BLM employees will conduct maintenance of facilities at Knolls if there is sufficient staff available. If it is determined that a privately contracted company would be more cost-effective, the BLM may contract out the maintenance and installation of improvements.

Rationale: Maintaining the appropriate staff to implement the Knolls RAMP will be crucial to providing recreation opportunities and resource protection for the area.

Volunteer Program

Objective #1: Continue volunteer activities at Knolls.

Management Action #1: Schedule volunteer projects as needed to get the public involved in the management of Knolls.

Rationale: Such projects as clean-ups, sign installation, and trail patrol activities would benefit the Knolls SRMA while providing an opportunity for members of the public to get involved with the management of the area. The SLFO currently has a partnership agreement with Utah Desert Foxes for Knolls. The SLFO can pursue opportunities to schedule volunteer events with the Desert Foxes, along with other interested members of the public.

Weeds

Objective #1: Begin an eradication program to prevent the spread of Salt Cedar, Cheatgrass, Russian Olive, and Halogeton in the Knolls SRMA.

Management Action #1: Complete the weed inventory in the eastern half of the SRMA. A two-year eradication program will be implemented to prevent the spread of invasive weed species identified in the SRMA. Any new starts will be eradicated by spraying perimeters with chemical to control invasion, unnecessary road or trail construction with wide shoulders or berms will be limited to minimize disturbance, and invader woody species such as Salt Cedar will be cut and the stump treated with chemical to control resprouting. The area will be monitored to identify new starts and the spread of invasive species.

Rationale: The occurrence of these invasive species already occurs in portions of the Knolls SRMA. A proper weed eradication program will help to prevent the spread of these species, protecting native vegetative communities.

Objective #2: Prevent new noxious and invasive species from invading the Knolls SRMA.

Management Action #1: Educate the visiting public and SLFO employees about noxious and invasive weeds, and how to identify them on public lands. Provide information by posting pictures and messages about noxious weeds on bulletin boards at Knolls, the BLM office, and SLFO website. Encourage everyone to be conscientious of weeds,

looking for new starts, and new vegetative species starting in the area. Where feasible, have equipment clean before it comes into the SRMA, including recreation user vehicles. Enforce the weed free hay policy required on public lands. The SRMA will also be monitored for new weeds species and if found, these species will be eradicated.

Rationale: Many nonnative/invasive/noxious weed species are unknowingly brought to an area by recreation users, animals, feed for animals (hay), and equipment. The Knolls area is vulnerable to new invasive plant species, such as Knapweed, Dalmation Toadflax, Star thistle and Dyers Woad. Educating visitors and BLM employees about invasive and noxious weed issues will help to prevent the spread of these species.

CHAPTER 3 IMPLEMENTATION SCHEDULE

Costs associated with planned actions involving personnel time are figured based on an estimated work month (wm) cost to perform the action.

Management Objective	Planned Action	Implementation Year	First Year Estimated Cost	Yearly Estimated Costs
AIR QUALITY				
Objective #1	Apply magchloride to road and parking areas	as needed	\$5,500 per application	\$5,500 per application
	Prevent Special Recreation Permit events from contributing to dust particles across I-80, creating a hazard to vehicular traffic.	2004	N/A	N/A
CULTURAL RESOURCES				
Objective #1	Infrastructure will not be authorized until a cultural survey is completed. If cultural resources are identified, developments will avoid these sites.	2004	\$8/acre (BLM) or \$24/acre (contractor)	\$8/acre (BLM) or \$24/acre (contractor)
	Prevent Special Recreation Permit activities that would impact cultural resources from occurring in identified cultural avoidance areas	2004	N/A	N/A
HAZARDOUS MATERIALS				
Objective #1	Work with the Army Corps of Engineers to remove surface materials identified by the Air Force FUDS survey. Continue to work with the Army Corps to perform subsurface inventories and removal.	2004	N/A	N/A
	Install warning signs about UXOs	2005	Included in Recreation, Information and Interpretation, Objective #1	Included in Recreation, Information and Interpretation, Objective #1
	Post informational poster on bulletin boards about UXOs	2004	Included in Recreation, Information and Interpretation, Objective #1	Included in Recreation, Information and Interpretation, Objective #1
LANDS PROGRAM				
Objective #1	Enter into an agreement with SITLA	2004	\$2,590 (0.5 wm)	--
	Begin exchange process for SITLA lands in SRMA	2005	\$15,160 (2.5 wm)	--
Objective #2	Post information about Air Force boundary	2005	Included in Recreation, Information and Interpretation, Objective #1	Included in Recreation, Information and Interpretation, Objective #1
	Relay event information to Air Force	2004	N/A	N/A
	Attend coordination meetings with Air Force	2004	N/A	N/A
Objective #3	Work with Union Pacific to address railroad crossing	2004	N/A	N/A
LAW ENFORCEMENT				
Objective #1	Write and publish a supplementary rule for Knolls	2004	\$1,490 (0.14 wm)	--
	Increase BLM patrols	2004	\$56,460 (0.8 wm)	\$56,460 (0.8 wm)
	Work with State Parks to get a shared LEO officer	when funding is provided through BPS submission	\$20,000	\$20,000
MINERALS				
Objective #1	Begin process to withdraw Knolls SRMA from mineral entry	2004	\$5,190 (1 wm)	N/A
RECREATION				
Carrying Capacity				
Objective #1	Purchase & install a traffic counter	2004	\$1,000	Included in yearly estimated costs for facilities maintenance
	Perform visitor use studies	2004	\$2,400 (0.7 wm)	\$2,400 (0.7 wm)
	Conduct a visitor survey	2007	\$3,000 (survey development); \$750 (administration, 0.17 wm)	--

Management Objective	Planned Action	Implementation Year	First Year Estimated Cost	Yearly Estimated Costs
Objective #2	Begin an intensive visitor use study and resource condition study	when triggered	\$800 (1.8 wm)	--
	Conduct an evaluation to consider expanding the parking areas	when triggered	N/A	N/A
	Consider designating campsites and upgrading the main access road to the south	when triggered	N/A	N/A
	Evaluate indicators of visitor use	2006-2007	N/A	N/A
Access and Facilities				
Objective #1	Install infrastructure and construct Sites #1-3	2004	\$160,800 (BLM construction)	\$8,000 (2 wm + \$2,400 for pumping/charging of toilets)
	Improve access road	2004	\$95,800 (BLM construction)	\$1,000
	Investigate possibility of providing water at Knolls	after fee program is instituted and funds are available	\$4,500	--
	Install bathroom at Site #2	when triggered	\$29,500	\$1,500
	Evaluate additional facility needs	2007	N/A	N/A
	Perform an inventory of trail maintenance needs and grade trails	2005	\$800 (0.2 wm) for inventory	\$5,000 for grading
Objective #2	Minimize vandalism at facilities and design for persons with disabilities, where applicable.	2004	Included in Objective #1	Included in Objective #1
Fees				
Objective #1	Write business plan for fee collection at Knolls	2004	\$1,700 (0.5 wm)	--
	Install infrastructure to charge fees- sign, iron ranger fee tube, post information on bulletin board	2005	Included in Recreation, Information and Interpretation, Objective #1	Included in Recreation, Information and Interpretation, Objective #1
	Begin charging fees/fee collection	2005	Included in Recreation, Access and Facilities, Objective #1	See Yearly Estimated Costs for Recreation, Access and Facilities, Objective #1
	Purchase portable trailer	when funds are available	\$14,000	\$500
	Install permanent fee booth	when triggered	\$15,000	\$500
	Information and Interpretation			
Objective #1	Develop an information and interpretive sign program	2004	\$1,280 (0.4 wm)	--
	Order and install signs	2004-2005	sign costs \$ 5,400; installation \$5,300 (0.6 wm)	\$300
Objective #2	Improve information about Knolls on Internet	2004	\$1,600 (0.5 wm)	\$480 (0.1 wm)
Special Recreation Permits				
Objective #1	Authorize SRP activities, as appropriate	2004	\$750 (0.17 wm)/ permit (non-cost recovery permits)	\$750 (0.17 wm)/ permit (non-cost recovery permits)
Objective #2	Minimize unauthorized events	2004	Included in Law Enforcement Objective #1	Included in Law Enforcement Objective #1
Objective #3	Offer Knolls as a large group camping area	2004	\$50 (0.01 wm)/ permit	\$50 (0.01 wm)/ permit
Emergency Services				
Objective #1	Improve main access road	2004	Included in Recreation, Access and Facilities, Objective #1	Included in Recreation, Access and Facilities, Objective #1
	Place mileage markers along road and parking area signs	2004	Included in Recreation, Information and Interpretation, Objective #1	Included in Recreation, Information and Interpretation, Objective #1

Management Objective	Planned Action	Implementation Year	First Year Estimated Cost	Yearly Estimated Costs
	Post emergency contact information	2004	Included in Recreation, Information and Interpretation, Objective #1	Included in Recreation, Information and Interpretation, Objective #1
Administration				
Objective #1	Seek funding through grants and BPS submissions	2004	N/A	N/A
Objective #2	Maintain facilities	2004	See Yearly Estimated Costs for Recreation, Access and Facilities, Objective #1	See Yearly Estimated Costs for Recreation, Access and Facilities, Objective #1
Objective #3	Prevent illegal dumping	2004	Included in Law Enforcement Objective #1	Included in Law Enforcement Objective #1
	Clean-up illegal dumping	2004	N/A	N/A
Objective #4	Maintain adequate staff to manage Knolls SRMA	2004	Included in all other cost estimates	Included in all other cost estimates
Volunteer Program				
Objective #1	Schedule volunteer projects as needed	2004	N/A	N/A
WEEDS				
Objective #1	Finish inventory and begin eradication program for invasive weeds	When funding is available	\$22,500 (4 wm)	2 nd year, \$22,500 (4 wm); 3 subsequent years, \$2,500; \$500 each year thereafter
Objective #2	Education program for weeds	2004	Included in Recreation, Information and Interpretation, Objective #1	Included in Recreation, Information and Interpretation, Objective #1

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Acronyms and Definitions

LIST OF ACRONYMS:

ATV	All-Terrain Vehicle
BPS	Budget Planning System
BLM	Bureau of Land Management
DEQ	Department of Environmental Quality
DOD	Department of Defense
FHA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act
FUDS	Formerly Used Defense Sites
NDAA	National Defense Authorization Act
NRCC	Natural Resources Coordinating Council
OHV	Off-Highway Vehicle
RAMP	Recreation Area Management Plan
RMP	Resource Management Plan
RMIS	Recreation Management Information Systems

RN	Roaded Natural
ROS	Recreation Opportunity Spectrum
ROW	Right of Way
RV	Recreational Vehicle
SITLA	School and Institutional Trust Lands Administration
SLFO	Salt Lake Field Office
SPM	Semi-Primitive Motorized
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
UDAG	Utah Division of Air Quality
UDOT	Utah Department of Transportation
USACE	United States Army Corps of Engineers
UTTR	Utah Test and Training Range
VER	Valid Existing Right
VRM	Visual Resource Management
WM	Work Month

DEFINITIONS:

Avifauna: general term referring to all bird species in an area.

Herpetofauna: general term referring to all reptile and amphibian species in an area.

Invasive Weed: a weed that is competitive to the point that it dominates other native plants, but is not deemed a major threat to the welfare of humans or animals.

Leasable minerals: include oil and gas, oil shale, geothermal resources, potash, sodium, native asphalt, solid and semisolid bitumen, bituminous rock phosphate, and coal.

Locatable minerals: include both metallic minerals (gold, silver, copper, lead, etc.) and nonmetallic minerals (fluorspar, asbestos, mica, etc.). It is very difficult to prepare a complete list of locatable minerals because the history of the law has resulted in a definition of minerals that includes mining economics. Also, certain minerals have been formally excluded from the operation of the law. Around 1873, the Department of the Interior began to define locatable minerals as those minerals that make the land more valuable because of their existence, are recognized as a mineral by the standard experts, and are not subject to disposal under some other law (pamphlet, 1996). Thus, it is easier to mention the other minerals found on Federal lands.

Noxious Weed: a weed declared by the State Agriculture Program as officially noxious, usually because it is a threat to health, property, wildlife and/or livestock. A noxious weed could or could not be an invasive weed.

Off-Highway Vehicle (OHV): off-highway vehicle is sometimes used interchangeably with off-road vehicle (ORV); in this document the term OHV has been chosen because it is the more popular term. For purposes of this document, OHV means any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh,

swampland, or other natural terrain; except that such term excludes (A) any registered motorboat, (B) any fire, military, emergency or law enforcement vehicle when used for emergency purposes, and any combat or combat support vehicle when used for national defense purposes, and (C) any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license, or contract; (as defined by EXECUTIVE ORDER NO. 11644 < Feb. 8, 1972, 37 F.R. 2877, as amended by Ex. Ord. No. 11989, May 24, 1977, 42 F.R. 26959; Ex. Ord. No. 12608, Sept. 9, 1987, 52 F.R. 34617 >).

Off-Road Vehicle (ORV): see definition for off-highway vehicle.

Pit Area: location of the start and finish line where participants and spectators congregate during the Utah Desert Foxes annual Knolls motorcycle race.

Project Plans: project planning is completed for development sites and other project work such as interpretive facilities that have been identified as high priority projects in the RAMP. Project plans identify the general location of facilities within the site and provide the design requirements for the survey and design phase of planning.

Recreation Area Management Plan (RAMP): recreation area management plans are completed for all special recreation management areas identified in resource management plans. Normally, they are not prepared for extensive recreation management areas. The objectives and general direction for RAMPs are developed in the resource management plan.

Recreation Management Information System (RMIS): Visitor use numbers entered into a BLM-wide database. Data from RMIS is used for BLM public land statistics and considered when distributing the BLM's budget.

Recreation Opportunity Spectrum (ROS): ROS is a tool that has been used by resource management agencies for over 25 years to determine the level of development, the types of facilities that are appropriate, and ultimately, the type of recreational opportunity that one will experience. All possible combinations of activity, setting, and experience opportunities are arranged along a continuum and divided into six classes based on these characteristics.

Resource Management Plan (RMP): the allocation of public land resources and the uses of these resources are set forth in the Resource Management Plan including the allocation of resources for recreational purposes. The planning for recreational use of public lands is an integral part of the RMP process.

Special Recreation Management Area (SRMA): recreation management areas where congressionally recognized recreation values exist or where significant public recreation issues or management concerns occur. Special or more intensive types of management are typically needed. Detailed recreation planning is required in these areas and greater managerial investment (e.g. facilities, supervision, etc.) is likely. There may be none to several of these areas within a resource area. The size of these management units is typically over 1,000 acres, but exceptions can occur for smaller sites (e.g. very large campground units, trail segments, historic sites, etc.).

Strafing: machine-gun fire from low-flying aircraft.

Unexploded ordnance: military munitions that have been primed, fuzed, armed, or otherwise prepared for action, and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material, and remain unexploded either by malfunction, design, or any other cause.

Appendix 1

FORMERLY USED DEFENSE SITES (FUDS) WITHIN SALT LAKE DISTRICT (1997)

At the Knolls area, the FUD sites described below are taken from the BLM, 1997 Formerly Defense Sites (FUDS) within the Salt Lake District report, which covers the Salt Lake Field Office area.

FUDS# 114M

Location: Knolls OHV Area

Category: 5, Live Munitions Targets

Comments: The target area within the Knolls OHV area shows on USGS 7.5 minute orthophoto quadrangle and aerial photographs (concentric circles surrounded by triangle; a road goes through the middle of the target area. Four craters within target area. Faint concentric circles from ground, formed by grading with resultant side berms. SUBSURFACE DUDS POSSIBLE. Four craters within target area.

Crater #1: bomb fragment around rim; also thin gage rusted metal; 20 ft diameter by 3 ft deep.
N 40* 39.55', W 113* 16.64'.

Crater #2: Thin gage rusted metal, 50 caliber casings fragments, some bomb fragments, short pipe pieces on south lip of crater, same size as crater #1.
N 40* 39.51' W 113* 16.55'

Crater #3: Sparse bomb fragment, same size as 1 and 2.
N 40* 39.49' W 113* 16.59'

Crater #4: Small 10 ft diameter by 2 feet deep; no lip, deeper hole in center, no frag or debris. (Possible dud?) Note: EOD visited site on December 1995. Sgt Alt and Hayden: HE bombs, subsurface duds possible. (Photo in report).

N 40* 39.51' W 113 16.61'

FUDS# 114Q

Location: Knolls OHV Area

Category: 9, Non Live Casing and/or Slugs; Strafing/Practice Targets

Comments: Strafing target from (knocked down) along west side of Knolls ridge.

N 40* 40' 31.9" W 113* 17'28.9"

FUDS# 114R

Location: Knolls OHV Area

Category: 9, Non Live Casings and/or Slugs; Strafing/Practice Targets

Comments: Wooden debris, remnants of target frame; 50 caliber slugs; thick walled practice bomb fragments; strafing target frame (knocked down). West side of Knolls ridge.

N40* 40' 31.9" W 113* 17' 31.4

Appendix 2

Knolls Development Concept Plan

January 2004

Russ Virgin

Overview

This is an overall summary of the Knolls project. This document and the accompanying drawings make up the Development Concept Plan. The design recommendations contained herein address the ultimate build-out for the three sites. Actual construction is expected to be phased as funding becomes available. Phasing is expected to be determined following approval of this document.

Existing Conditions

Three sites, adjacent to existing aggregate entrance road
Basically flat sites, slightly sloping, well drained desert
Minimal rainfall/hot desert climate
Strong, primarily west winds; hot sun; blowing sand
Sparse, low vegetation; no shade
Minimal BLM presence: entrance sign at boundary
Primary public use is oversize vehicles, pulling trailers containing OHVs
Parking is random, inefficient, impacting an ever-expanding area
Current area is staging for random OHV riding in all directions
Primarily repeat users, year-round
Isolated area; little to no oversight/law enforcement available
Vandalism, destructive activities common

Design Program/Criteria

Constraints/definition needed to keep vehicles within parking area
Materials must be vandal-resistant, low maintenance, economical
To optimize space, parking spaces must be delineated
Parking and access road to remain as aggregate surface only for foreseeable future
Depending on site constraints, 10 to 25 parking spaces, 12 feet wide by 60 feet in length
Restrooms shall be CXT, Romtec, or similar SST vault toilets
Small day-use picnic areas

Three Sites:



Railroad Site (facing NW): 1 CXT; 20 spaces; 3 picnic tables (in the future, if needed)



Dune Site (facing SW): 1 CXT; 10 spaces; 3 picnic tables



Pit Site (facing SW): 1 CXT; 25 spaces; 7 picnic tables

Design Recommendations (see attached 11 x 17 sheets):

Sites were pre-selected by the client. Each is directly adjacent to, and on the west side of the existing aggregate entrance road. The road is adequate for use by the typical visitor and is scheduled for re-surfacing. It is approximately 20 feet wide, typically built at, or slightly above surrounding grade. Vertical and horizontal alignments seem adequate for the intermittent public use it receives.

It was decided to provide a simple, standard layout for parking at all three sites to minimize decision-making on the part of the public (see Figure 1). Thus, the basic layout may be sized according to the specific needs of each site. Two separate bays fit into the existing topography and site features better than a single, longer bay. Also, each parking area may be easily expanded as the need arises.

Since the design vehicles are large, and often include trailers, it was decided that all spaces should be pull-through, and placed at a 45-degree angle for ease of use. Also, the circulation is two-way, permitting travel in any direction. The travel lanes through the site are consistently 24 feet wide to maximize safety. The perimeter of the parking will be defined by boulders of varying sizes, partially buried, and intermittently placed. These will be carefully field-located to appear as natural as possible while also defining the limits of the parking area.

The parking will utilize a well-graded aggregate that will include enough fines to provide a relatively smooth, durable surface. The sites will be constructed on 6" to 1 foot of crushed aggregate fill at their highest point, and graded to drain at 1.5 to 3%. A large island is planned between the existing road and the parking. *It is assumed that material may be excavated from this island and used in the overall parking structural section.* Further, large islands are required for adequate radii for the oversize vehicles. They also define the two parking bays, and help direct users to the parking spaces. To the extent possible, drainage will be directed to the islands to encourage plant growth.

The 12 x 60 feet parking stalls defined by the bays will be further delineated by standard, 4-inch wide, black painted striping. After researching various methods of delineation, it was decided that striping would be a better approach than embedded markings of some sort. Even the best aggregate parking is subject to spinning tires, normal rutting, or erosion. Periodic re-grading inevitably becomes necessary, prohibiting the use of embedded steel, recycled plastic or concrete parking stall delineation. Although it is admittedly not a perfect solution, it is hoped that the striping will last for a season. Further, it is also expected that after re-striping the spaces over 1 or 2 years, the public will get used to the parking pattern, eliminating the need for further striping. Finally, a sign will be placed at the entrance to each parking area, showing a partial layout, and requesting the public to park only in designated areas.

A concrete vault-style SST restroom (Romtec or CXT) is planned at the entrance to each of the sites, and includes a pull-off and aggregate walkway. The location will be convenient for service and cleaning.

A small day-use picnic area will be field-located at the opposite corner of the parking at all three sites. Due to vandalism, concrete tables such as those by Doty Concrete products (see attached photograph) are planned. There are many shade structures on the market, and the most common consist of canvas over a steel frame. Given the history of vandalism, the need for heavy-duty structures (to withstand high winds), and the cost, the following options are suggested:

- 1) Erect the steel and canvas structures for the picnic tables, and assume that the canvas will be promptly destroyed. Leave the frame in place and the more enterprising visitors will bring their own tarp, bungee cords, etc.

2) Provide tables only. Portable shade structures made of PVC or aluminum and tarp are common and relatively inexpensive. Visitors who want shade can provide their own.

Based on our meeting on 12/16/03, the construction of a rudimentary steel frame at one of the sites was determined to be the preferred option. If it is used by the public, others will be constructed.



Estimated Construction Costs

- Note:
1. Cost estimates are based on construction by BLM.
 2. Cost estimates are “Class C” only, and may vary by 20 to 25%.
 3. If additional suitable embankment material may be excavated from the islands, aggregate base costs may be further reduced.
 4. *Based on the results of the meeting of 12/16/03 and subsequent discussions, the original estimate has been adjusted as follows.*

Railroad Site

Minimal clearing, grubbing and re-compaction of existing grade Approx 1.2 acres	\$ 1,500
*Aggregate base, parking area, walkways 2380cy @ 25/cy	27,100
Boulders 1860 lf; average spacing 7 feet O.C.= 270 @ 40 ea	2,700
Restroom	29,500
Miscellaneous Striping, concrete picnic tables, signage	<u>6,000</u>
Total.....	\$66,800

* 400 cy of excavated material from island(s) will be needed to supplement this quantity.

Dune Site

Minimal clearing, grubbing and re-compaction of existing grade Approx 0.7 acres	\$ 1,500
--	----------

**Aggregate base, parking area, walkways	
1050cy @ 25/cy	16,000
Boulders	
1300 lf; average spacing 7 feet O.C.= 185 @ 40 ea	1,500
Restroom (in the future if needed)	29,500
Miscellaneous	
Striping, concrete picnic tables, signage	<u>5,000</u>
Total.....	\$ 24,000 (in 2004)
	\$ 29,500 (additional restroom in future if necessary)

**750 cy of excavated material from island(s) will be needed to supplement this quantity.

Pit Site

Minimal clearing, grubbing and re-compaction of existing grade	
Approx 1.3 acres	\$1,500
***Aggregate base, parking area, walkways	
2770cy @ 25/cy	30,000
Boulders	
2000 lf; average spacing 7 feet O.C.= 285 @ 40 ea	3,000
Restroom	29,500
Miscellaneous	
Striping, concrete picnic tables, signage	<u>6,000</u>
Total.....	\$70,000

*** 480 cy of excavated material from island(s) will be needed to supplement this quantity.

Example of parking area design:

Figure 1



Appendix 3

Knolls SRMA Sign Plan

Objectives

- As stated in the RAMP, an informational and interpretive sign program will be developed to educate the public about regulations, safety issues, general area information, and encourage responsible riding in the Knolls area, Leave No Trace camping and Tread Lightly! ethics.
- Signs installed at Knolls will be as vandalism proof as possible, especially those signs placed in the interior of the SRMA.
- In design and installation, universal design and disability regulations and guidelines will be met for signs placed in the Knolls SRMA, as appropriate.
- A cultural survey will be conducted before signs that require posthole digging are installed. If cultural resources are identified, alternative sign locations will be found.
- Signs at Knolls will increase the SLFO identity in managing the Knolls area and offer a positive message to the public. The messages regarding regulations will also state the reasoning and objectives behind such restrictions.
- When possible, signs will be used in conjunction with maps, brochures, and interpretive materials.

Signs

Currently, there are few signs in the Knolls SRMA. One sign is located off the freeway exit, which directs users and reads “Knolls Off-highway Vehicle Area”. Another sign is located at the entrance, identifying the “Knolls Special Recreation Management Area”. A bulletin board and a visitor register box is also located by the entrance sign.

The following signs have been identified for the Knolls SRMA (refer to Table 1 and Maps 1 & 2 for sign descriptions and locations). All signs have been included in the sign plan, which includes existing signs and those that are needed. This will help to identify maintenance needs and order replacements in the future. See the sketches for a schematic drawing or photo of the sign.

Signs #1-3 are identification and directional signs for the Knolls SRMA located near the entrance. These will be made with a plywood substrate by the BLM’s National Sign Center. Because of the close proximity to the freeway, signs located at the entrance have not been burned or vandalized. Because of this, wooden signs will only be placed near the entrance of the

SRMA. The current entrance sign (Sign #3) will be moved from its current location to that shown on Map 1 and the bulletin board and visitor register box will be removed.

Sign #4 will inform visitors of Knolls' fee area status and warn passers-by of the approaching fee station. Sign #5 will serve as the Self Service Fee station and will have information and regulations posted on it, replacing the removed bulletin board. Sign #5 will include a pull-off area for vehicles delineated by boulders and an "iron ranger" fee tube/visitor sign-in box combination. The fee station will be built according to Krystal Clair's "Fee Station Design Considerations for Remote, Unattended Sites" (see file for reference), but will use square treated timber posts instead of round posts. Paper signs will be backed with heavy paper and mounted on the board with 2 mil UV protective film (purchased at the National Sign Center), this eliminates the need for stapling, provides a waterproof seal, UV protection, and has a 7 year outdoor life.

Signs #6-8 are warning and regulatory signs intended to address safety issues at Knolls. Sign #6 will establish the speed limit on the main access road in order to keep speeds down on the improved road. Sign #7 will warn visitors of the U.S. Air Force boundary to the south of Knolls and possible unexploded ordnance in the area. This sign will be constructed and maintained in conjunction with the U.S. Air Force. Sign #8 will be mileage marker posts, placed every half-mile, which will assist emergency responders in locating accident victims.

Sign #9 is an informational bulletin board and will be placed at the three parking areas (see Figure 1).

Figure 1



The bulletin boards will display the following information:

- Title: Knolls Special Recreation Management Area: 46X8
- Map of Knolls SRMA (22X18), which will display: facilities (bathroom and parking), land ownership, main access road, SRMA boundary, contact information (SLFO and emergency), and a star showing the location of the bulletin board on the map with a UTM

and latitude and longitude. The bottom of the map will have the BLM symbol and partners Utah State Parks and Utah Desert Foxes.

- Tread Lightly! Outdoor Poster: (www.treadlightly.org/store) 12X18, weather proof hard plastic trail sign
- OHV regulations: 12X18, yellow plastic sign developed by the SLFO and printed by Imaginos, Inc. This displays federal and State of Utah OHV regulations.
- Leave No Trace: 8 ½X11, information about LNT camping ethics- respect others, LNT fire, etc.
- Unexploded Ordnance: 10X14, information about what an unexploded ordnance is, how to identify them, and what to do if one is found. A brochure will be developed in cooperation with the U.S. Army Corps of Engineers and could be attached to the bulletin board at this location.
- Knolls Regulations: 17X11, list all regulations posted in the supplementary rule for Knolls.
- Weeds: 10X14, description of invasive/noxious weeds, how to identify, and how to prevent the spread.
- Fee Demonstration: 8 ½X11, explanation of Fee Demo program, how fee money is spent, etc.

The board substrate for Sign #9 will be made of either Aluminum Clad Plywood or Aluminum Clad Plastic, which can be ordered from the BLM National Sign Center. The first order of bulletin boards will try at least one of each to determine which will be best suited for Knolls. Because these substrates are white, brown sheeting will be applied by the Sign Center. Paper signs will be backed with heavy paper and mounted on the board with 2 mil UV protective film as on Sign #5. Metal poles (2-3 as needed) will be use to support the board to prevent vandalism.

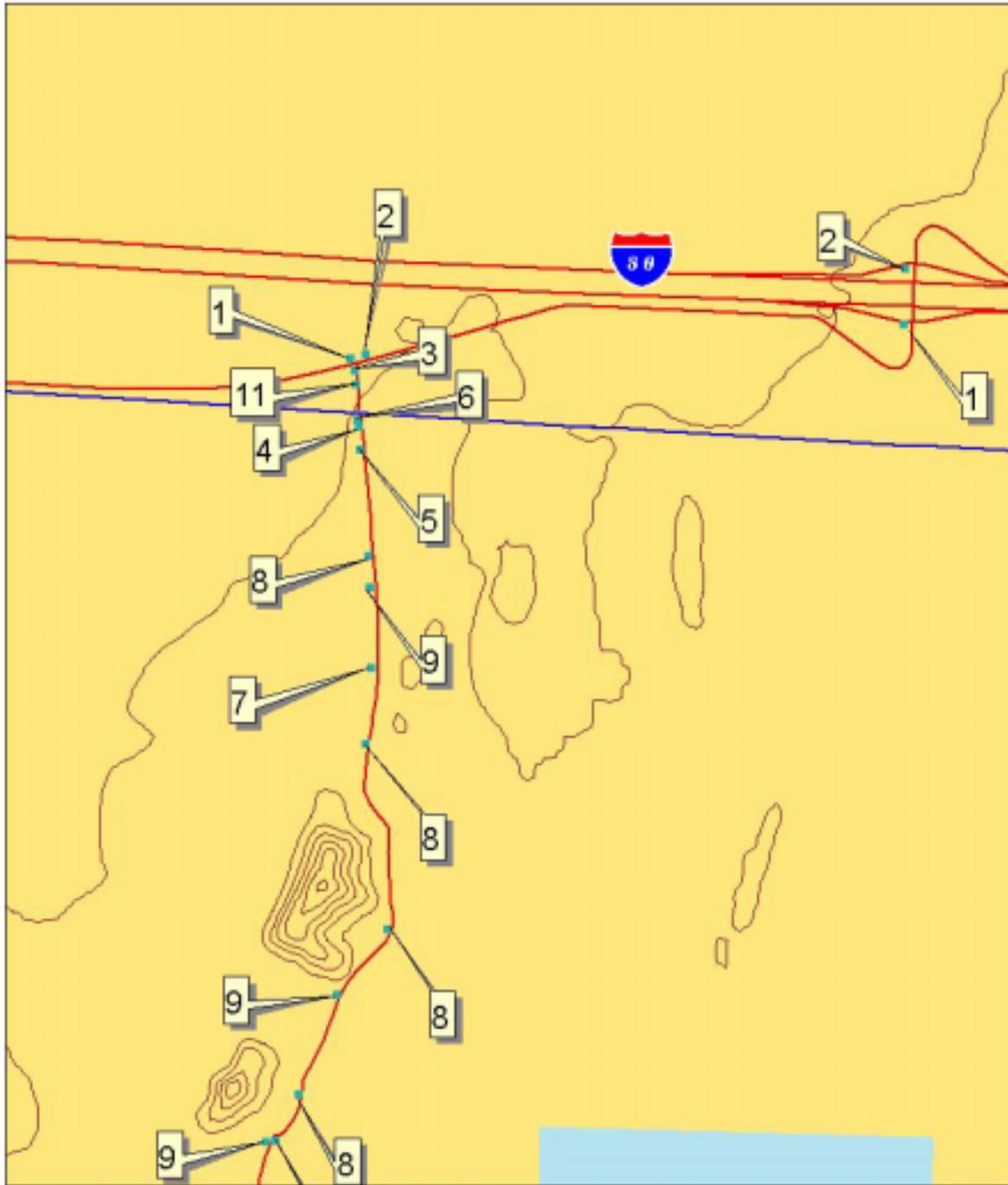
Sign #10 will be located at the entrance to the parking areas, naming the parking pad (1,2, or 3) to assist emergency vehicles in locating accident sites. The sign message will also thank visitors for parking in the designated stalls. Two sets will be ordered, so back up signs will be available if they are vandalized.

Monitoring

Signs will be monitored according to the Facility Maintenance Schedule located in Appendix 4.

Table 1

#	Wording	Type	Material	Source	Materials Needed	Total Cost per sign	# to Order 2004
1	Knolls OHV Area	Directional	Plywood substrate	BLM	Sign (\$93); Two 4"X4 X10' treated posts (\$22); four ½"X 6" carriage bolts, washers, nuts (\$8); one 3" directional arrow sticker for existing backup sign	\$123.00	2
2	Knolls OHV Area	Directional	Plywood substrate	BLM	Sign (\$93); Two 4"X4"X10' treated posts (\$22); four ½"X6" carriage bolts, washers, nuts (\$8)	\$123.00	3
3	Knolls SRMA	Identification	Plywood substrate	BLM	Sign (\$240); Two 4"X4"X10' treated posts (\$22); four ½"X6" carriage bolts, washers, nuts (\$8)	\$270.00	0
4	U.S. Fee Area	Identification	Plywood substrate	BLM	Sign (\$93); Two 4"X4"X10' treated posts (\$22); four ½"X6" carriage bolts, washers, nuts (\$8)	\$123.00	2
5	Self Service Fee Station	Informational	Wood	various	Fee Station (\$849); iron ranger (\$400); visitor register box (\$200); boulders	\$1,449	1
6	Speed Limit	Regulatory	Metal	Federal Prison Industries	Speed Limit sign (\$65); Arrow sign (\$42); metal post (\$3), two ½"X4" carriage bolts, washers, nuts (\$4)	\$114	2
7	Air Force Warning Sign	Warning	Metal	U.S. Air Force	Developed in conjunction with the Air Force (estimate at \$300 each)	\$300	3
8	Road mileage marker (every half mile)	Identification	Fiberglass post	Rock Art	Posts (\$16); stickers (\$9)	\$25	14
9	Bulletin board	Informational	Metal	various	Two-three 10' unistrut metal posts (\$36); One 64"X48" either Aluminum Clad Plywood or Aluminum Clad Plastic (\$125); Brown sheeting over board (21 sq. ft., \$33); 2 mil UV protective film (10 sq.ft., \$120); Nine 10"X½" carriage bolts, washers, nuts (\$24)	\$338.00	3
10	Parking Pad	Informational	Metal	BLM	Sign (\$93); metal post (\$3), two ½"X4" carriage bolts, washers, nuts (\$4)	\$100	6



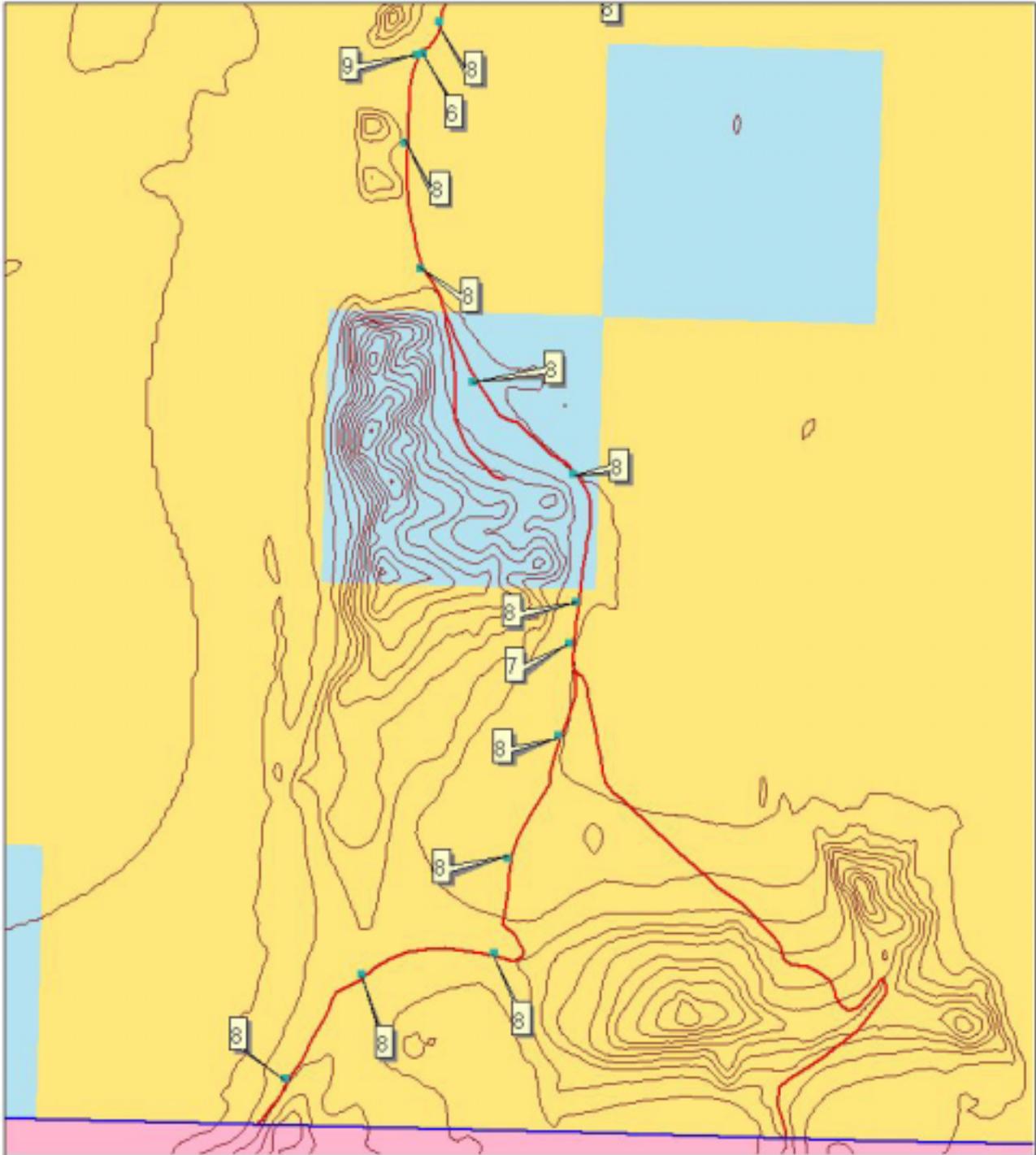
- Signs
- Knolls SRMA
- Land Ownership
- Bureau of Land Management (BLM)
- US Forest Service (US FS)
- Military Reservation
- Native American Reservation
- State
- Private

Knolls Sign Plan Map 1- North End

0.3 0 0.3 0.6 Miles



This data may not meet BLM standards for accuracy and content. Different data sources and input scales may cause misalignment of data layers.



- Signs
- Knolls SRMA
- Land Ownership
- Bureau of Land Management (BLM)
- US Forest Service (USFS)
- Military Reservation
- Native American Reservation
- State
- Private

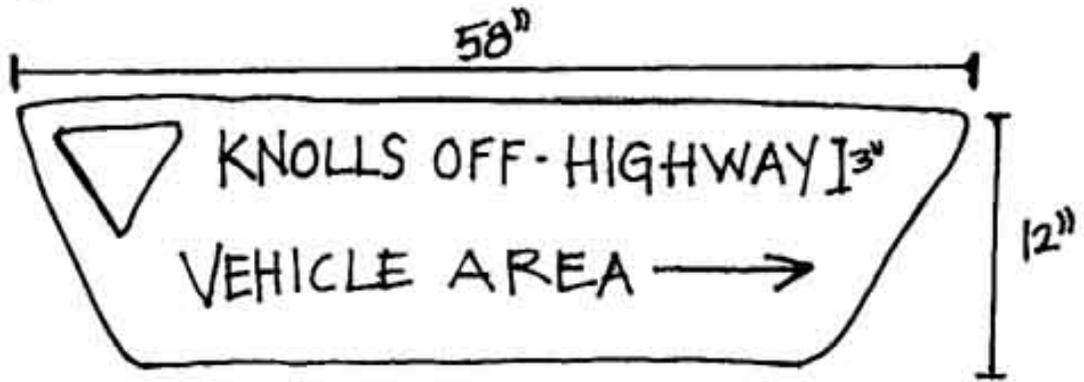
Knolls Sign Plan Map 2- South End

0.3 0 0.3 0.6 Miles



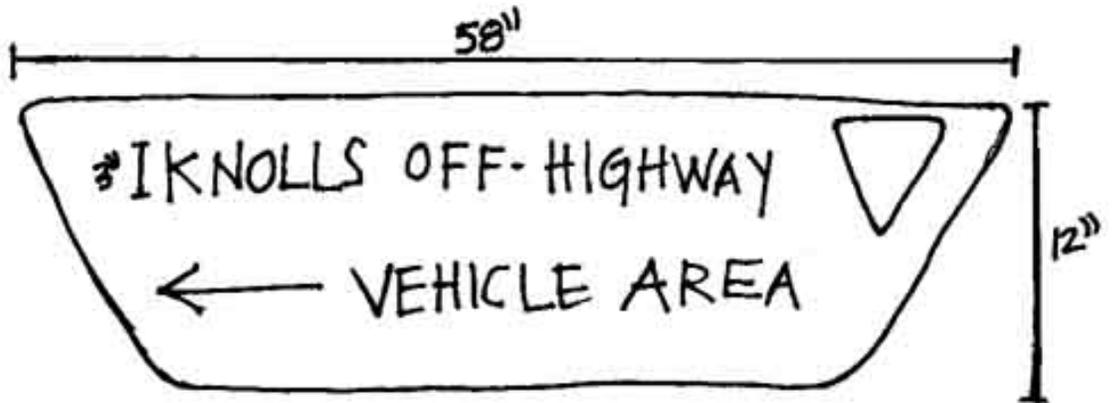

This data may not meet BLM standards for accuracy and content. Different data sources and input scales may cause misalignment of data layers.

Sign #1



Plywood
Substrate: $58'' \times 12'' = 696 \div 144 = 5 \text{ sq. ft.}$
 $5 \times \$18.50 = \93

Sign #2 -



Plywood
Substrate: $58'' \times 12'' = 696 \div 144 = 5 \text{ sq. ft.}$
 $5 \times \$18.50 = \93

Sign #3

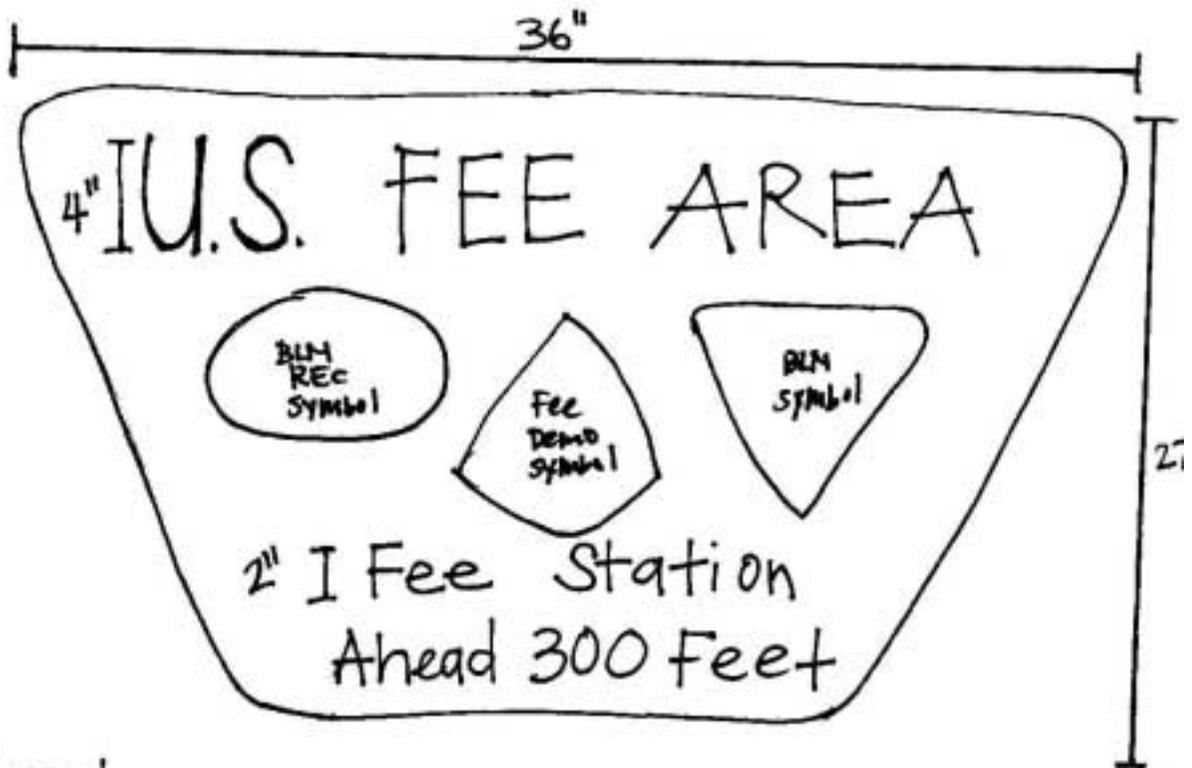
$$73'' \times 26'' = 1898 \text{ sq. in.}$$
$$1898 / 144 = 13 \text{ sq. ft.}$$
$$13 \times \$18.50 = \$240$$

73''

26''



Sign #4



Plywood

Substrate: $36" \times 27" = 972 \div 144 = 7 \text{ sq. ft.}$
 $7 \times \$18.50 = \130

Sign #5



Iron ranger

Supplies:

- 2: 10'x2"x4" treated timber (\$10)
- 2: 6"x8"x12' treated timber (\$242)
- 5: 8"x6" diameter treated timber (\$65)
- 1: 4"x4"x6' treated timber (\$6)
- 1: 4"x4"x10' treated timber (\$11)
- 2: 4'x8'x1/2" exterior plywood treated (\$54)

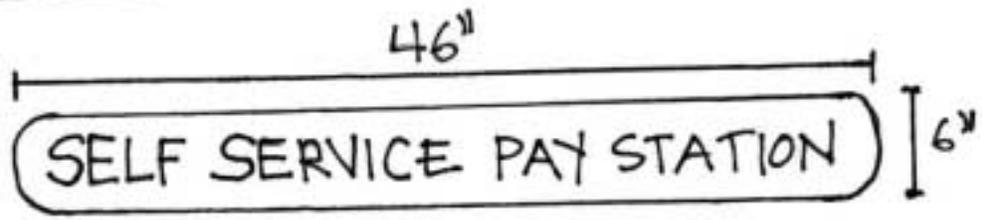
cedar shakes
tar paper
concrete
roofing nails
wood screws
large lag bolts

} ~\$200

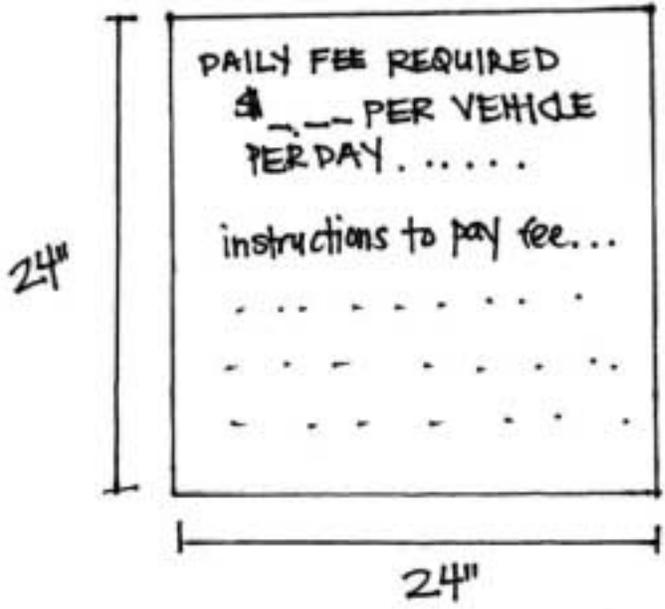
2 mil UV protective film (15 sq. ft., \$180)

Signs - see next page

Sign #5 cont.

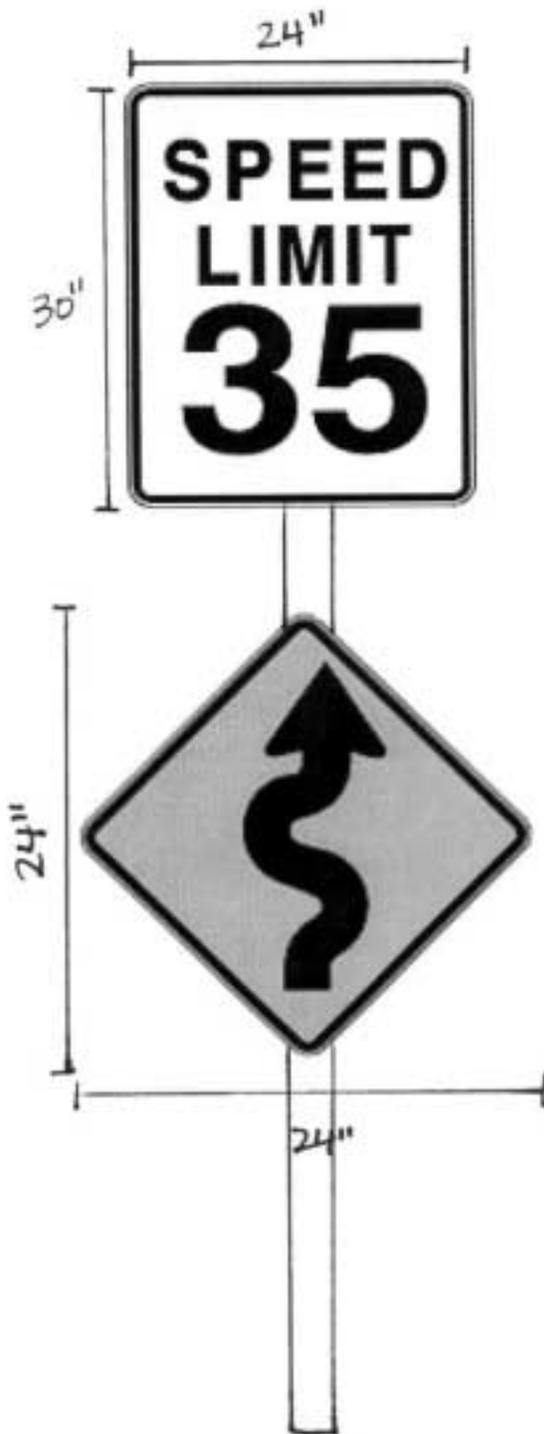


Plywood substrate: $6" \times 46" = 276 \div 144 = 2 \text{ sq. ft.}$
 $2 \times \$18.50 = \37



Plywood substrate: $24" \times 24" = 576 \div 144 = 4 \text{ sq. ft.}$
 $4 \times \$18.50 = \74

Sign # 6



Sign #7

PUBLIC NOTICE

The U.S. Air Force Bombing Range is located _____ miles
South of this sign.

DO NOT ENTER AIR FORCE PROPERTY
This area is an active bombing range.
For your own protection, keep out.

WARNING

The Knolls area may contain UNEXPLODED WEAPONS.
Call Department of Defense Police at (801) 777-1522
if you see any suspicious items.

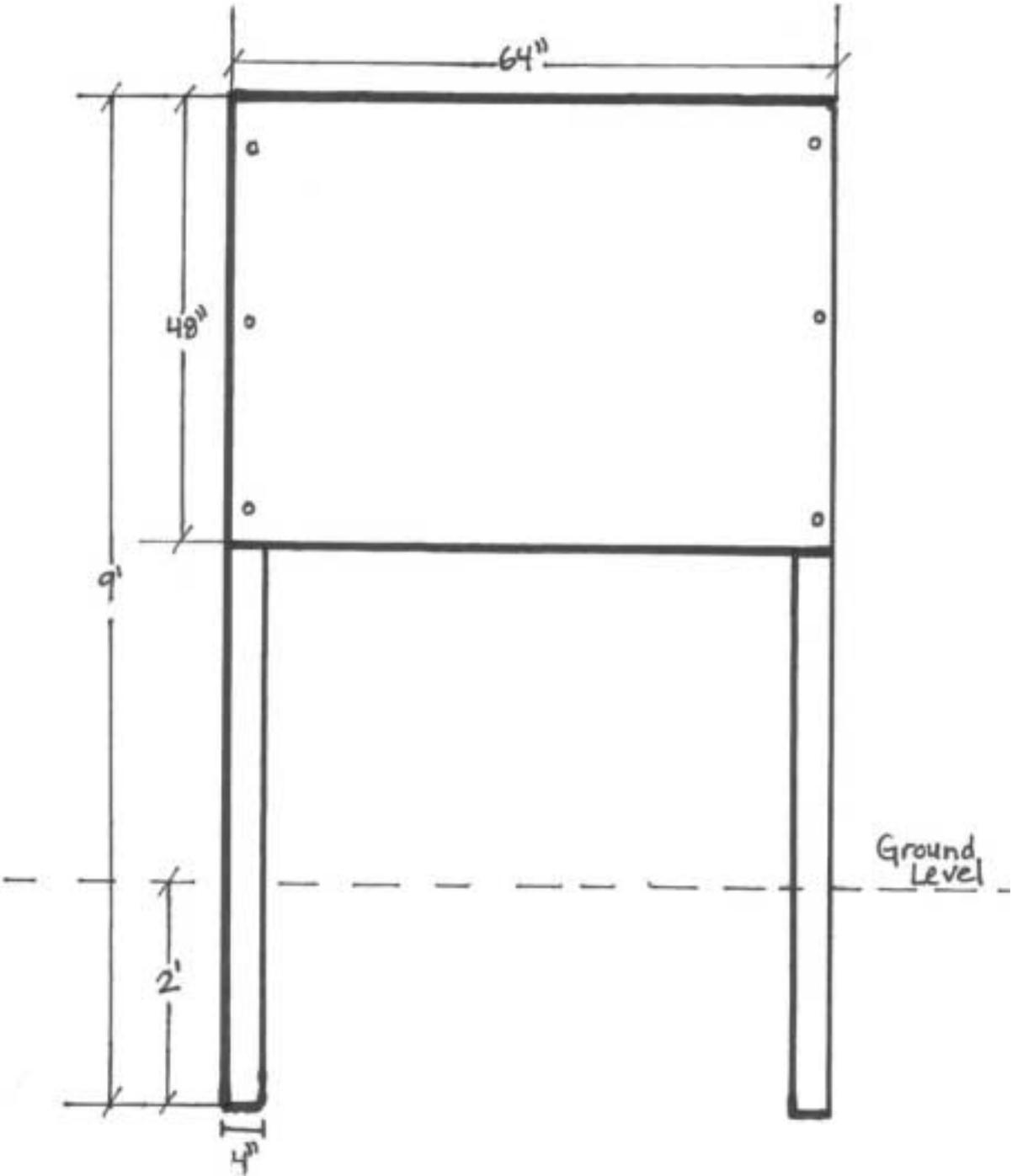
DO NOT TOUCH OR PICK UP ITEMS FOUND IN THIS AREA

Sign #8

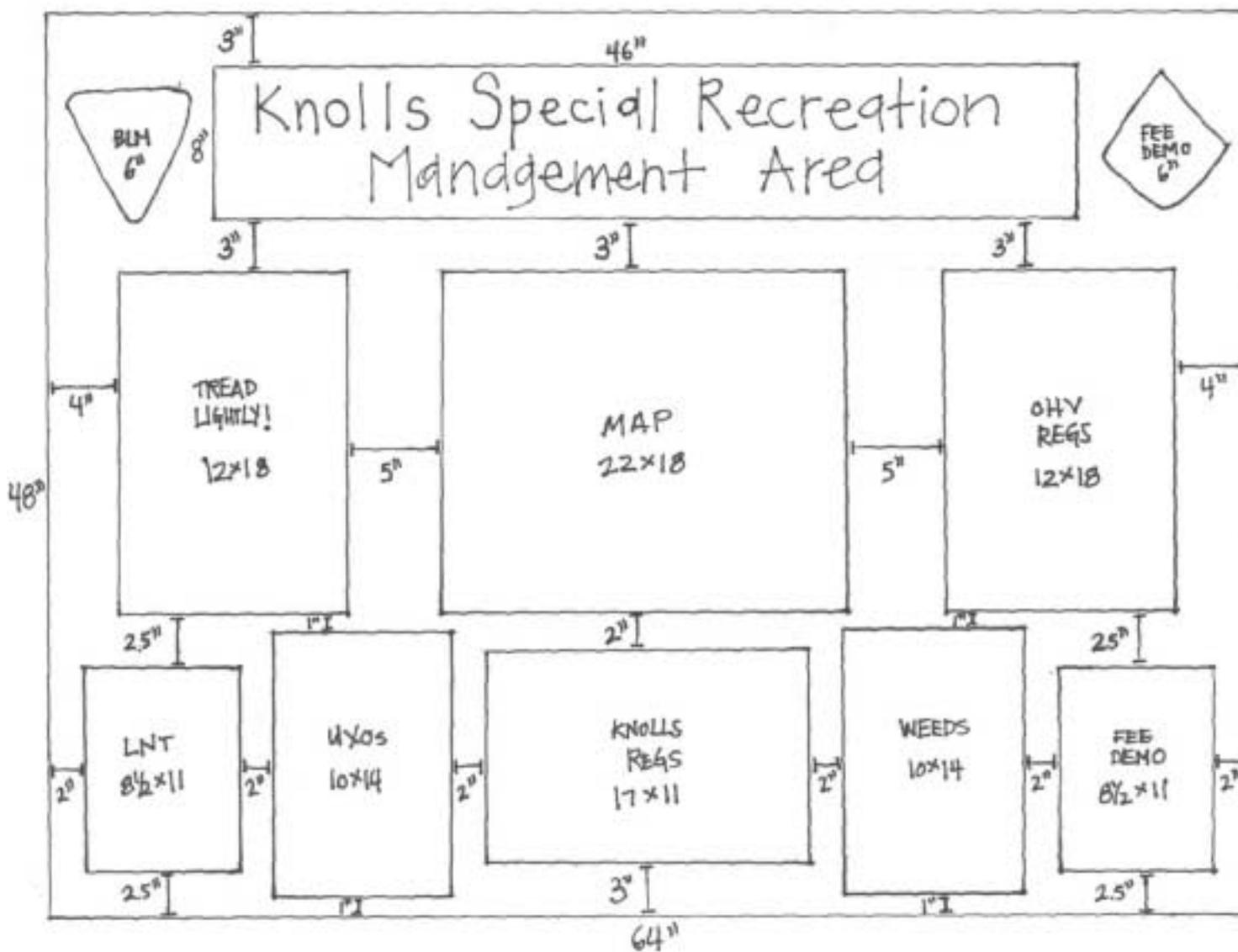


6'0" brown
fiberglass post

Sign #9



Sign #9 Continued



Sign # 10



Appendix 4

Knolls Facilities Maintenance Schedule

Table 1- Facilities to Maintain

Facilities	Maintenance Requirements
Vault toilets	Clean outhouses using water, bleach, dish soap, paper towels and broom. Replace toilet paper as needed. Charged and pumped.
Picnic tables	Clean and check for vandalism.
Fee tube/visitor sign-in box	Collect fees and check visitor register box and replace log sheets as needed.
Bulletin boards	Check posted information and replace information as needed.
Other signs	Check for vandalism, damage, etc. Maintain as needed (clean, repair bullet holes, replace symbols). Use "sign_monitor" data dictionary to record maintenance.
Main access road	As needed: blade, apply magchloride, remove sand
Parking areas	As needed: blade, apply magchloride, repaint striping for parking stalls
Traffic counter	Replace battery

Table 2- Maintenance Schedule

Developments to Maintain	Schedule	Maintenance Frequency
Vault toilets, picnic tables, fee tube, bulletin boards, and other signs	January- February	Once a month
	March-June	Once a week
	July-Aug	Every other week
	September-October	Once a week
	November	Every other week (dependant on weather)
Charge and pump vault toilets	June and November and/or as needed	
Blade access road and parking areas. Apply magchloride to road and parking areas.	As needed	
Remove blown sand from roadbed	As needed	
Repaint striping for parking stalls	Annually or as needed	
Traffic counter	Annually or as needed	

Facilities Condition Assessment

A condition assessment of existing facilities will be performed annually in November. This will include all facilities, including signs. The condition assessment will involve an intense monitoring of facilities, addressing vandalism, damage, and wear and repair/replacement needs will be identified. The condition assessment will also monitor the need for additional facilities, such as additional vault toilets, signs, etc. The final assessment will be placed in the Knolls file each year.

Appendix 5

Visitor Use Study

Visitor Use Study Objectives

- Develop a consistent and usable process for collecting visitor data that will result in a more accurate assessment of recreational use and visitor use numbers at Knolls.
- Set up a schedule for the collection of visitor use data at Knolls.

Assumptions

Visitors per Vehicle: Estimated as 3.5 people per vehicle.

Visit: One person visits BLM lands to engage in any recreational activity, whether for a few minutes, full day, or more.

When to Collect Data?

First two years, at the minimum: Easter weekend, one weekday and Memorial weekend in May, one weekend and one weekday in June, weekday in August, Labor Day and weekday in September, one weekend in October, and on the Utah Desert Foxes race day. After the first two years, weekday patrols can be decreased and numbers from traffic counter will be used as estimates of visitor use.

Camping Distribution Study

At the end of each use season in October, and based on where camping use has been identified over the year during visitor use data collection, polygons of camping activity will be recorded using a GPS unit. Total numbers of camping visits, compiled from the visitor use data collection forms throughout the year, will be compared to the 2003 Inventoried Camping Areas (Map 3) and the carrying capacity threshold developed in the Recreation, Carrying Capacity, Objective #2.

Equipment Needed

GPS (GeoXM preferred)
7.5 minute quadrangle maps
visitor use data form

What to do with data after collection?

After data is collected, visitor use numbers will be entered into a spreadsheet in order to analyze trends. The form will also be kept in the Knolls SRMA file. After each patrol, visit numbers will be entered into the BLM's RMIS system.

Revisions

The visitor use data collection process can be revised based on conditions observed and changes in the existing situation.

Knolls Visitor Use Data Form

Date & Time _____

Names of Observers _____

Vehicle Count

Record the number of vehicles observed with a tick mark and total in the right hand column.

Vehicle	Number Observed	Total
RV (self-contained unit, can include a trailer to haul OHVs)		
Camping trailer towed by or attached to a truck (do not double count as a passenger vehicle)		
Passenger vehicle (car or truck [which may include a trailer to haul OHVs])		
Total # vehicles		

Tent Count

Record the number of tents observed with a tick mark and total in the right hand column.

# Tents	Total

Number of Visits

Calculate by taking the total # vehicles from vehicle count above (do not include tent #s) and multiplying it by 3.5 people per vehicle.

Total # of visits

Recreation Activities Observed

Recreational Activity	Type		# of visits
OHV	Type	Percentage	
	ATV (four-wheeler or three wheeler)		
	Motorcycle		
	Dune buggy		
	Full-size vehicle (riding on sand dunes)		
	Other		
	TOTAL		
Camping	RV and trailer		
	Tent		
	TOTAL		
Other			
	TOTAL		

OHV

Percentage: Based on your observations, estimate the percentage of visitors using each vehicle type.

Number of visits: Take the “total number of visits” calculated in the Number of Visits section above, minus the total number of visits in the “other” row below, and then multiply it by the estimated percentage of vehicle type.

These figures are estimates only. It is assumed that the primary activity of visitors to Knolls is OHV related and percentages are used instead of counting each type of OHV vehicle.

Camping

Number of visits is calculated by adding the number of overnight camping vehicles (RVs and camping trailers) and tents from the sections above and multiplying by 3.5.

Other

List other uses and count the number participating in the use and enter it into the # of visits column. Such uses include participating in or spectator of a SRP event, sight seeing, hiking, flying model airplanes, etc.

****RACE DAY****

On the day of a SRP race where the SRMA is closed to casual use, all recreation visits will be placed in the "Other" category. The number in the Number of Visits section above will be brought down to this table.

Parking Areas

Note the number of vehicles in each parking pad.

Parking Pad	# of vehicles Parking area can accommodate	# of vehicles observed
1	20	
2	10	
3	25	

Shade Structures

Are visitors using shade structures provided over picnic tables?

YES

NO

Trash sites

Record a GPS point of trash sites and note the UTM below.

Site #	Comment	UTM Northing	UTM Easting

Other Observations

Law enforcement violations?

Visitor use conflicts observed?

Visitors assisted?