Appendix J

Off-highway Vehicle Areas and Route Designations

APPENDIX J
OFF-HIGHWAY VEHICLE AREAS AND ROUTE DESIGNATIONS

In 1972, the President issued Executive Order 11644 requiring each Federal agency to designate "areas and trails" for off-road vehicle use or restriction and to develop regulations implementing this executive order. The Bureau of Land Management's (BLM's) regulations (43 Code of Federal Regulations [CFR] 8340) established management areas as open, limited, or closed to off-road vehicle use.

Off-highway vehicle (OHV) designations are determined through a comprehensive land use planning process, which serves as an adaptive and flexible approach to the management of all activities on public lands. As circumstances and conditions have changed over the past several decades, the BLM has made a concerted effort to focus the agency's resources in the development of land use plans by seeking additional funding and staff to address issues associated with the increased population growth near the public lands. OHV designations are a major component of all future planning efforts.

In addition, guidance in BLM Manual H-1601, Appendix C directs the BLM offices to delineate travel management areas, designate OHV management areas and include route designations, "where practical." The Manual further states, "If it is not practical to define or delineate the travel management network during the land use planning process, a preliminary network must be identified and a process established to select a final travel management network."

Alternatives proposed in this Resource Management Plan Revision (RMPR) include revised OHV area designations and route designations within 12 of the 13 wilderness study areas (WSAs) (see Chapter 2 and Tables J-2 through J-13). No routes have been identified for the Devil's Reach WSA under any alternative.

The following appendix provides definitions of OHV area designations and associated terms, a summary of the route inventory and designation process within WSAs, and the alternative route designations.

DEFINITIONS

Definitions of the BLM's OHV designations and associated terms are listed below. OHV designations are administrative, allowing management flexibility in response to changes in the environment. All public land is designated as "open," "limited," or "closed" to motorized vehicles in each field office's Resource Management Plan (RMP) or travel and transportation management plan. The following terms are defined as stated in 43 CFR 8340.0-5.

- **Off-highway vehicle** – any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any non-amphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer; (4) vehicles in official use; and (5) any combat or combat support vehicle when used in times of national defense emergencies. OHV use is subject to operating regulations and vehicle standards set forth in 43 CFR 8341 and 8342.
- **Open area designation** – any area where all types of vehicle use are permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards set forth in 43 CFR 8341 and 8342. Open designations generally include areas where there are no compelling resource protection needs, use conflicts, or public safety issues that would warrant limiting OHV use.

- **Closed area designation** – an area where OHV use is prohibited. Closures may be necessary to protect resources, ensure visitor safety, or reduce use conflicts. Use of OHVs in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the Authorized Officer.
- **Limited area designation** – an area restricted at certain times in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following categories: number of vehicles, types of vehicles, time or season of vehicle use, permitted or licensed use only, use on existing roads and trails, use on designated roads and trails, and other restrictions. Limitations may be used to meet specific resource management objectives, protect resources, or public safety.
- **Cross-country travel** – wheeled, motorized travel by any vehicle (recreational or other), off of roads and trails. It is difficult to provide one definition of motorized wheeled cross-country travel and have that definition fit all the situations that might occur. Roads and trails appear differently to individuals because of the variety of terrain, vegetation, and soil type found in the Planning Area.

Motorized travel is considered cross-country when:

- The passage of motorized vehicles depresses undisturbed ground and crushes vegetation.
- The motorized vehicle maximum width (the distance from the outside of the left tire to the outside of the right tire or maximum tire width for motorcycles) does not easily fit the road or trail profile. However, an all-terrain vehicle traveling within a two-track route established by a pickup truck is not considered cross-country travel.
- Motorized vehicles use livestock and game trails, unless the trails are clearly evident, or continuous single-track routes used by motorcycles over a period of years.

Motorized travel is not considered cross-country when:

- Motorized vehicles use constructed roads that are maintained by the oil and gas industry and/or the BLM, unless specifically closed to use through signing and/or gates. Constructed roads are often characterized by a road prism with cut and fill slopes.
- Motorized vehicles use trails specifically designated for the vehicle being used.
- Motorized vehicles use clearly evident two-track and single-track routes with regular use and continuous passage of motorized vehicles over a period of years. A route is a track where perennial vegetation is devoid or scarce, or where wheel tracks are continuous depressions in the ground, evident to the casual observer, but are vegetated. While unauthorized routes are not part of the inventory, they are described as post-WSA routes on Tables J-2 through J-13.

The entire route must meet the above specifications. Newly created routes should be easily identified as not meeting the specifications because many portions would not show signs of regular and continuous passage of motorized vehicles and many areas would still be fully vegetated with no wheel depressions. This definition does have some ambiguity that will continue to exist until formal designation of routes, trails, and areas within the entire Planning Area is completed. This definition only applies to cross-country travel in the dispersed area and not to cross-country travel within special management areas. A special management area may have its own management plan that defines regulations for cross-country travel within its boundaries.

ROUTE DESIGNATION AND CLOSURE CRITERIA

Route Designation Criteria

The following criteria apply to route designations within WSAs in the Socorro Field Office. Designation of routes within WSAs must be in compliance with the Interim Policy and Management Guidelines for Lands Under Wilderness Review (1995).

Designation criteria are listed in 43 CFR 8342.1, a, b, c and d as follows:

(a) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air or other resources of the public lands, and to prevent impairment of wilderness suitability.

(b) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.

(c) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.

(d) Areas and trails shall not be located in officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that off-road vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established.

Other designation considerations include:

- Routes that provide access to existing rights such as private land.
- Routes that provide known access needs for the maintenance of authorized range improvements (pre-Federal Land Policy and Management Act [FLPMA]) or other authorized administrative activities.
- Routes that provide access for unique recreational experiences and/or commercial activities (primarily outfitting).
- Routes previously closed in the 1989 Socorro RMP.

Route Closure Criteria

Route closure criteria include the following:

- Routes causing unacceptable resource damage, erosion (i.e.: wash outs, ruts, detours).
- Routes through soils which are easily eroded or highly susceptible to resource damage.
- Multiple or parallel routes in the same area (route proliferation).
- Routes that are naturally re-vegetating and or no longer receiving motorized use.
- Routes that have a high potential to negatively affect threatened or endangered or sensitive wildlife species or limited and important wildlife habitat.

- Routes that have a high potential to encourage harassment or disruption to wildlife or wild horses.
- Vehicle routes (ways) which did not exist when the area was designated a WSA in 1980 (refer to 2002 Review of 1980 Ways Inventory of WSA in the Socorro Field Office).
- Routes which may adversely affect areas of cultural or religious concern for Native Americans.
- Routes which may adversely affect sites which may be eligible for the National Register of Historic Places.

WILDERNESS STUDY AREAS ROUTE INVENTORY

Completing OHV route designations within the 13 WSAs (Table J-1) is an important goal in the effort to revise the Socorro Field Office 1989 RMP. BLM's Land Use Planning Handbook H-16011-1 (Appendix C, p 18) directs Field Offices that"[at] a minimum, the travel management area designation for wilderness study areas (WSAs) must be limited to ways and trails existing at the time the area became a WSA…Existing roads, ways and trails must be fully documented and mapped…In addition, future designations may be made for a WSA if it is released from study." Without formal OHV route designations through the land use planning process, the Socorro Field Office would be unable to effectively carry out or enforce motorized OHV regulation and policy within its WSAs.

TABLE J-1
WILDERNESS STUDY AREAS WITHIN SOCORRO FIELD OFFICE

Antelope	Mesita Blanca
Continental Divide	Presilla
Devil's Backbone	Sierra de Las Cañas
Devil's Reach	Sierra Ladrones
Eagle Peak	Stallion
Horse Mountain	Veranito
Jornada del Muerto	

The Socorro Field Office completed "Vehicular Routes [Ways]" inventories for its 13 WSAs in 1980. Completing a formal designation of vehicle routes in the Socorro Field Office WSAs for the RMPR required a baseline inventory of those routes (also referred to as "ways") that existed at the time of inventory (1980) and/or prior to the enactment of FLPMA (October 21, 1976). While the 1980 inventory is generally a good representation of what existed on the ground at the time, the maps pre-date current mapping technology and standards. In some cases, the 1980 "Vehicular Route" maps are inaccurate. For example, some of the legal descriptions (in text) of "Vehicle Access Routes" do not correspond to mapped "Vehicular Routes." In other instances, routes mapped in the 1980 inventory appear misplaced and/or drawn incorrectly.

To facilitate the goal of route-by-route OHV designations in the WSAs, and to improve the integrity of the baseline data used in the planning process, this review was undertaken to integrate the old WSA route inventory into the geographic information system (GIS). The following discussion outlines the interpretive process and methodology used to make necessary changes and/or corrections in the 1980 inventory.

Data Used

The following sources of information were reviewed during the route inventory. Much of these data has been verified on the ground with global positioning system (GPS) technology. Although incomplete, these data are the best attempt (to date) at a comprehensive Field Office inventory of routes that are

suitable for the gamut of motorized vehicle use. A large percentage of the access routes within the 13 WSAs have been accurately recorded using the GPS over the past 5 to 10 years.

1) "Vehicular Routes" Maps, Intensive Wilderness Inventory Report (IWIR), March 1980: These maps were intended as a complete inventory of existing WSA routes, or Ways (pre-FLPMA). Each map was hand drawn at a scale of ½ inch = 1 mile. The maps are crude, black and white, and show no features other than township and range, the WSA boundary, and approximate locations of routes. Upon careful inspection, the path and length of some of the routes are incorrectly drawn and located on the map. In a few other instances, mapped routes do not correspond to any kind of verifiable intrusion or disturbance when researched against the historical record.

2) "Vehicle Access Routes" Descriptions, IWIR, March, 1980: Each of the mapped routes identified above correspond to written descriptions in the IWIR. These written descriptions include the approximate length of the route along with a legal description. Routes are sometimes described as "two track," "substantially unnoticeable," and "jeep trail." In some cases, these descriptions do not correspond to the location of the mapped route(s).

3) Assorted working maps and descriptive text found in the IWIR, March 1980: There are several maps and written inventory included in the 1980 IWIR – maps that describe photo-points, maps that identify intrusions (other than vehicle routes), county highway maps "Initial Wilderness Inventory Recommendations [maps]," photocopied U.S. Geological Survey (USGS), 7.5 Minute Series, and maps found in the Las Cruces District, Final Wilderness Inventory Report, Vol. II." The text in the Final Wilderness Inventory Report attempted to quantify the amount of vehicular route(s) in each WSA.

4) 1976 Aerial Photographs: This 1976 flight covers only the Continental Divide and Horse Peak WSAs. Most of this flight was developed in black and white, and a small portion in color. The scale is poor but the resolution is generally good. Although the coverage is limited, these photos were helpful in both confirming and eliminating some of the routes identified in the 1980 inventory.

5) Socorro Field Office Digitized Transportation, Road and Trail Inventory: These data are an ongoing Field Office inventory of both improved and unimproved roads and trails throughout the Socorro Field Office. Transportation system information has been digitized for each 1:250,000 topographic map (7.5 minute).

Data Interpretation and Review

Using the 12 vehicular routes maps included in the 1980 IWIR as baseline data, all routes were reviewed in an effort to match/confirm their existence with at least one other data set, historical or current. Most of the routes in the 1980 inventory were easily authenticated and are included in the Socorro Field Office GIS Database. Data includes both GPS information as well as routes digitized off USGS 7.5 minute topographic maps.

In a few circumstances where mapped vehicular routes did not correspond to the legal descriptions in vehicle access routes, and where there was reasonable evidence that the intended location of the route was nearby, the route was relocated and digitized.

In other circumstances, mapped vehicle access routes did not clearly correspond to any route(s) that have been mapped or photographed either on or before the 1980 IWIR. Under these circumstances, available

spatial data were interpreted to discover nearby routes bearing a meaningful resemblance in shape and length to the IWIR mapped route(s). These routes were also relocated and digitized.

In review of the entire record, current conditions on the ground can and do vary from the 1980 inventory. Some routes have disappeared or re-vegetated (lack of use), and new routes have appeared as a result of unauthorized use, but are not included in this inventory.

Photocopies of all maps, inventory, text, and aerial photographs used in this review can be found in the notebook at the Socorro Field Office of the BLM. Additionally, the OHV Baseline Report, prepared on August 2003, also describes OHV and WSA information which will be carried forward for use in the Socorro RMPR.

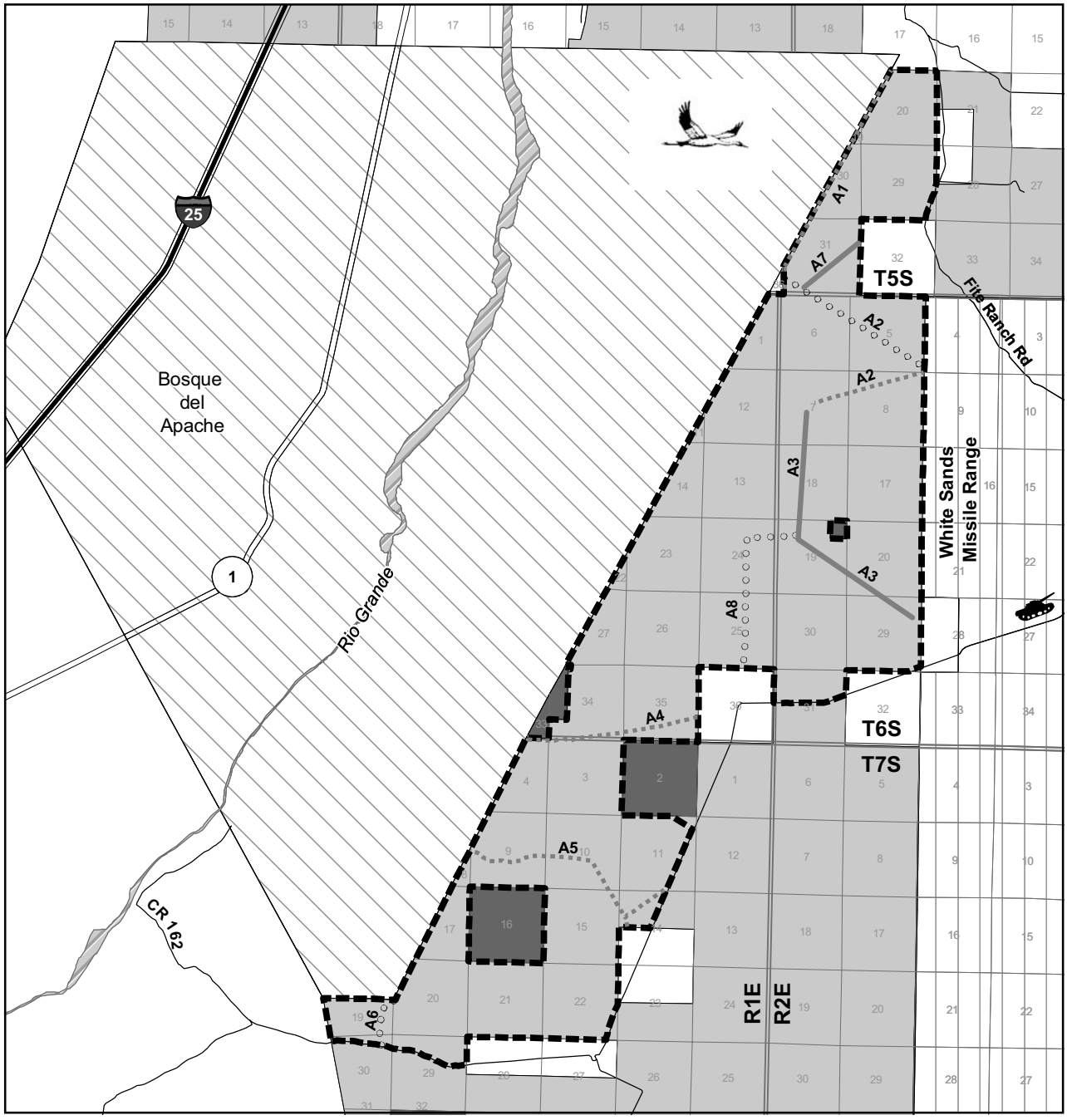
WILDERNESS STUDY AREA ROUTE DESIGNATIONS

Tables J-2 through J-13 detail miles of route designations by alternative within 12 of the 13 WSAs. Maps of alternative route designations follow each of the tables. No routes have been identified for the Devil's Reach WSA under any alternative.

TABLE J-2

MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR ANTELOPE WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	A1 (3 miles) A2 (1½ miles) A4 (2½ miles) A5 (3 miles)	A4 (2½ miles) A5 (1½ miles)		A1 (3 miles) A2 (½ mile) A4 (2½ miles) A5 (3 miles)
Total	10	4	0	9
Closed (rehabilitate)	*A3 *A7	A2 (2 miles) A3 (3½ miles) A5 (1½ miles) A6 (½ mile) A7 (1 mile) A8 (2 miles)	A2 (2 miles) A3 (3½ miles) A5 (3 miles) A6 (½ mile) A7 (1 mile) A8 (2 miles)	A2 (2 miles) A3 (3 ½ mile) A6 (½ mile) A7 (1 mile) A8 (2 miles)
Total	*4½	10½	12	9
Closed (permitted/ authorized only)		A1 (3 miles) A2 (1½ miles)	A1 (3 miles) A2 (1½ miles) A4 (2½ miles)	
Total	0	4½	7	0
Post WSA Route	A2 (2 miles) A3 (3½ miles) A6 (½ mile) A7 (1 mile) A8 (2 miles)			
Total	9	0	0	0



Legend

- WSA
- Way
- Post WSA Route
- Closed Routes

Land Status

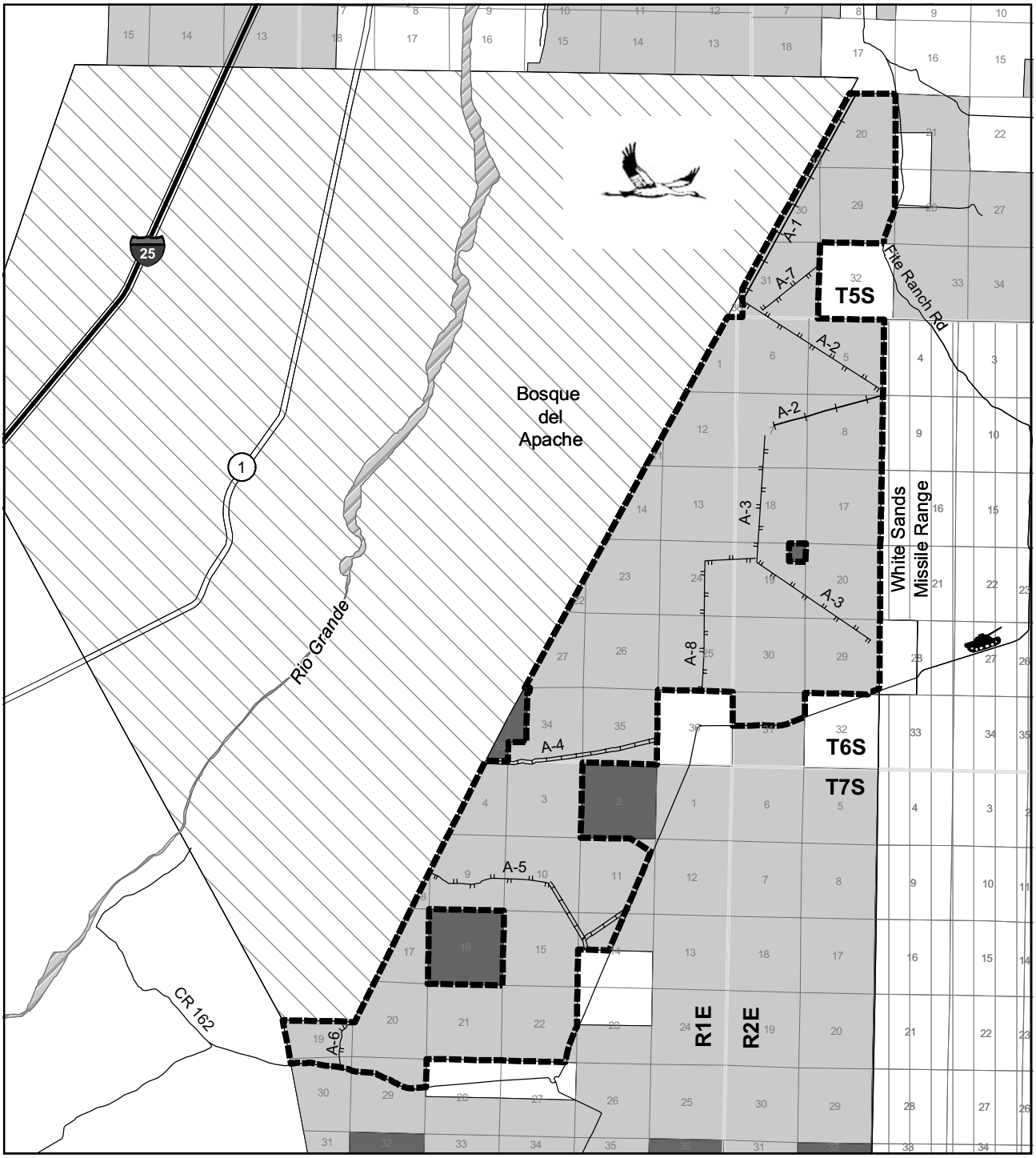
- BLM
- DOD
- FWS
- Private
- State

0 1 2 4 Miles

ANTELOPE WSA ROUTES
ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



Legend

- WSA
- Close (Permit)
- Close (Rehab)
- Open

Land Status

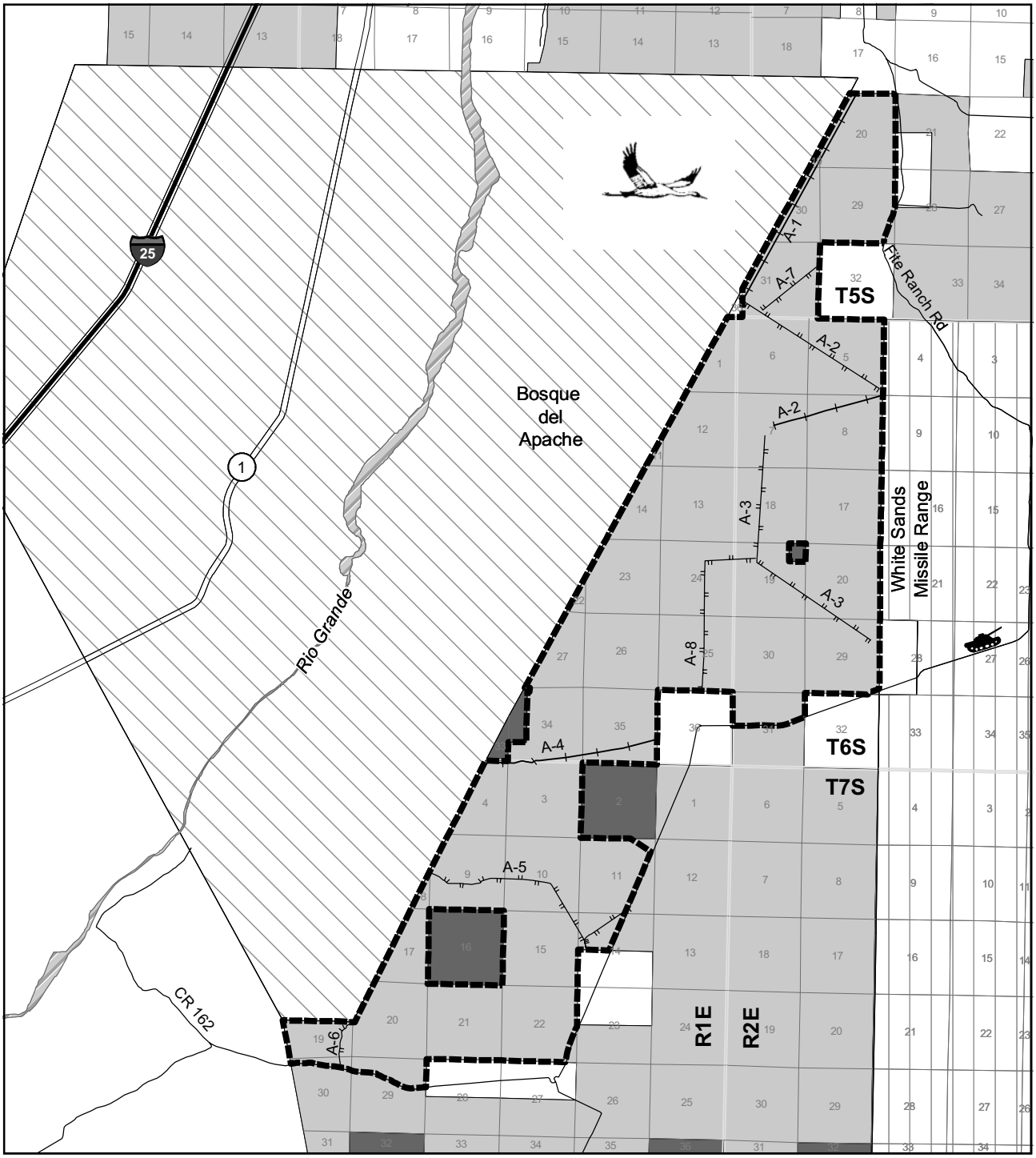
- BLM
- DOD
- FWS
- Private
- State

0 1 2 4 Miles

ROUTE DESIGNATIONS WITHIN ANTELOPE WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



Legend

- WSA
- Close (Permit)
- Close (Rehab)
- Open

Land Status

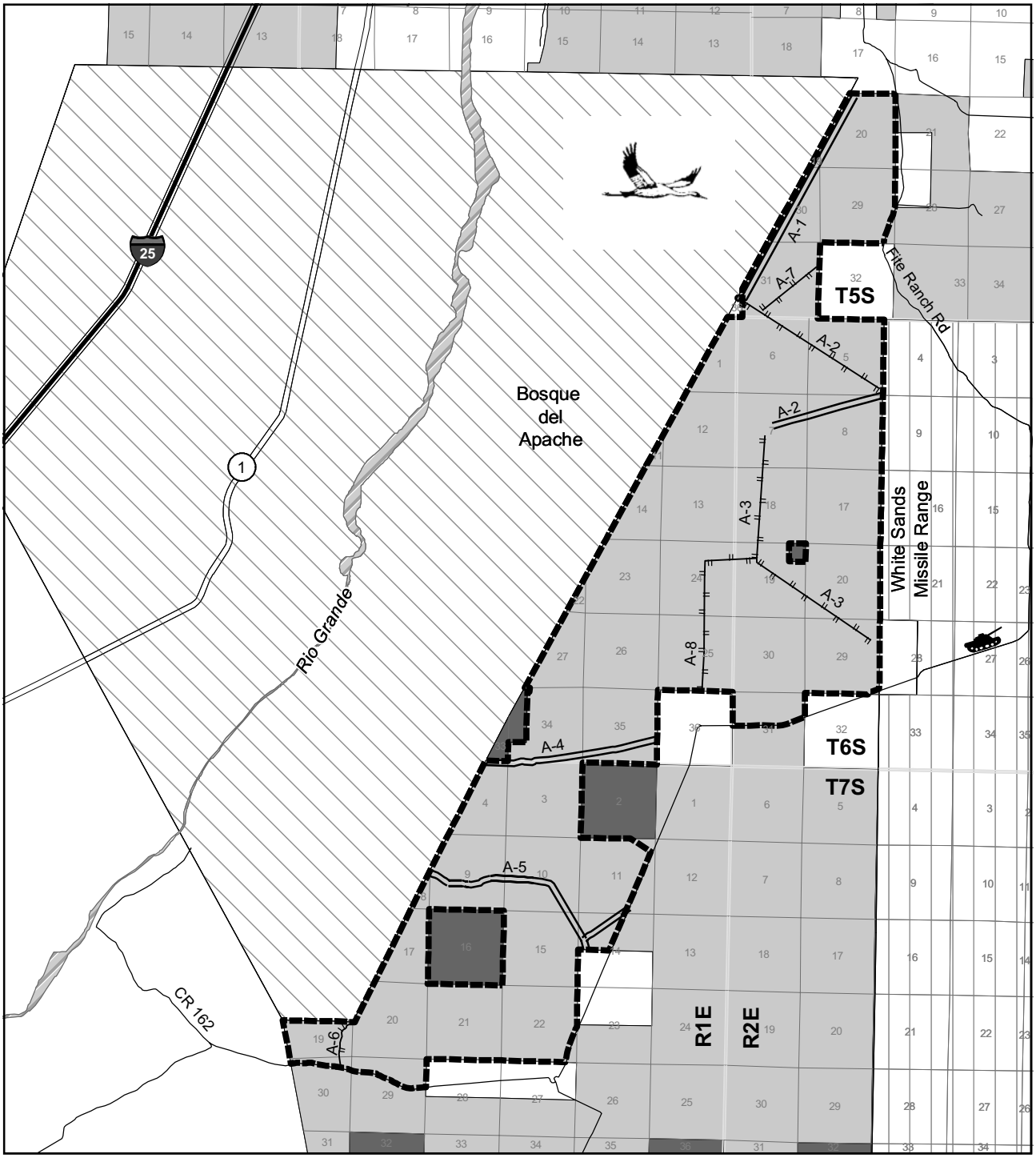
- BLM
- DOD
- FWS
- Private
- State

0 1 2 4 Miles

ROUTE DESIGNATIONS WITHIN ANTELOPE WSA ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



Legend

- WSA
- Close (Permit)
- Close (Rehab)
- Open

Land Status

- BLM
- DOD
- FWS
- Private
- State

0 1 2 4 Miles

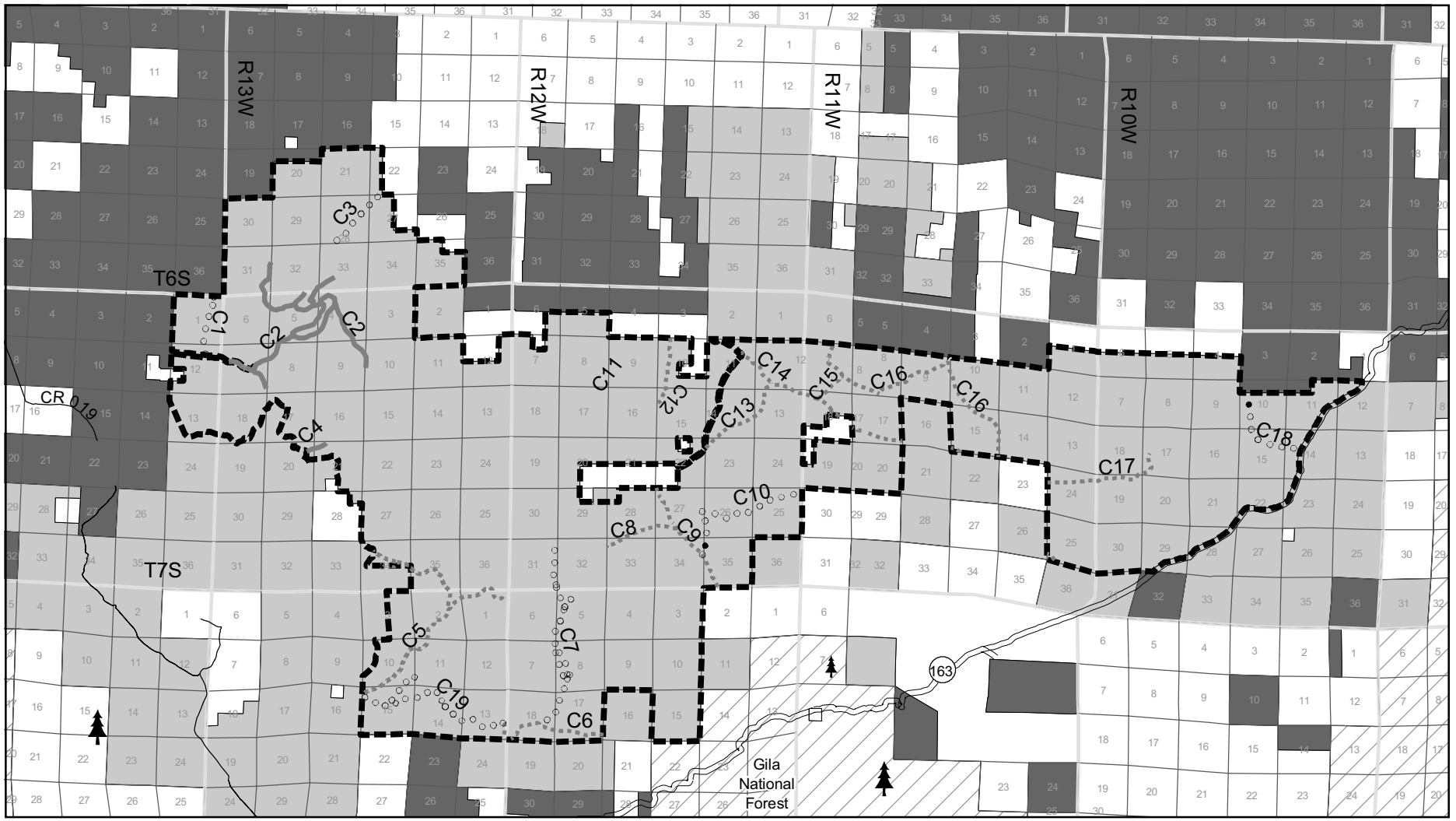
N

ROUTE DESIGNATIONS WITHIN ANTELOPE WSA ALTERNATIVE D

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data

TABLE J-3
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR CONTINENTAL DIVIDE WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	C5 (5½ miles) C6 (2½ miles) C9 (2 miles) C12 (1½ miles) C13 (2 miles) C14 (4½ miles) C15 (1½ miles) C16 (5 miles) C17 (2 ½ miles) C8 (2 miles)	C5 (5½ miles) C6 (2½ miles) C9 (2 miles) C14 (4½ miles) C15 (1½ miles) C16 (5 miles) C17 (2½ miles)	C5 (5½ miles) C6 (2½ miles) C9 (2 miles) C14 (4½ miles) C15 (1½ miles)	C2 (11 miles) C5 (5½ miles) C6 (2½ miles) C8 (2 miles) C9 (2 miles) C12 (1½ miles) C13 (2 miles) C14 (4½ miles) C15 (1½ miles) C16 (5 miles) C17 (2½ miles)
Total	29	23½	16	40
Closed (rehabilitate)	C4 (½ mile)	C13 (2 miles) C7 (4 miles) C11 (½ mile) C18 (1½ miles) C19 (4 miles) C4 (½ mile)	C13 (2 miles) C7 (4 miles) C11 (½ mile) C18 (1½ miles) C19 (4 miles) C4 (½ mile)	C4 (½ mile) C7 (4 miles) C11 (½ mile) C18 (1½ miles) C19 (4 miles)
Total	½	12½	12½	10½
Closed (permitted/ authorized only)	C2 (11 miles)	C12 (1½ miles) C1 (1 mile) C2 (11 miles) C3 (2½ miles) C8 (2 miles) C10 (3 miles)	C16 (5 miles) C17 (2½ miles) C12 (1½ miles) C1 (1 mile) C3 (2½ miles) C8 (2 miles) C2 (11 miles) C10 (3 miles)	C1 (1 mile) C3 (2½ miles) C10 (3 miles)
Total	11	21	28½	6½
Post WSA Route	C1 (1 mile) C3 (2½ miles) C7 (4 miles) C10 (3 miles) C11 (½ mile) C18 (1½ miles) C19 (4 miles)			
Total	16½	0	0	0



Legend

WSA
Way
Post WSA Route
Closed

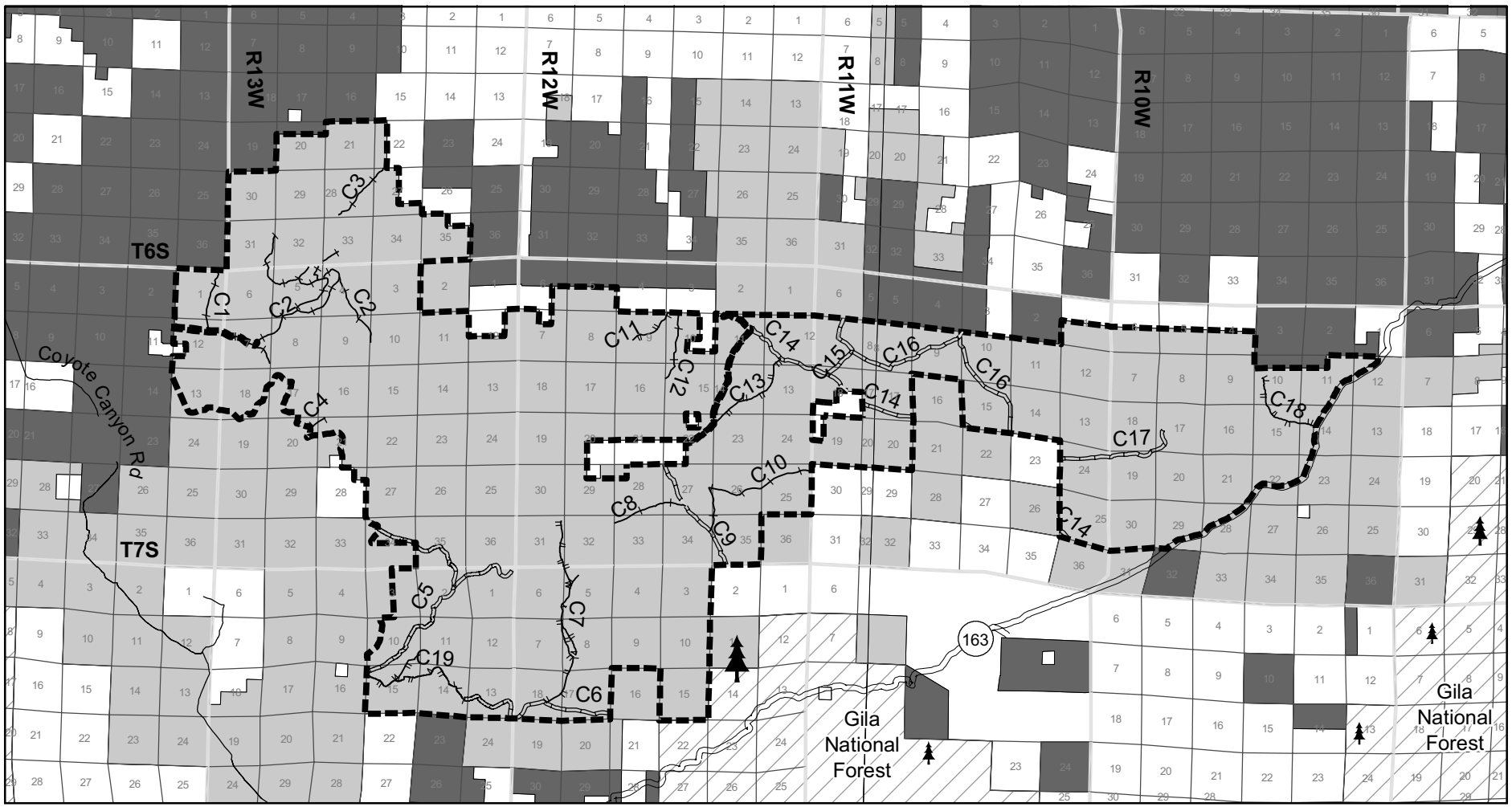
Land Status
BLM
FS
Private
State

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data

0 1 2 4 Miles

CONTINENTAL DIVIDE WSA ROUTES ALTERNATIVE A



Legend

	Land Status
WSA	BLM
Close (Permit)	Private
Close (Rehab)	State
Open	

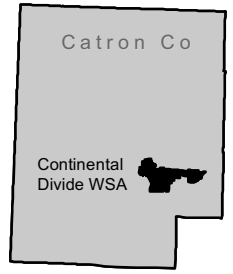
N

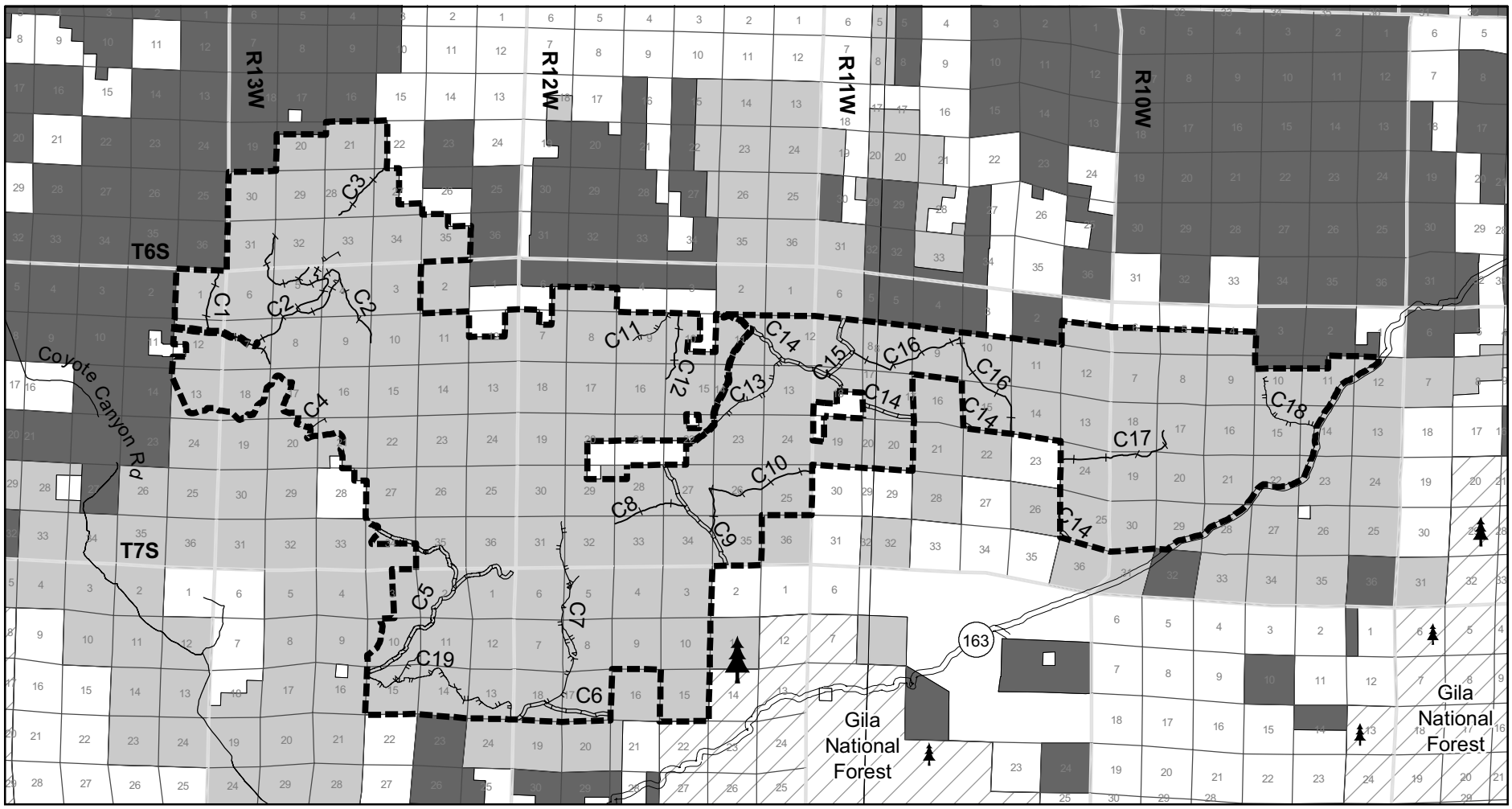
U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data

0 1.5 3 6 Miles

ROUTE DESIGNATIONS WITHIN CONTINENTAL DIVIDE WSA ALTERNATIVE B





Legend

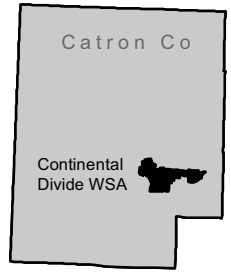
	Land Status
WSA	BLM
Close (Permit)	Private
Close (Rehab)	State
Open	

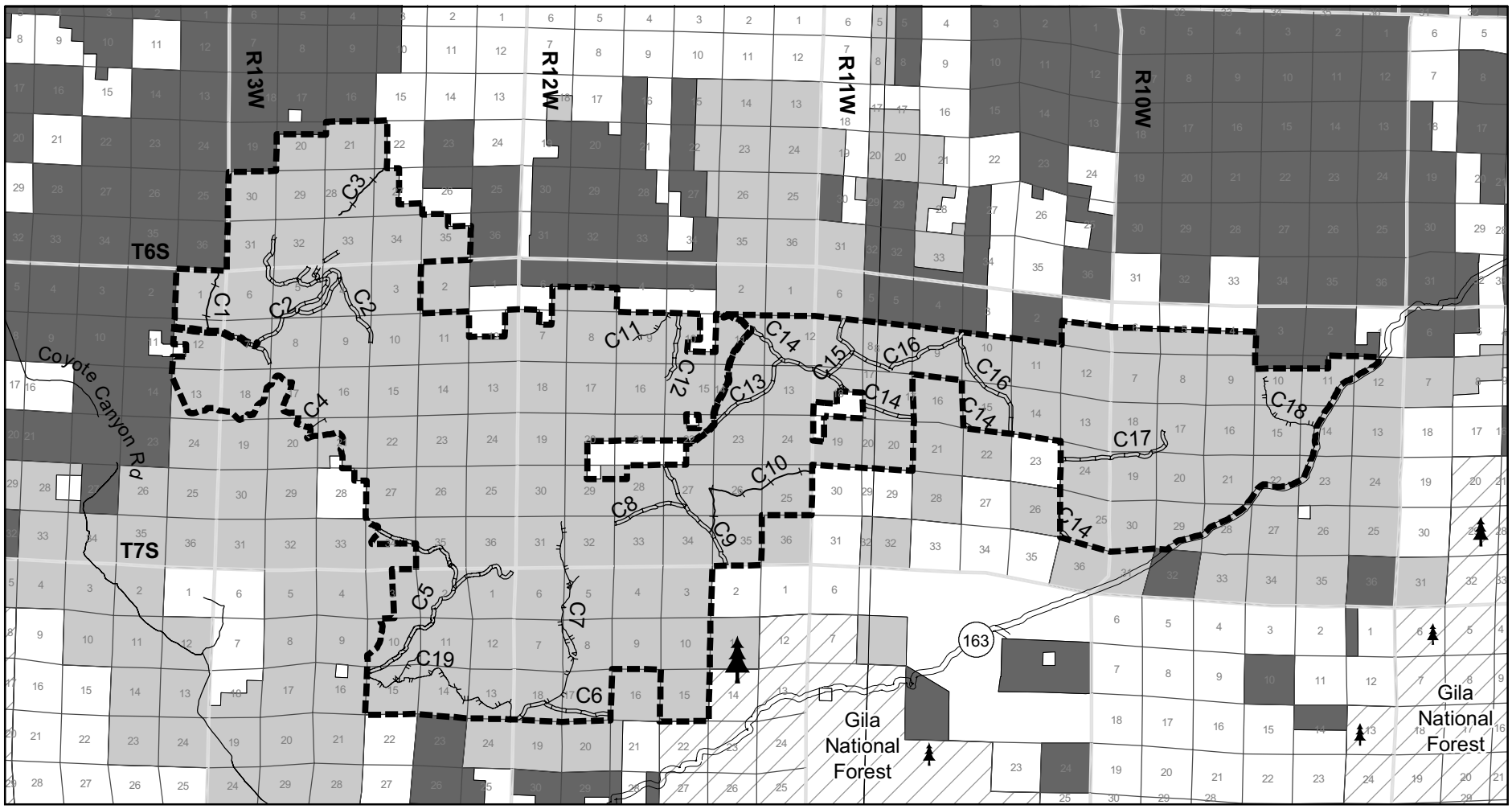
N

0 1.5 3 6 Miles

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data

ROUTE DESIGNATIONS WITHIN CONTINENTAL DIVIDE WSA ALTERNATIVE C





Legend

	Land Status
WSA	BLM
Close (Permit)	Private
Close (Rehab)	State
Open	

N

0 1.5 3 6 Miles

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data

ROUTE DESIGNATIONS WITHIN CONTINENTAL DIVIDE WSA ALTERNATIVE D

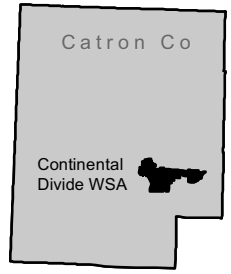
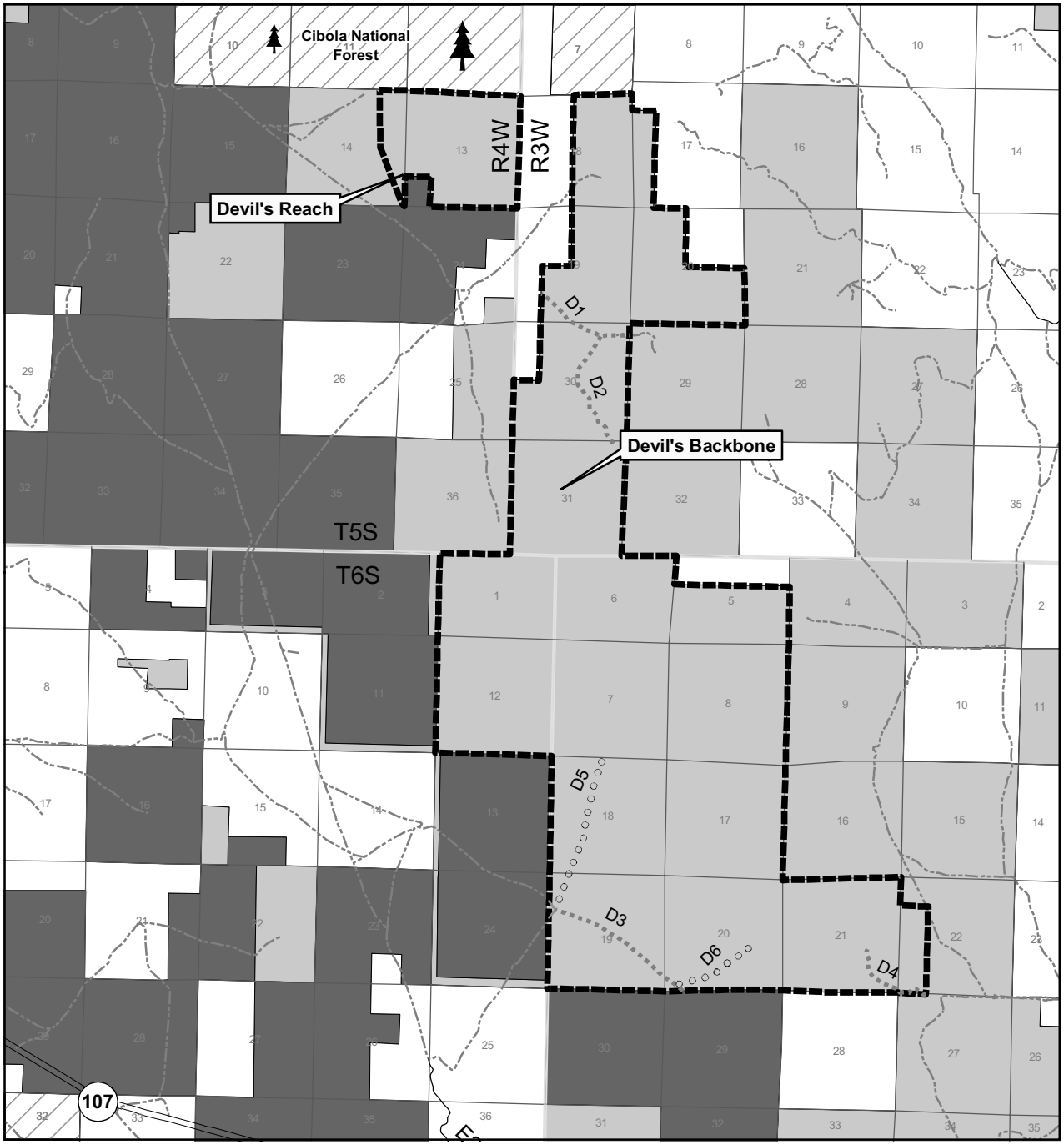


TABLE J-4
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR
DEVIL'S BACKBONE WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	D1 (1½ miles) D2 (2 miles) D3 (1½ miles) D4 (½ mile)	D3 (1½ miles) D4 (½ mile)	D3 (1½ miles)	D1 (1½ miles) D3 (1½ miles) D4 (½ mile)
Total	5½	2	1½	3½
Closed (rehabilitate)		D2 (2 miles)	D2 (2 miles) D5 (2 miles) D6 (1 mile)	D2 (2 miles)
Total	0	2	5	2
Closed (permitted/ authorized only)		D1 (1½ miles) D5 (2 miles) D6 (1 mile)	D1 (1½ miles) D4 (½ mile)	D5 (2 miles) D6 (1 mile)
Total	0	4½	2	3
Post WSA Route	D5 (2 miles) D6 (1 mile)			
Total	3	0	0	0



Legend

- WSA
- WAY
- Post WSA Route

Land Status

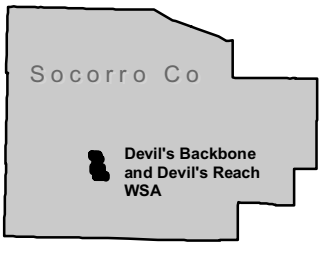
- BLM
- FS
- Private
- State

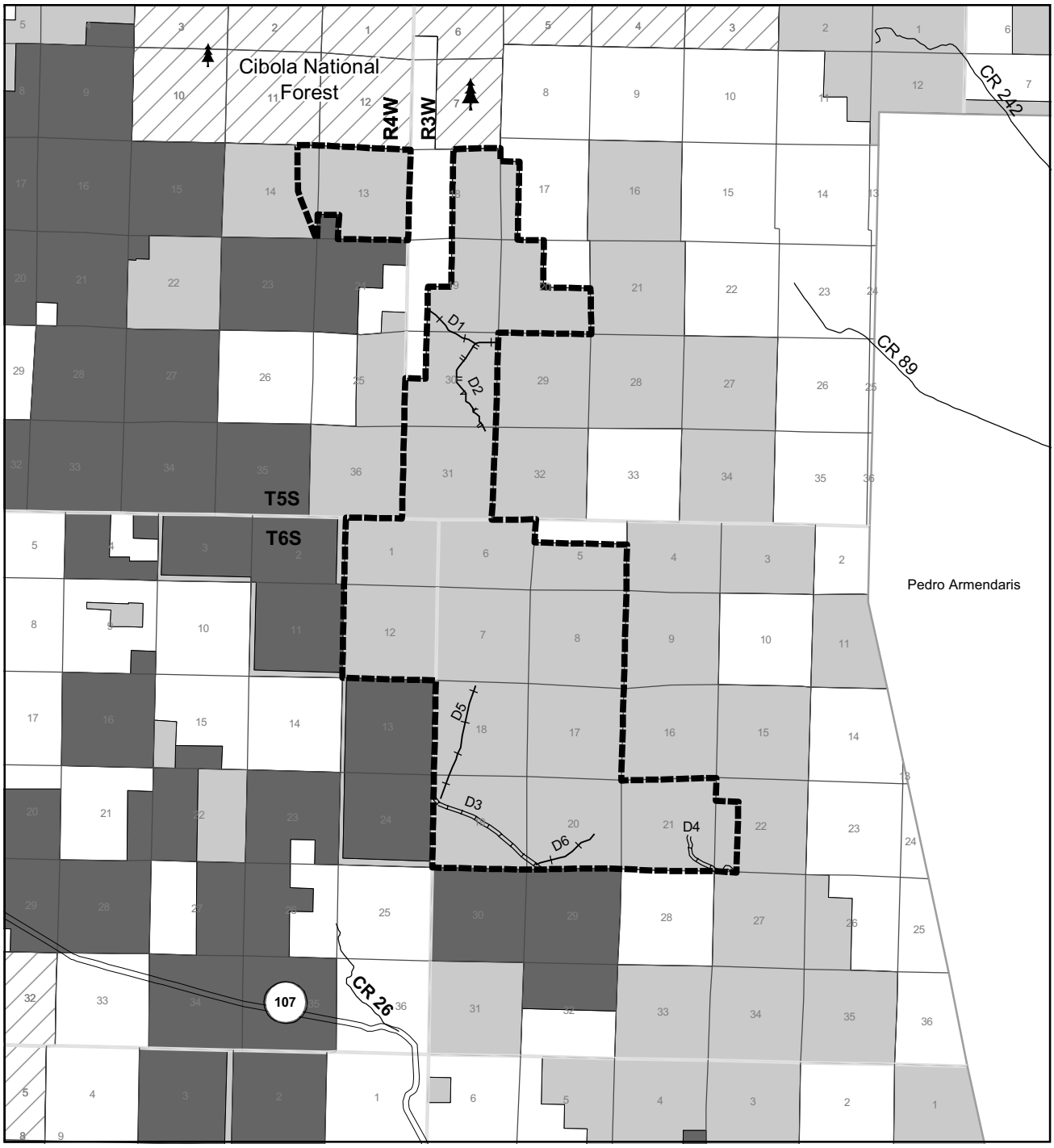
0 1 2 4 Miles

DEVIL'S BACKBONE & DEVIL'S REACH WSA ROUTES ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data





Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

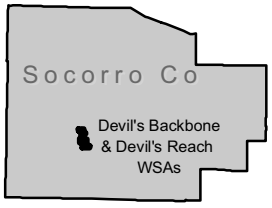
Land Status

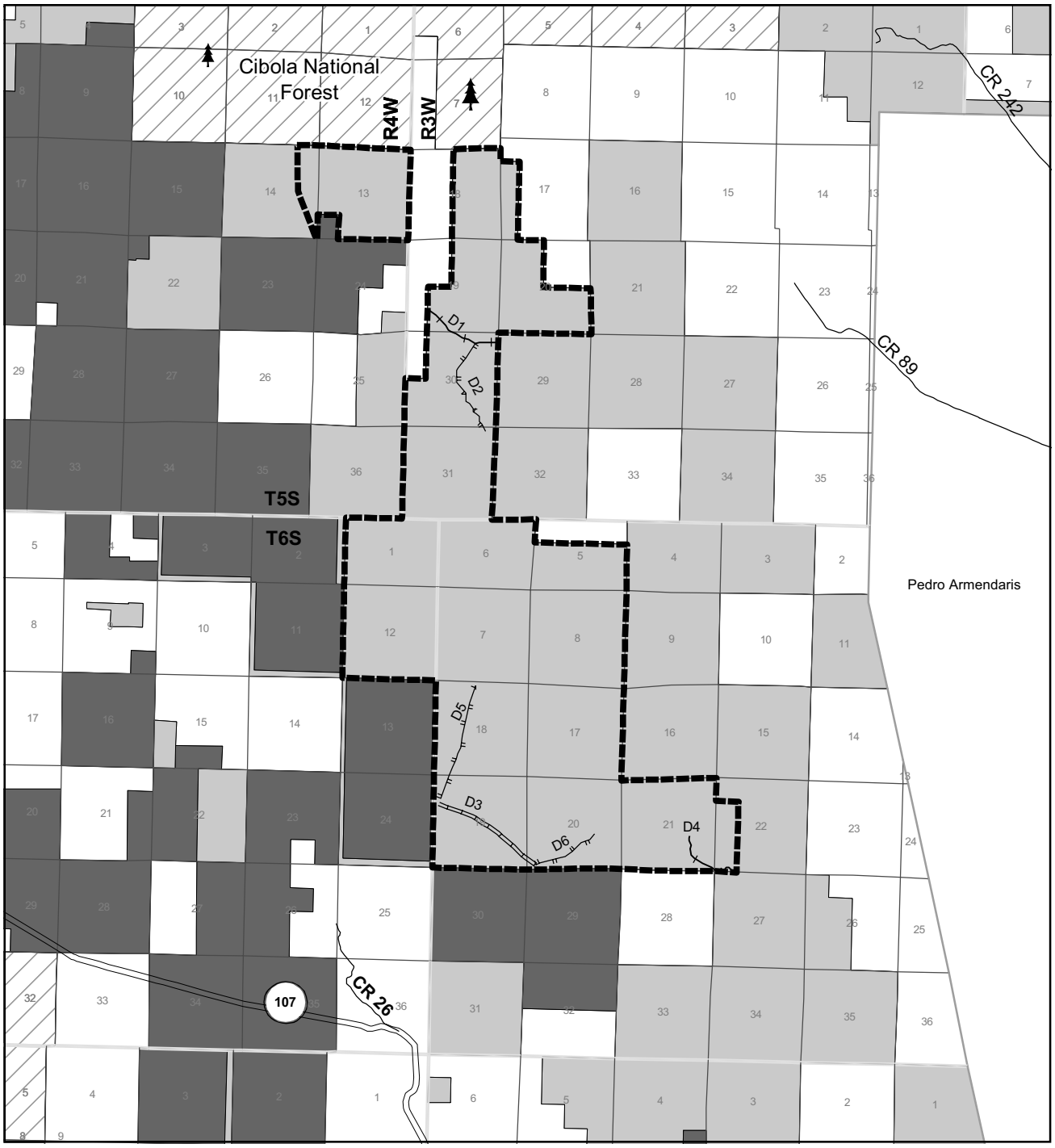
- BLM
- FS
- Private
- State

ROUTE DESIGNATIONS WITHIN DEVILS REACH & DEVIL'S BACKBONE WSAs ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data





0 1 2 4 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- FS
- Private
- State

ROUTE DESIGNATIONS WITHIN DEVILS REACH & DEVIL'S BACKBONE WSAs ALTERNATIVE C

N

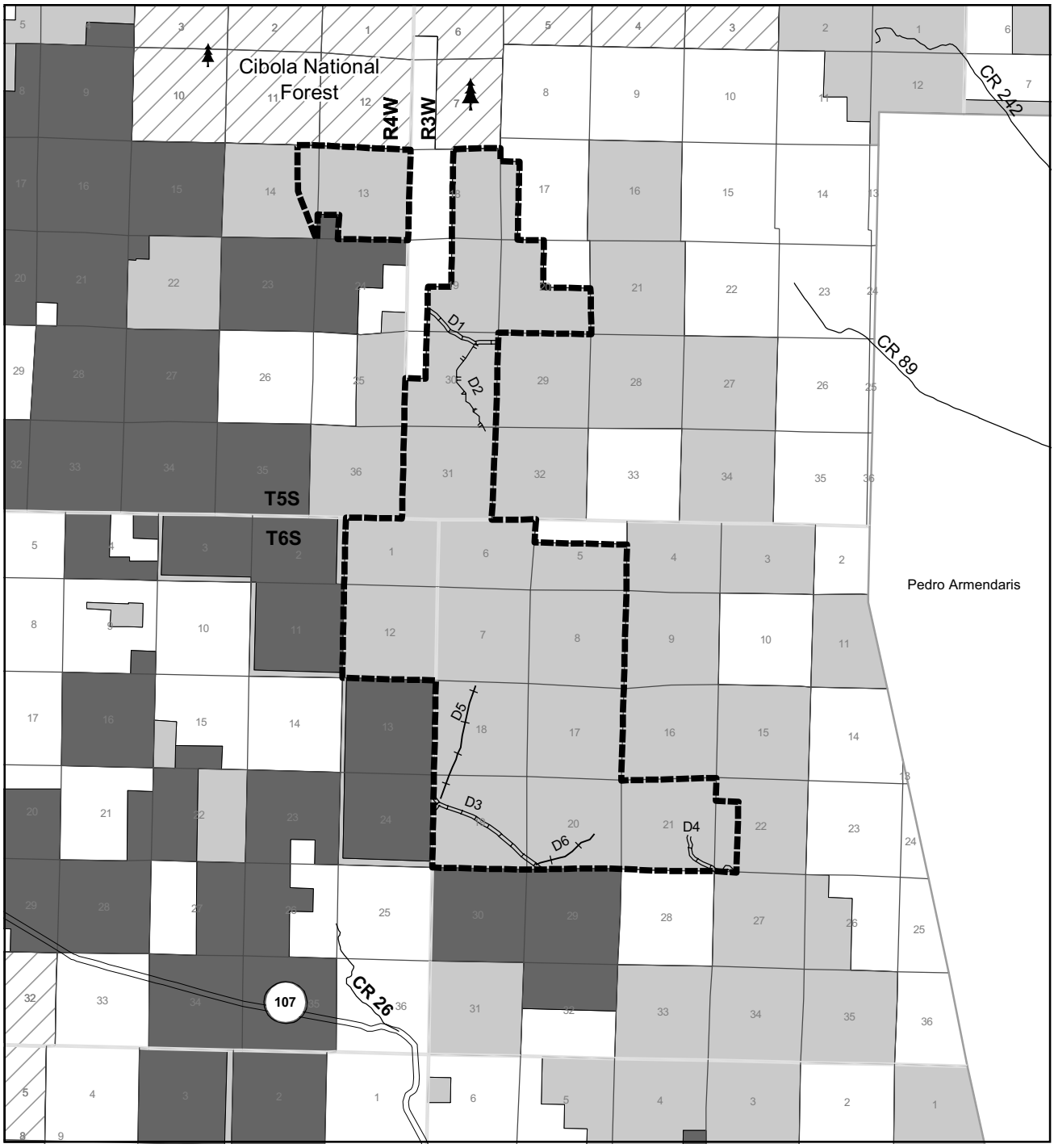
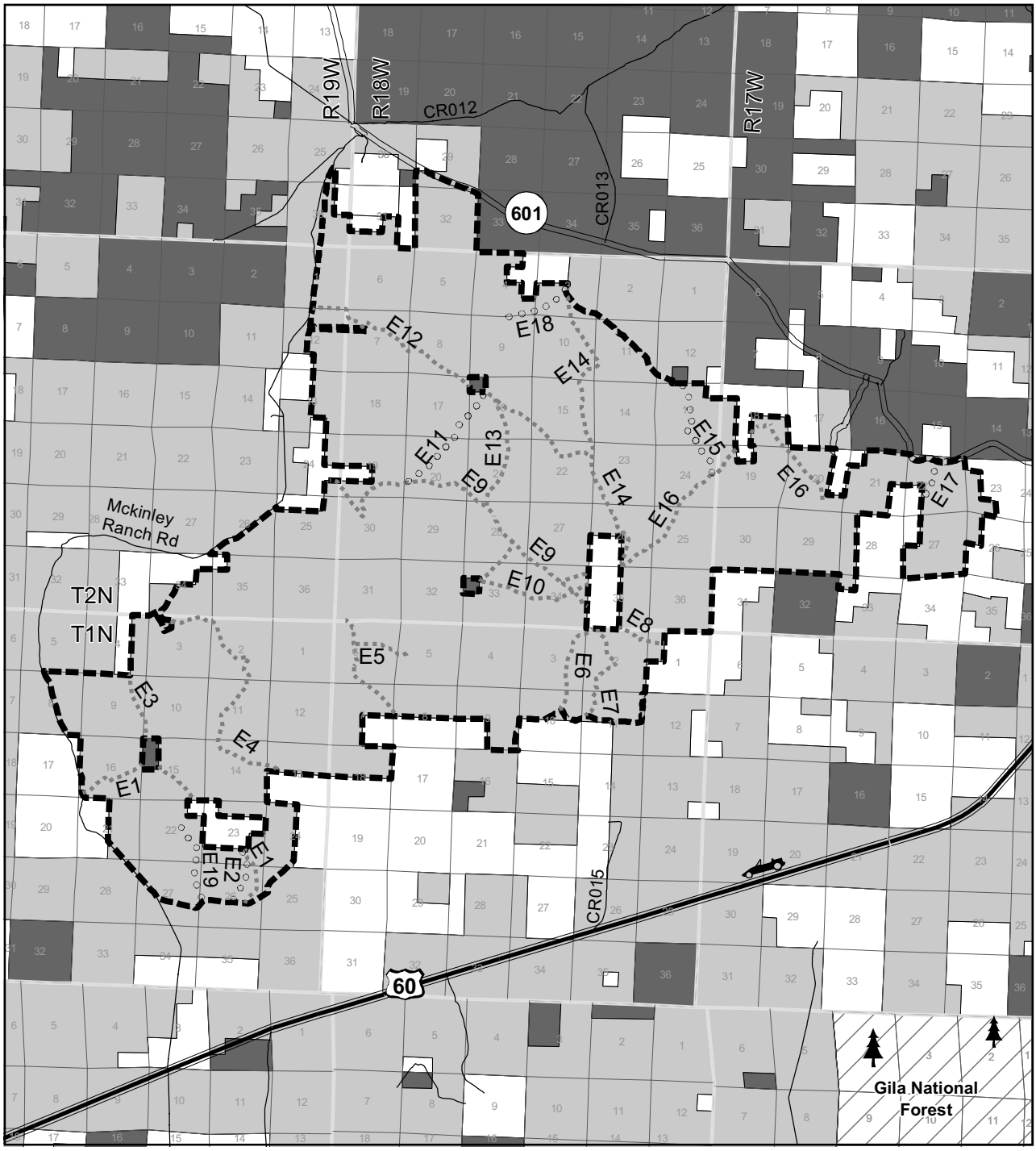

Cibola National Forest
R4W
R3W
T5S
T6S
CR 242
CR 89
CR 26
107
D1
D2
D3
D4
D5
D6
Pedro Armendaris
0 1 2 4 Miles
Legend
WSA
Close(Permit)
Close(Rehab)
Open
Land Status
BLM
FS
Private
State
N
ROUTE DESIGNATIONS WITHIN
DEVILS REACH &
DEVIL'S BACKBONE WSAs
ALTERNATIVE D
No warranty is made by BLM as to the accuracy, reliability, or completeness of the data
Socorro Co
Devil's Backbone & Devil's Reach WSAs

TABLE J-5
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR EAGLE'S PEAK WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	E1 (3 miles) E3 (1 mile) E4 (3½ miles) E5 (3½ miles) E6 (1½ miles) E7 (1½ miles) E8 (1 mile) E9 (6 miles) E10 (3 miles) E12 (5 miles) E13 (2 miles) E14 (5 miles) E16 (4½ miles)	E1 (1 mile) E3 (1 mile) E6 (1½ miles) E9 (6 miles) E10 (3 miles) E12 (5 miles) E13 (2 miles) E14 (5 miles) E16 (4½ miles)	E1 (1 mile) E3 (1 mile) E6 (1½ miles) E9 (6 miles) E10 (3 miles) E12 (3 miles) E13 (2 miles) E14 (5 miles)	E1 (3 miles) E3 (1 mile) E4 (3½ miles) E5 (3½ miles) E6 (1½ miles) E7 (1½ miles) E8 (1 mile) E9 (6 miles) E10 (3 miles) E12 (5 miles) E13 (2 miles) E14 (5 miles) E16 (4½ miles)
Total	40½	29	22½	40½
Closed (rehabilitate)		E1 (2 miles) E2 (1 mile) E4 (3½ miles) E7 (1½ miles) E8 (1 mile) E11 (2 miles) E17 (1 mile) E18 (2 miles) E19 (2 miles)	E1 (2 miles) E2 (1 mile) E4 (3½ miles) E7 (1½ miles) E8 (1 mile) E11 (2 miles) E12 (2 miles) E17 (1 mile) E19 (2 miles)	E2 (1 mile) E11 (2 miles) E17 (1 mile) E18 (2 miles)
Total	0	16	16	6
Closed (permitted/ authorized only)		E5 (3½ miles) E15 (2 miles)	E5 (3½ miles) E15 (2 miles) E16 (4½ miles) E18 (2 miles)	E15 (2 miles) E19 (2 miles)
Total	0	5½	12	4
Post WSA Route	E2 (1 mile) E11 (2 miles) E15 (2 miles) E17 (1 mile) E18 (2 miles) E19 (2 miles)			
Total	10	0	0	0



Legend

- WSA
- Way
- Post WSA Route

Land Status

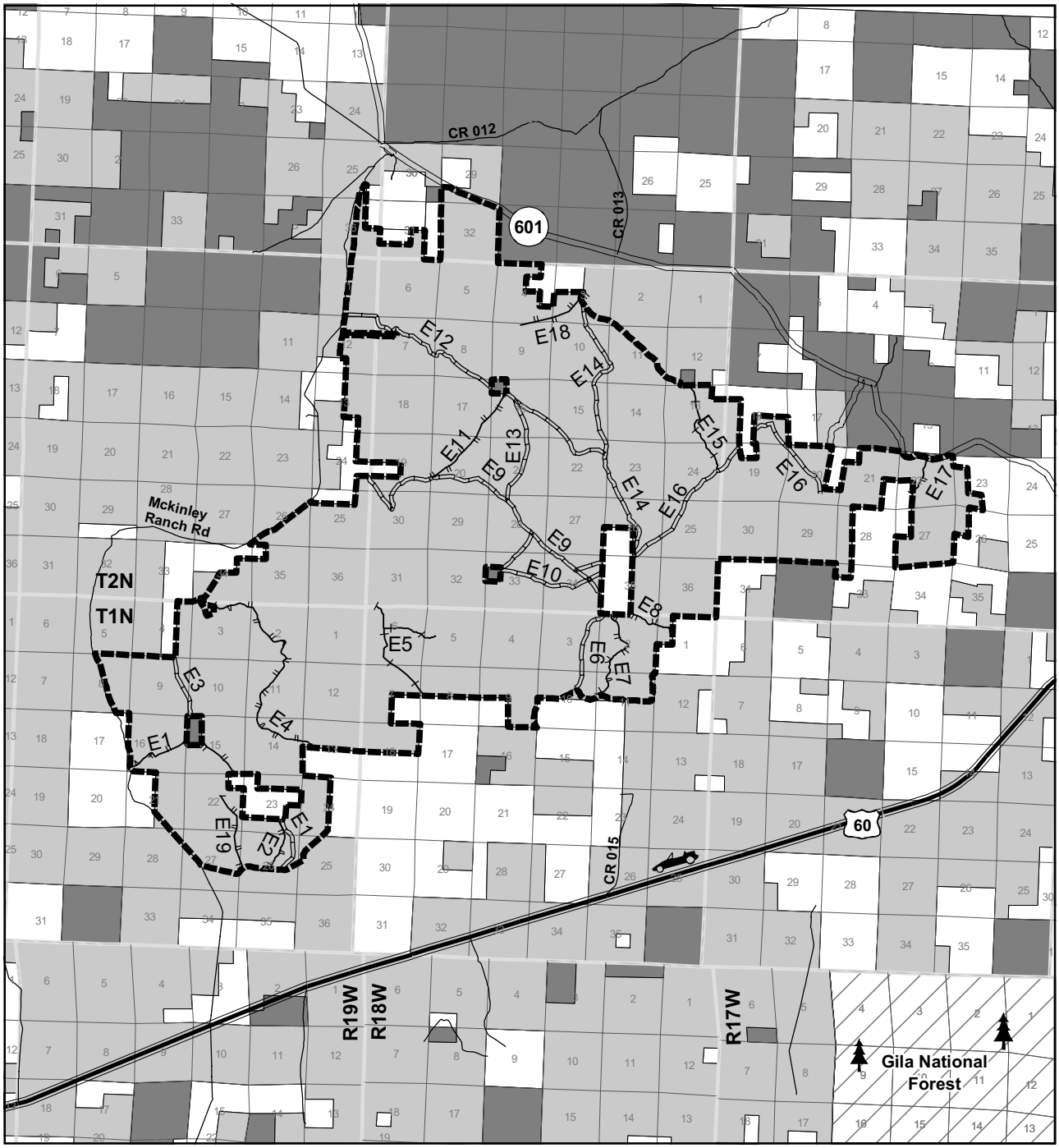
- BLM
- FS
- Private
- State

0 1.25 2.5 5 Miles

EAGLE PEAK WSA ROUTES ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



0 1.5 3 6 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

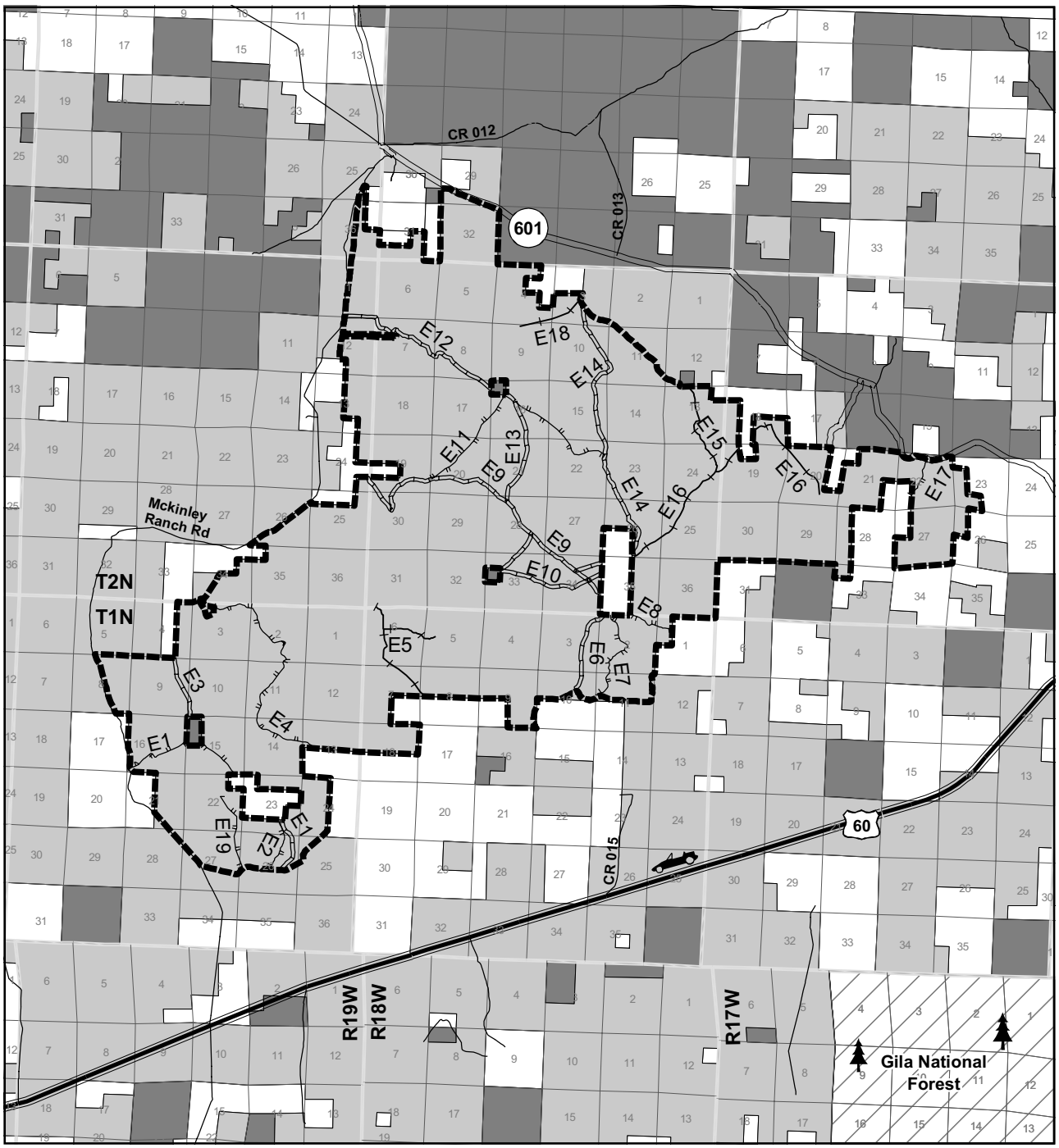
Land Status

- BLM
- FS
- Private
- State

ROUTE DESIGNATIONS WITHIN EAGLE PEAK WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



0 1.5 3 6 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

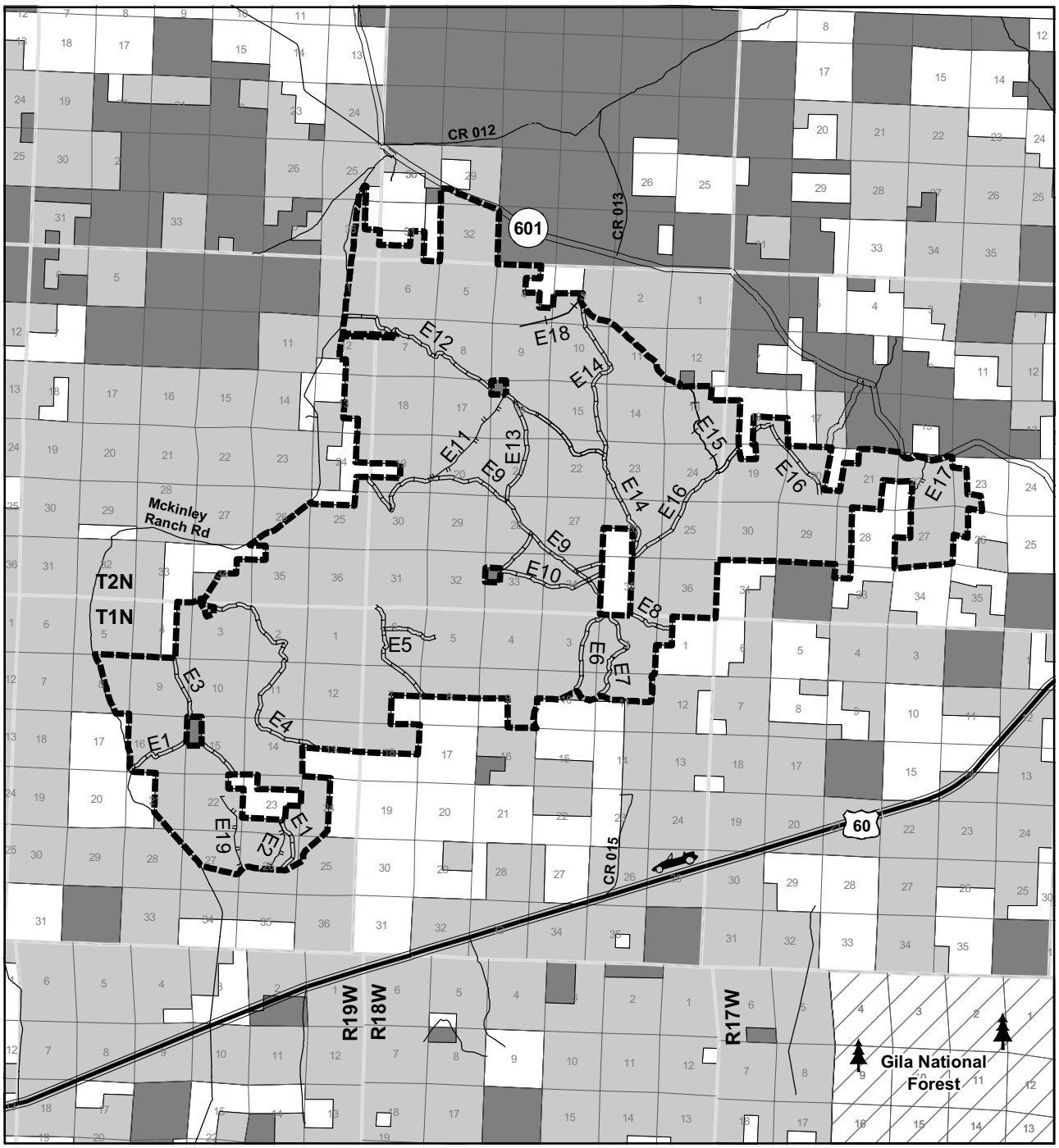
Land Status

- BLM
- FS
- Private
- State

ROUTE DESIGNATIONS WITHIN EAGLE PEAK WSA ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



0 1.5 3 6 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- FS
- Private
- State

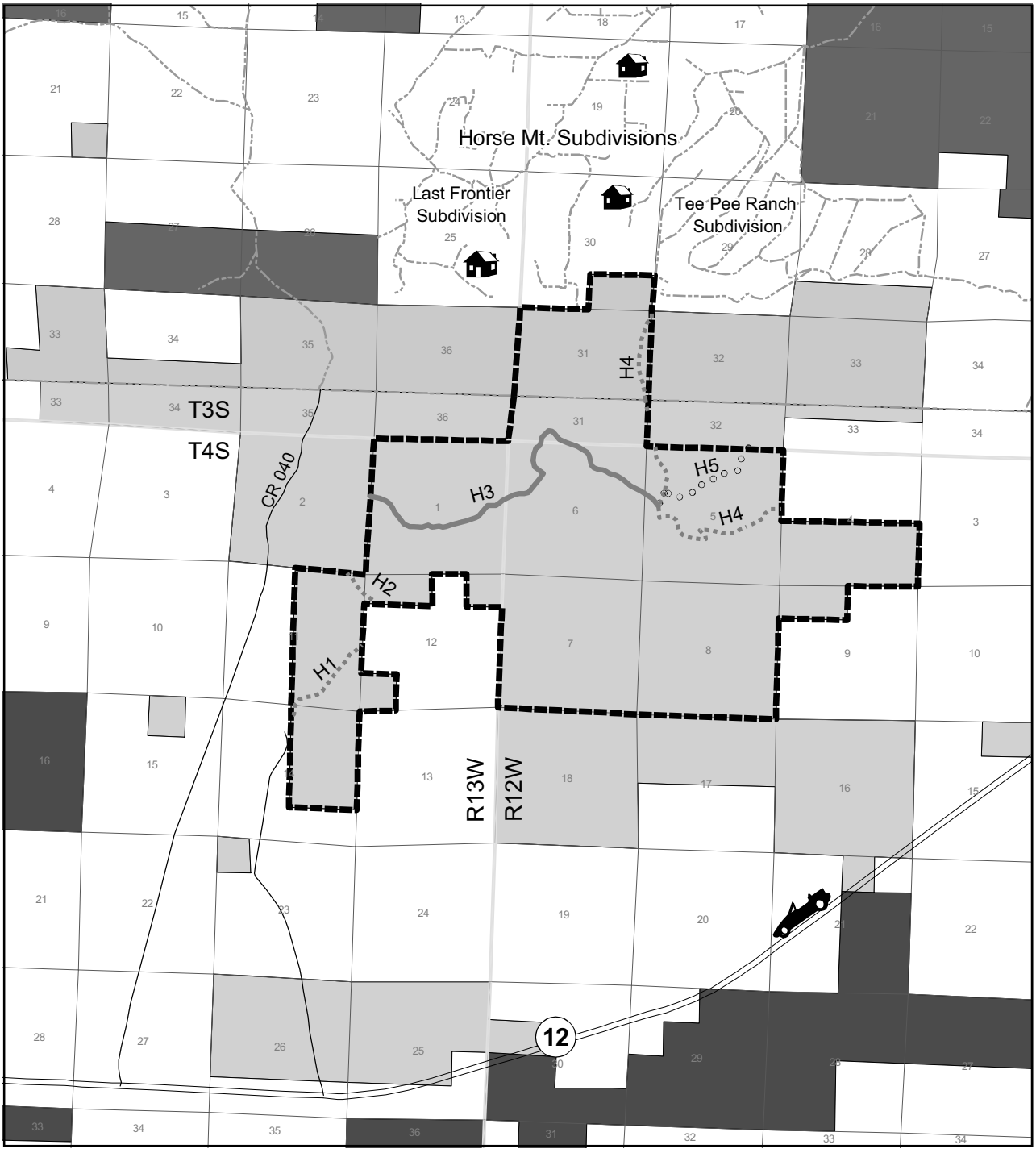
ROUTE DESIGNATIONS WITHIN EAGLE PEAK WSA ALTERNATIVE D

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data

TABLE J-6
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR
HORSE MOUNTAIN WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	H1 (1mile) H2 (½ mile) H4 (4 miles) H5 (1 mile)			H1 (1 mile) H2 (½ mile) H3 (2 miles) H4 (4 miles) H5 (1 mile)
Total	6½	0	0	8½
Closed (rehabilitate)	H3 (2 miles)	H3 (2 miles) H4 (4 miles) H5 (1 mile)	H1 (1 mile) H2 (½ mile) H3 (2 miles) H4 (4 miles) H5 (1 mile)	
Total	2	7	8½	0
Closed (permitted/ authorized only)		H1 (1 mile) H2 (½ mile)		
Total	0	1½	0	0
Post WSA Route				
Total	0	0	0	0



0 0.5 1 2 Miles

Legend

- WSA
- Way
- Post WSA Route
- Closed Route

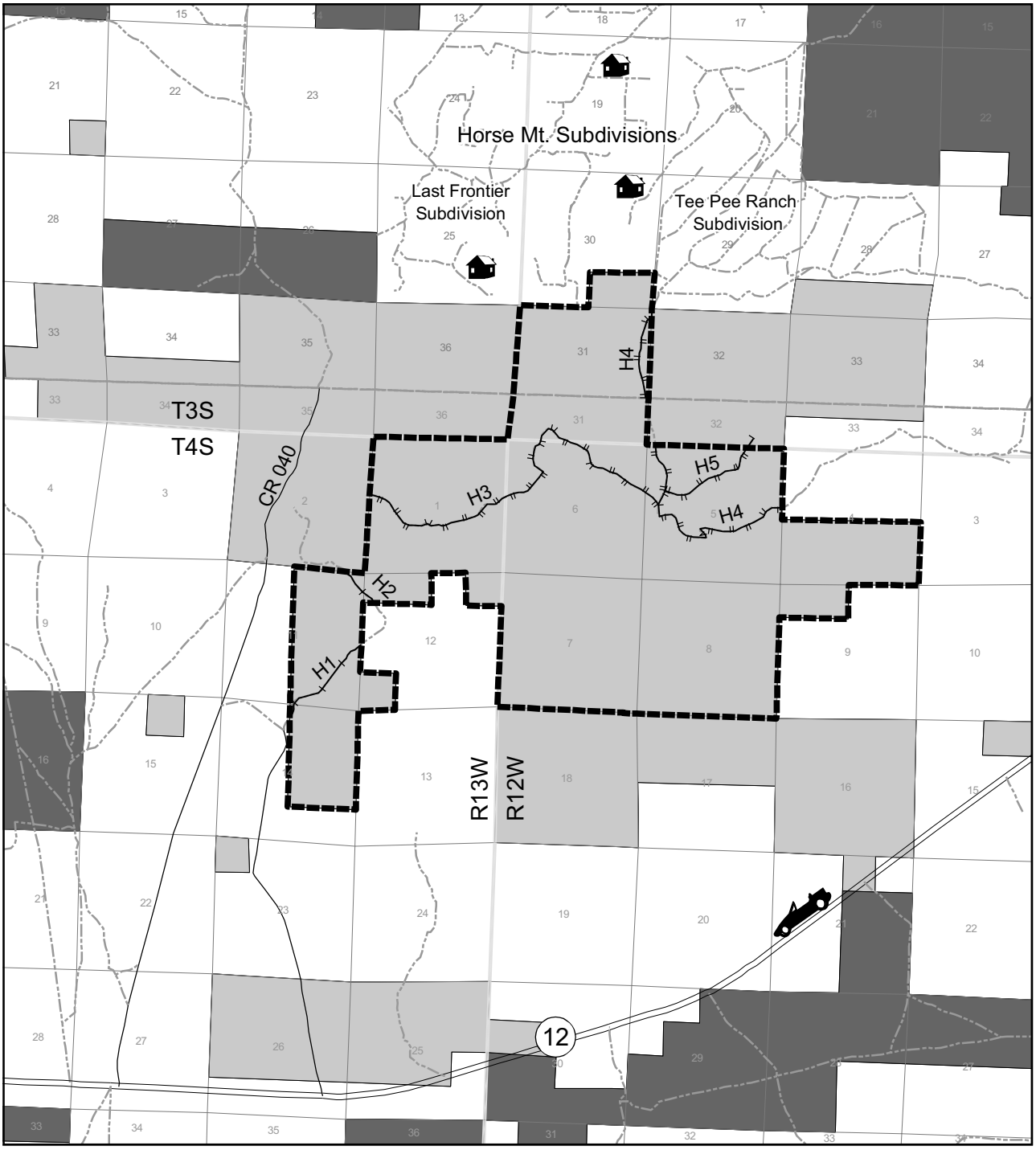
Land Status

- BLM
- Private
- State

HORSE MOUNTAIN WSA ROUTES ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



0 0.5 1 2 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

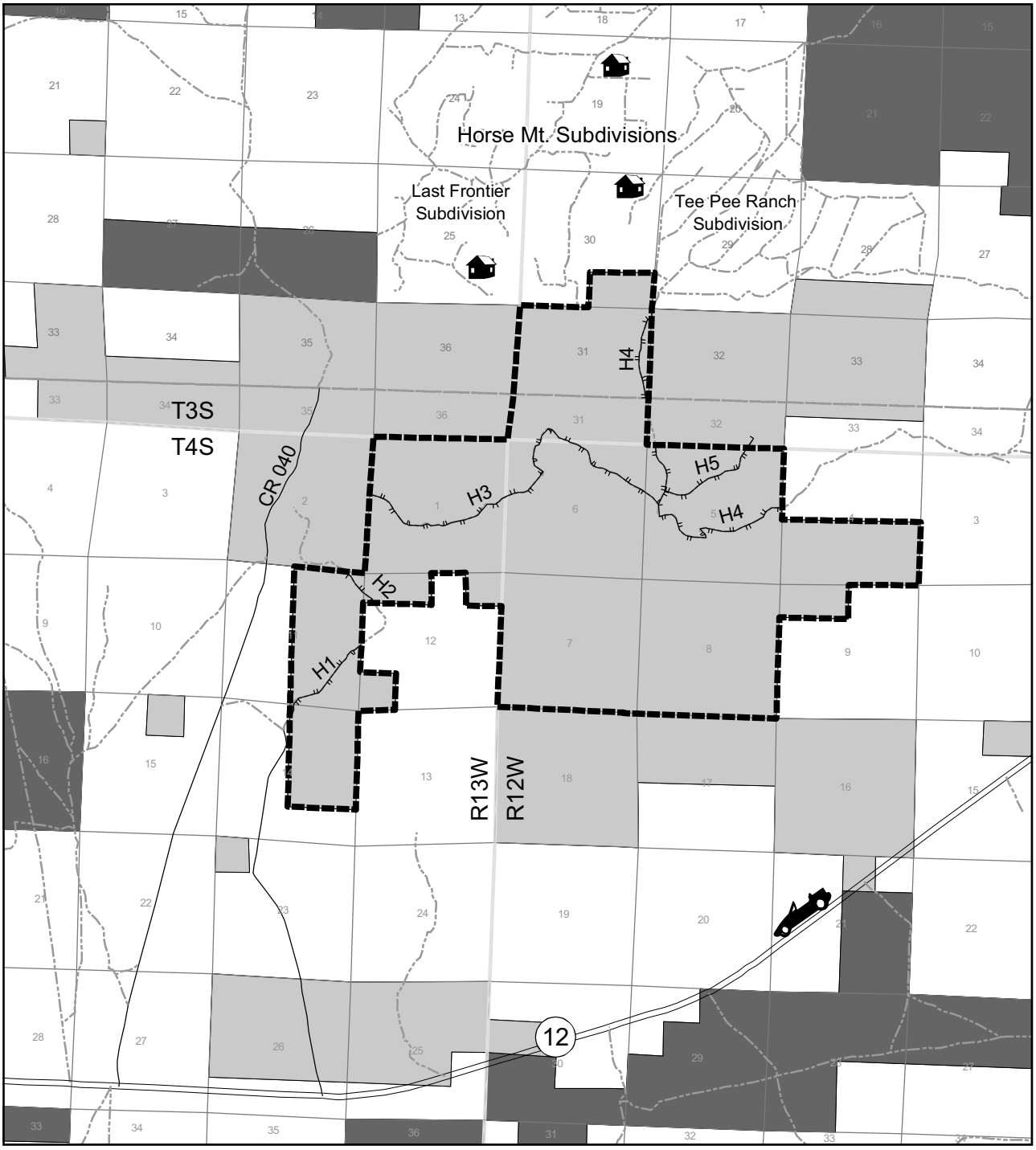
Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN HORSE MOUNTAIN WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



0 0.5 1 2 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

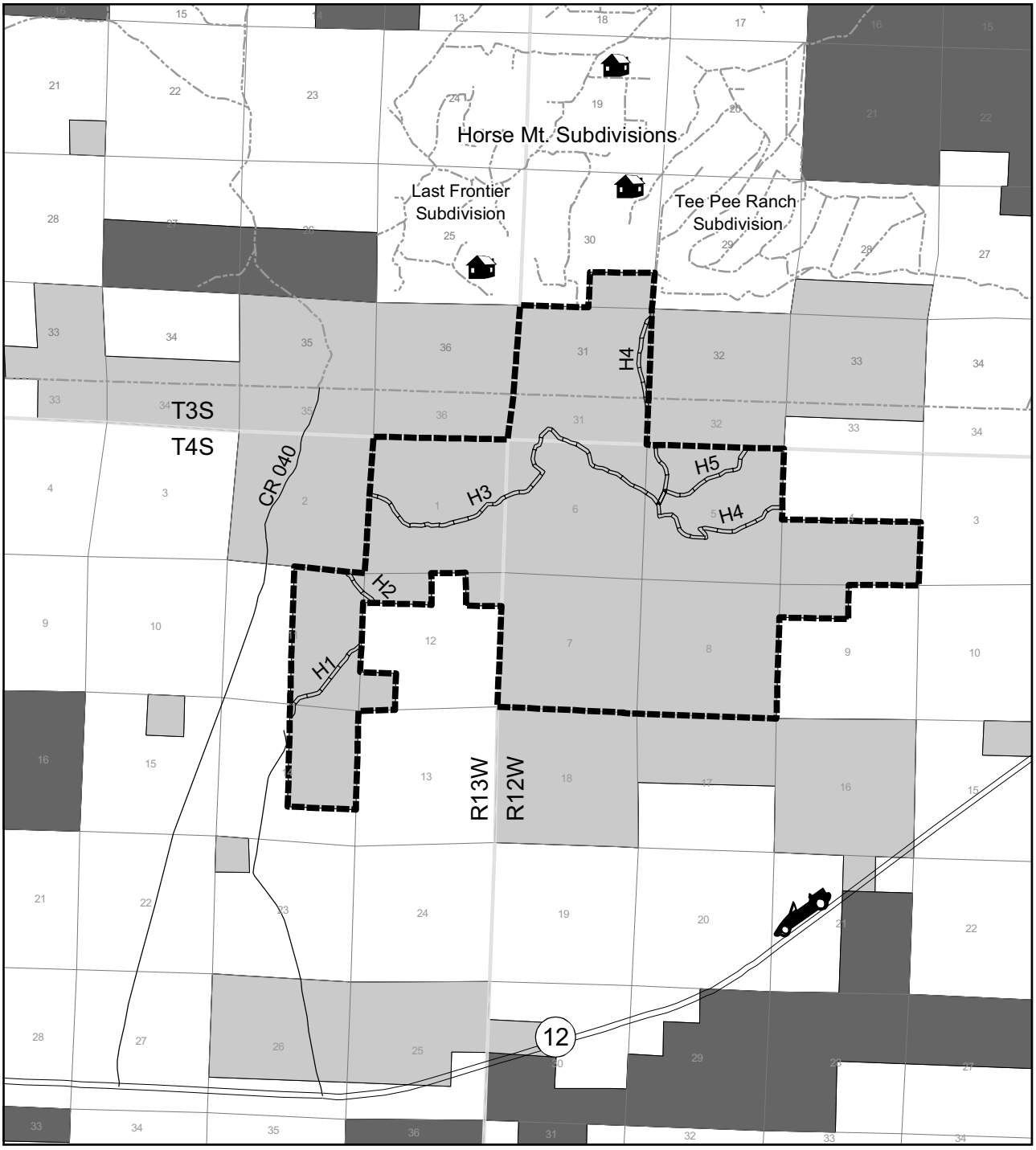
Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN HORSE MOUNTAIN WSA ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



0 0.5 1 2 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN HORSE MOUNTAIN WSA ALTERNATIVE D

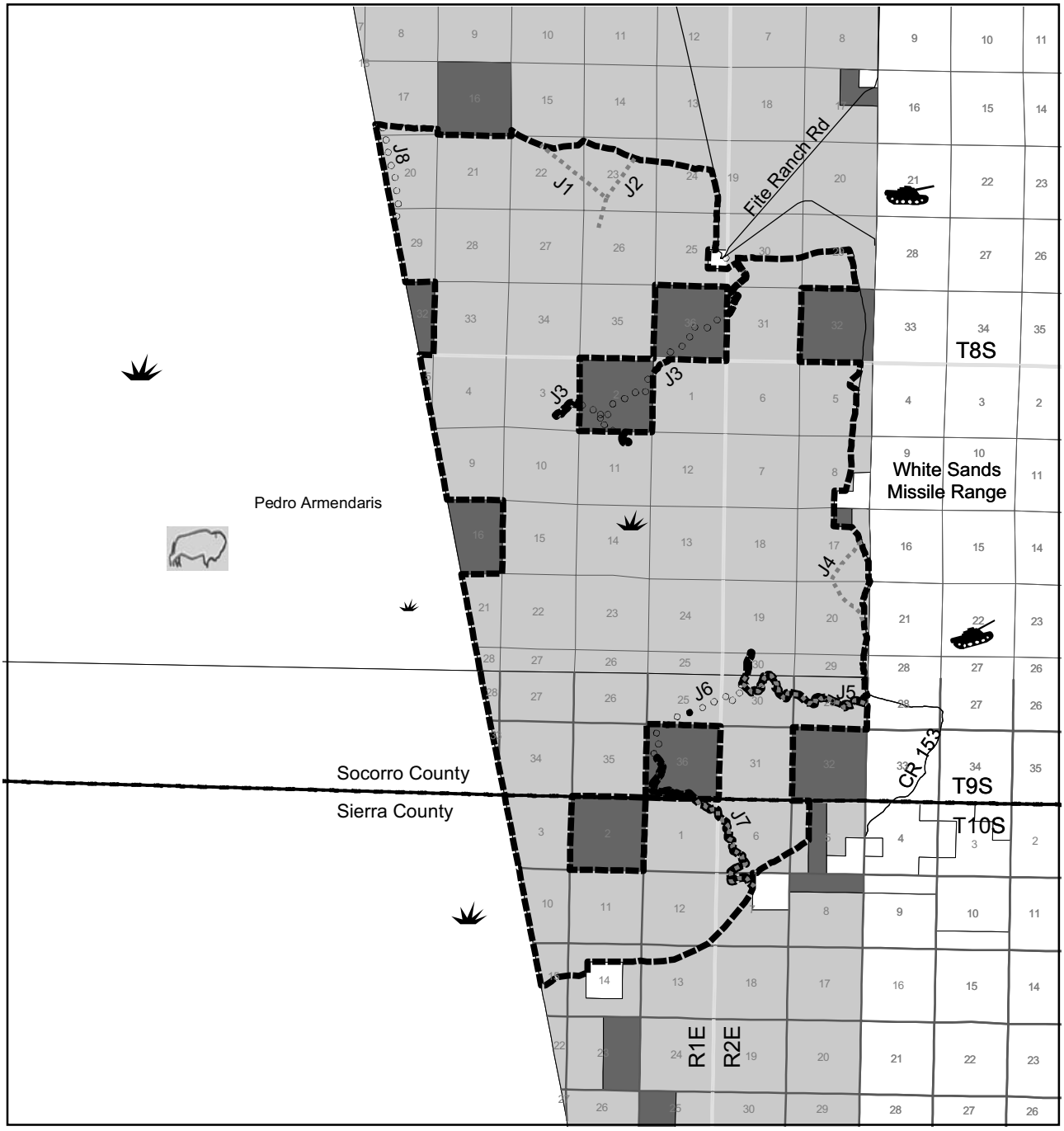
N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data

TABLE J-7
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR
JORNADA DEL MUERTO WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	J1 (2 miles) J2 (2 miles) J3 (2 miles CS) J4 (2 miles) J5 (3 miles-CS) J7 (1½ miles-CS)	J1 (2 miles) J2 (1¼ miles) J4 (2 miles) J5 (3 miles-CS) J7 (1½ miles-CS)	J1 (2 miles) J2 (1¼ miles) J4 (2 miles) J5 (3 miles-CS) J7 (1½ miles-CS)	J1 (2 miles) J2 (2 miles) J3 (2 miles-CS) J4 (2 miles) J5 (3 miles-CS) J7 (1½ miles-CS)
Total	12½	9¾	9¾	12½
Closed (rehabilitate)		J6 (2 miles) J8 (½ mile)	J6 (2 miles) J8 (½ mile)	J6 (2 miles) J8 (½ mile)
Total	0	2½	2½	2½
Closed (permitted/ authorized only)		J2 (¾ mile) J3 (2 miles-CS)	J2 (¾ mile) J3 (2 miles-CS)	
Total	0	2¾	2¾	0
Post WSA Route	J6 (2 miles) J8 (½ mile)			
Total	2½	0	0	0

NOTE: CS = Cherry-stem Road



Legend

- WSA
- Way
- Post WSA Route

Land Status

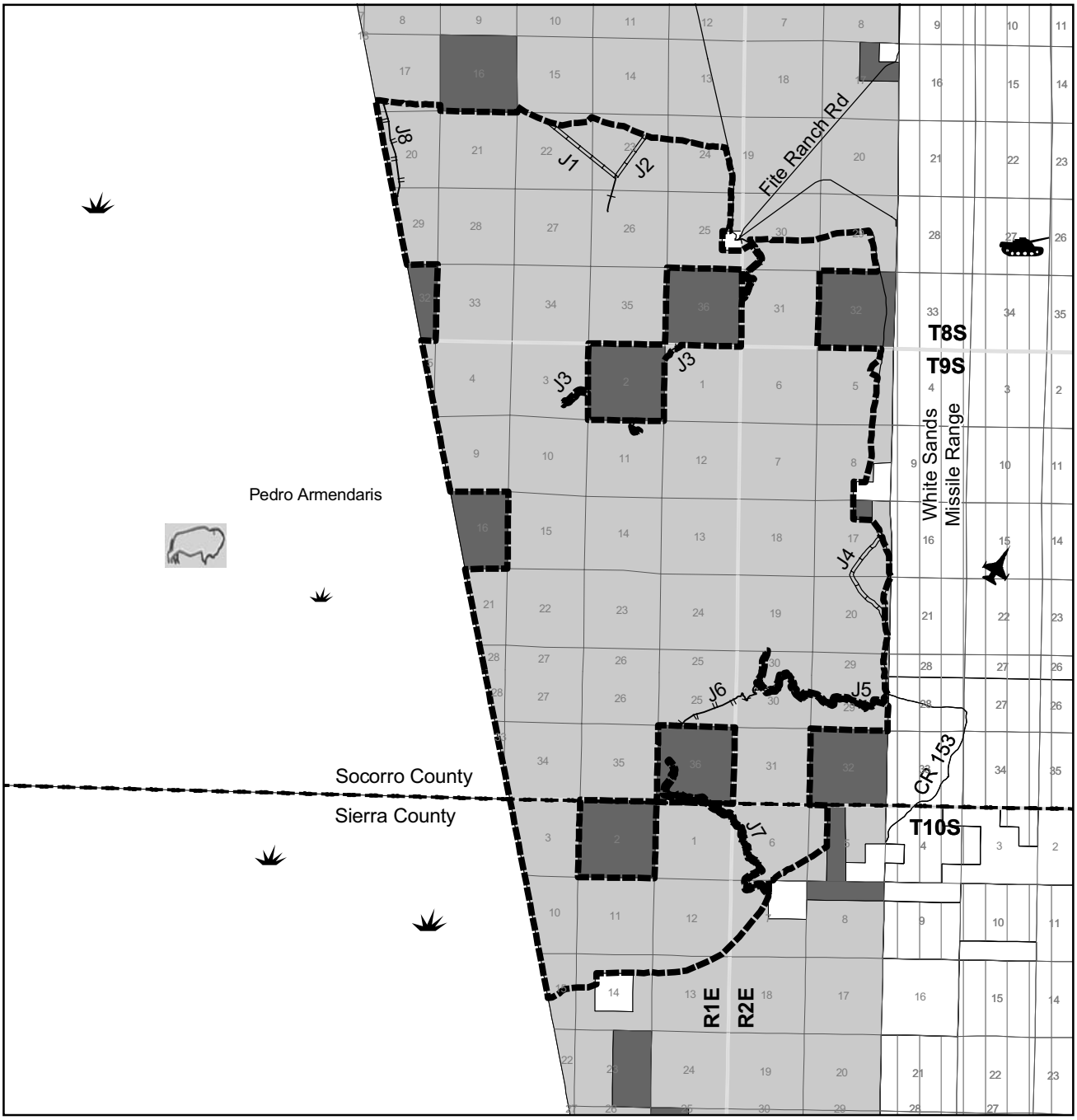
- BLM
- Private
- State

0 1.25 2.5 5 Miles

JORNADA DEL MUERTO WSA ROUTES ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close (Rehab)
- Open

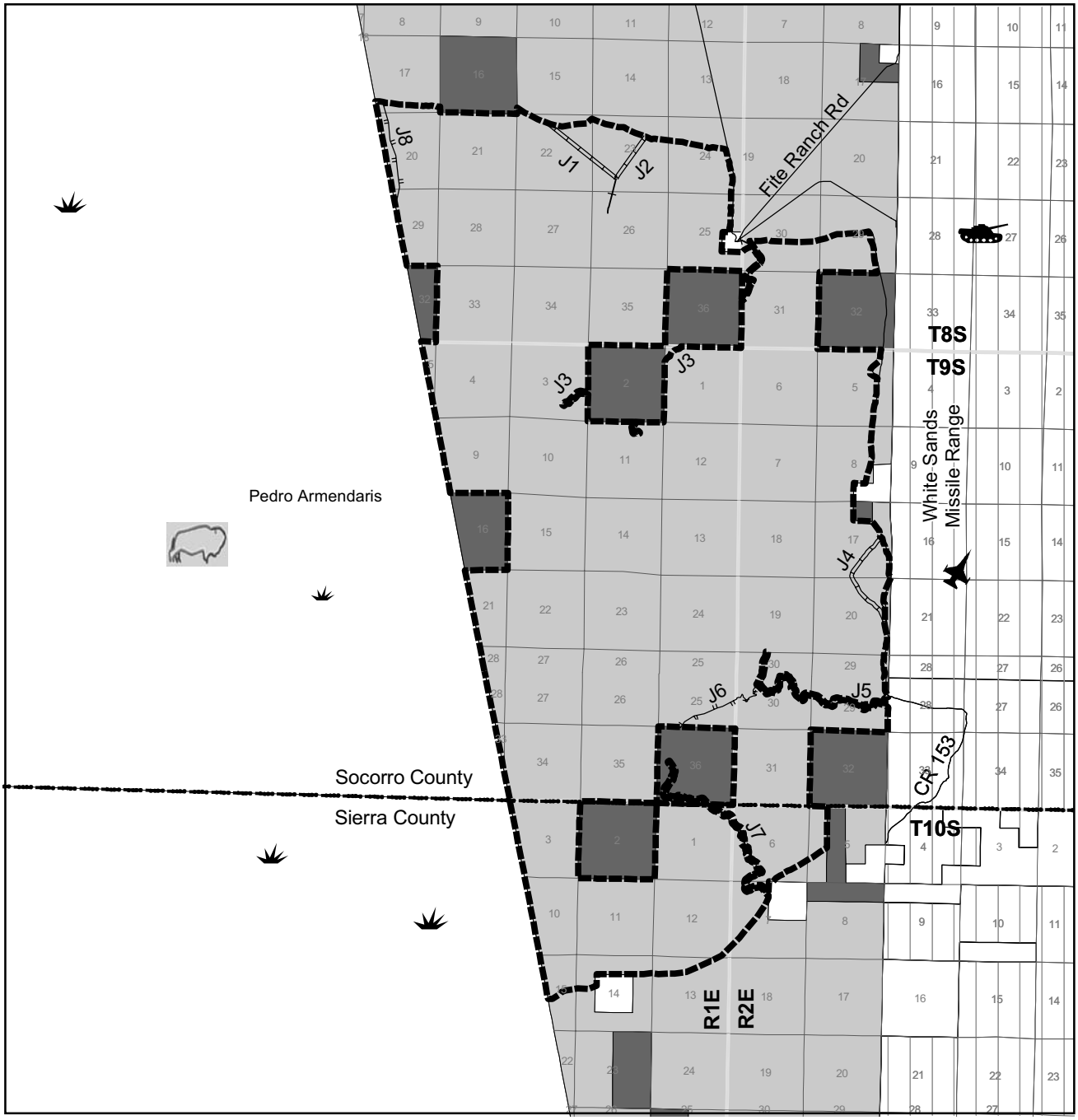
Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN JORNADA DEL MUERTO ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close (Rehab)
- Open

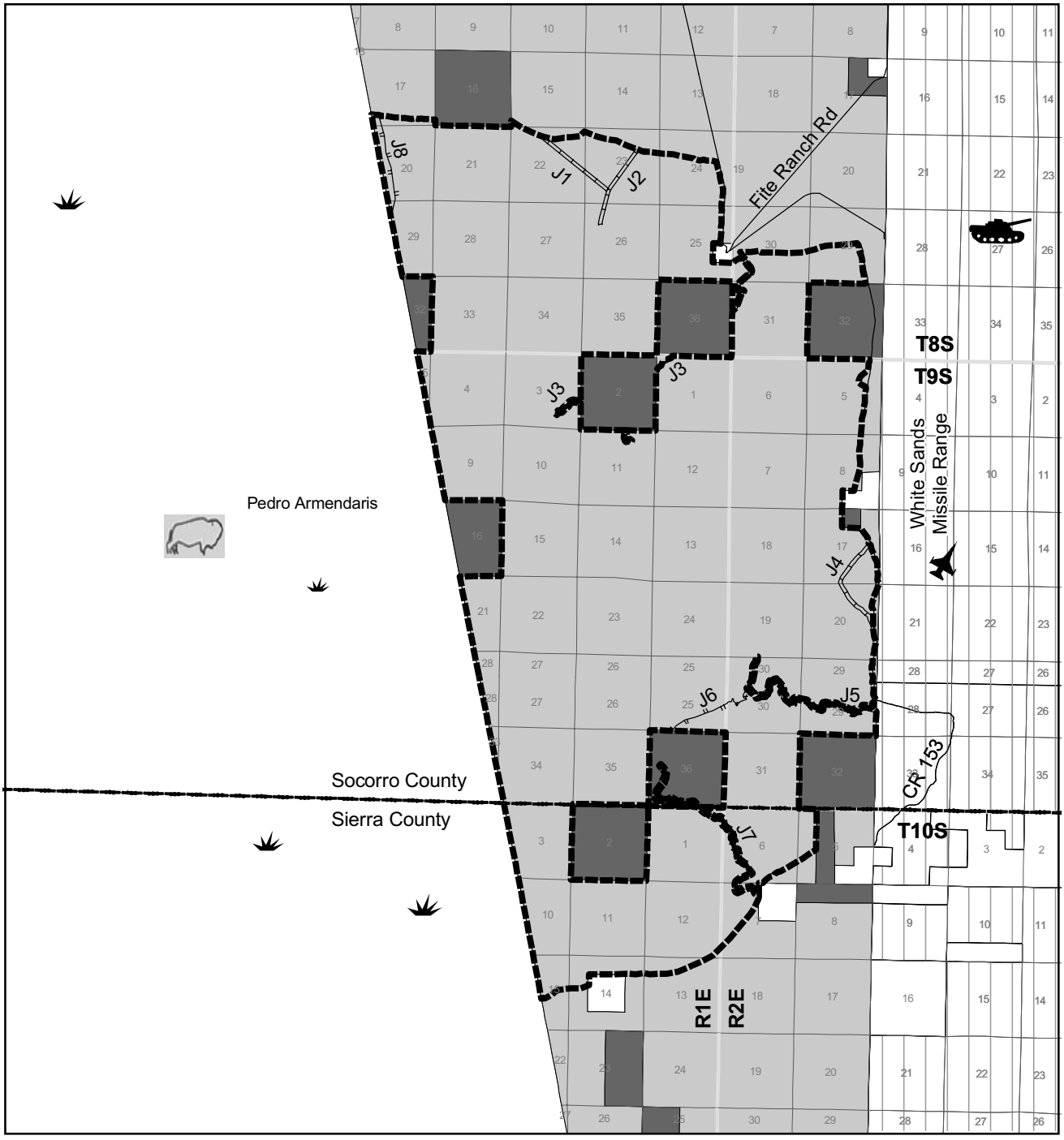
Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN JORNADA DEL MUERTO ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



0 1.25 2.5 5 Miles

Legend

- WSA
- Close(Permit)
- Close (Rehab)
- Open

Land Status

- BLM
- Private
- State

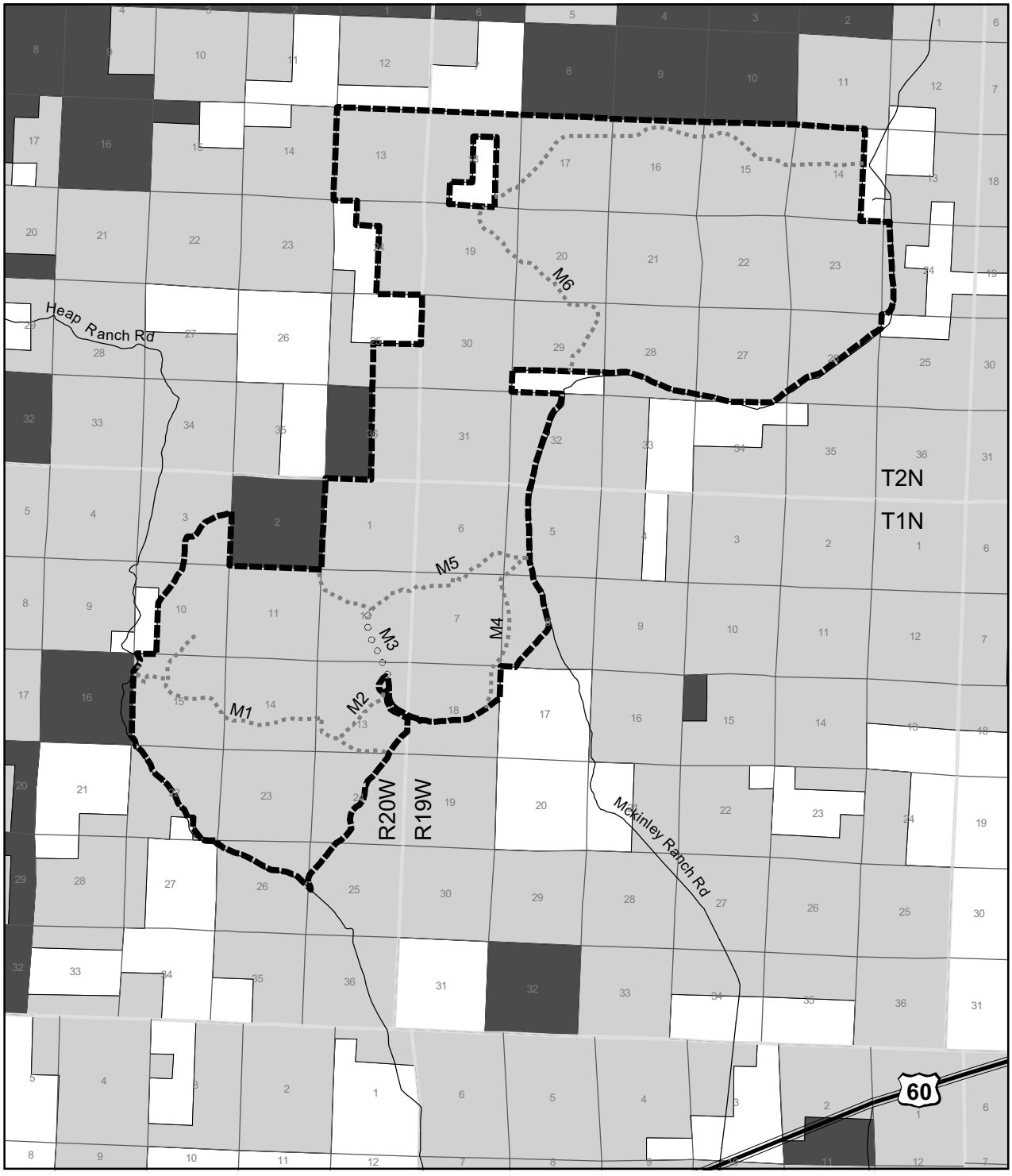
ROUTE DESIGNATIONS WITHIN JORNADA DEL MUERTO ALTERNATIVE D

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

TABLE J-8
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR
MESITA BLANCA WILDERNESS STUDY AREA

Route Designation	Miles of Route By Alternative			
	A	**B**	**C**	**D**
Open	M1 (4 miles) M2 (1 mile) M4 (2½ miles) M5 (3 miles) M6 (8 miles)	M1 (2½ miles) M2 (1 miles) M5 (3 miles) M6 (8 miles)	M1 (2½ miles) M2 (1 mile) M5 (3 miles)	M1 (4 miles) M2 (1 mile) M4 (2½ miles) M5 (3 miles) M6 (8 miles)
Total	18½	14½	6½	18½
Closed (rehabilitate)		M1 (1½ miles) M3 (1 mile) M4 (2½ miles)	M1 (1½ miles) M3 (1 mile) M4 (2½ miles) M6 (4 miles)	M3 (1 mile)
Total	0	5	9	1
Closed (permitted/ authorized only)			M6 (4 miles)	
Total	0	0	4	0
Post WSA Route	M3 (1 mile)			
Total	1	0	0	0



MESITA BLANCA WSA ROUTES ALTERNATIVE A

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

0 1 2 4 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN MESITA BLANCA WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

0 1 2 4 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN MESITA BLANCA WSA ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

0 1 2 4 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- Private
- State

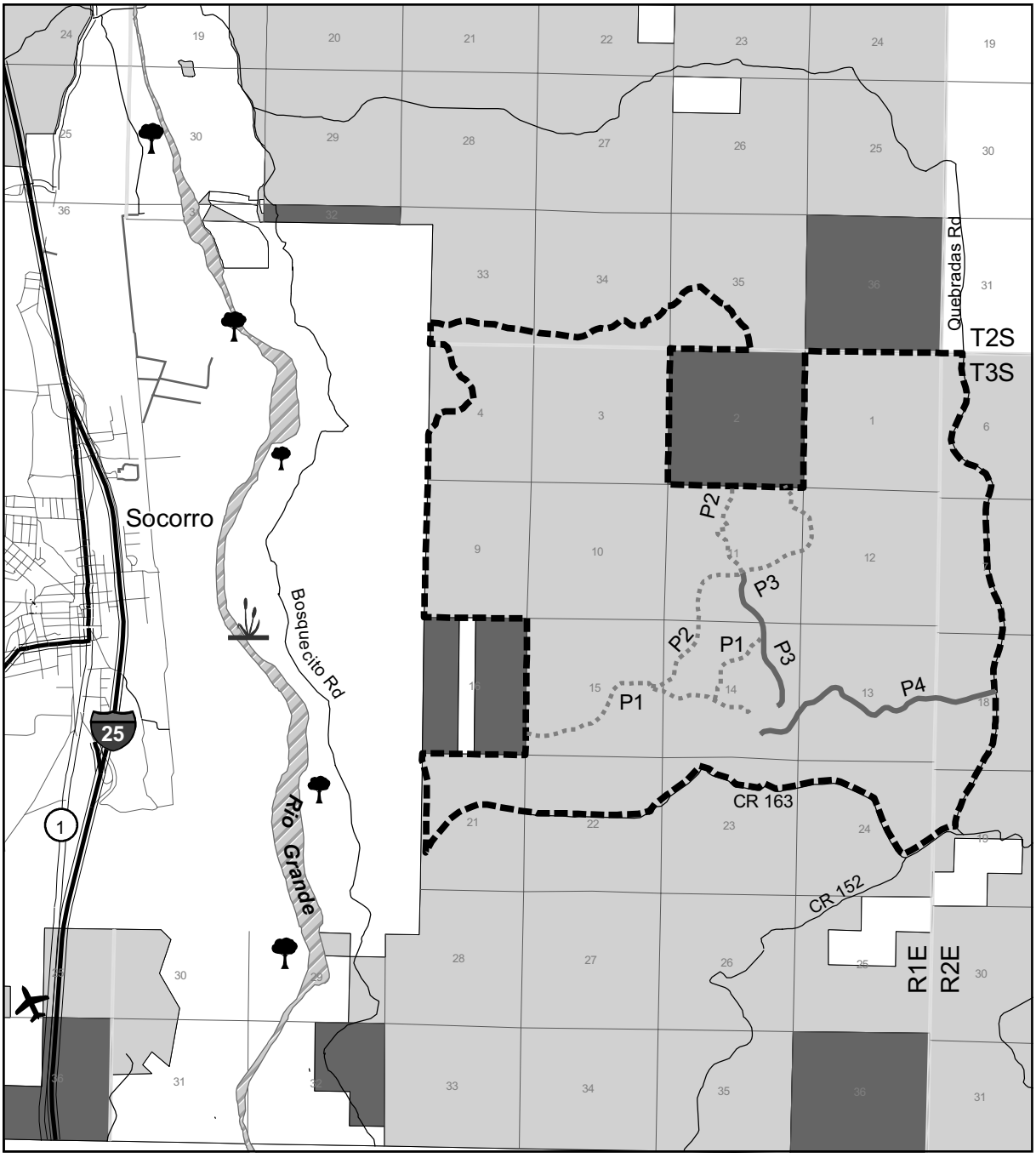
ROUTE DESIGNATIONS WITHIN MESITA BLANCA WSA ALTERNATIVE D

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

TABLE J-9
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR
PRESILLA WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	P1 (3 miles) P2 (2½ miles)			P1 (3 miles) P2 (2½ miles) P3 (3 miles)
Total	5 ½	0	0	8 ½
Closed (rehabilitate)	P3 (3 miles) *P4 (2½ miles)	P1 (3 miles) P2 (2½ miles) P3 (3 miles) P4 (2½ miles)	P1 (3 miles) P2 (2½ miles) P3 (3 miles) P4 (2½ miles)	P4 (2½ miles)
Total	5½	11	11	2 ½
Closed (permitted/ authorized only)				
Total	0	0	0	0
Post WSA Route	*P4 (2½ miles)			
Total	2½	0	0	0



Legend

- WSA
- Way
- Post WSA Route
- Closed

Land Status

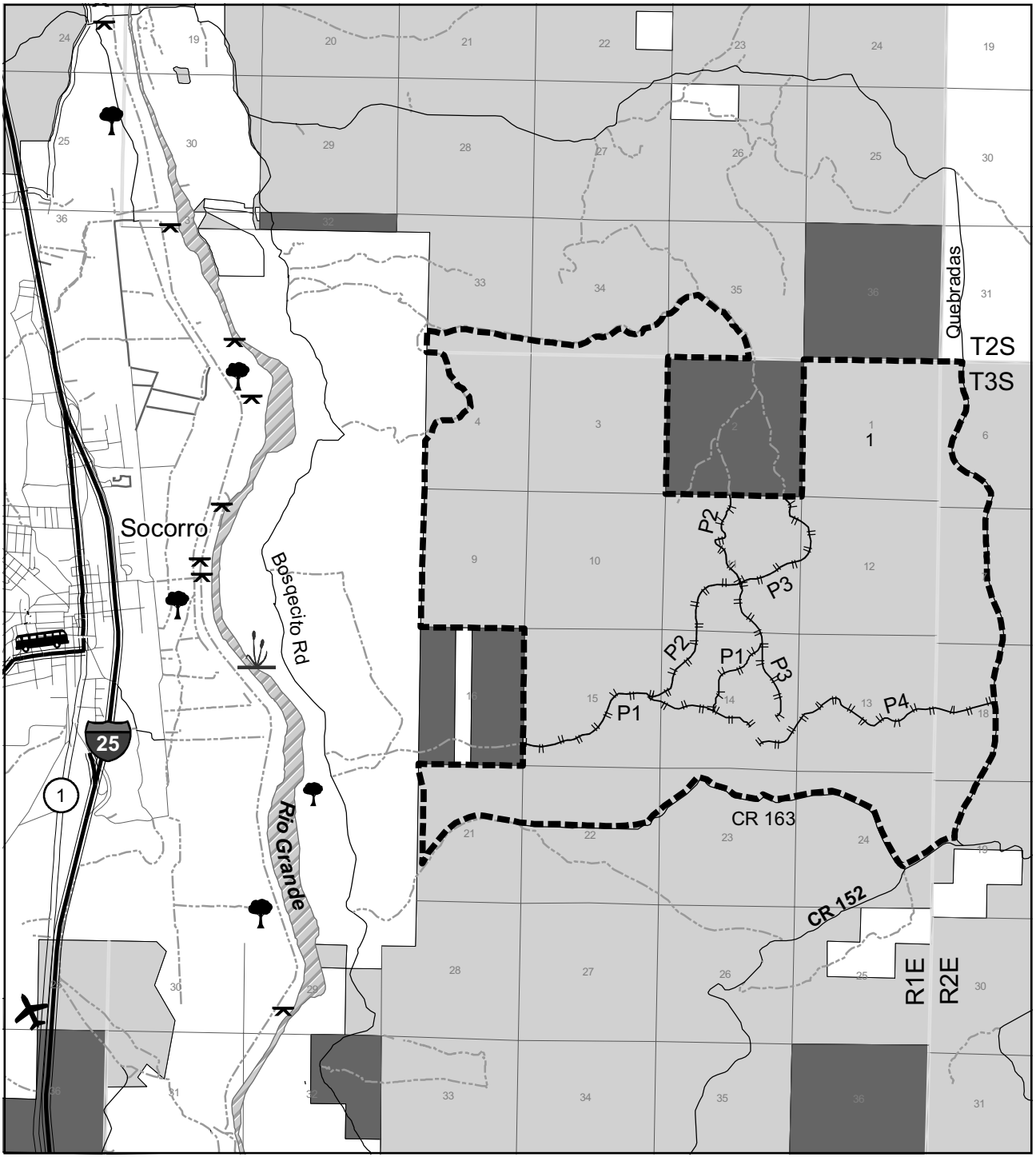
- BLM
- Private
- State

0 0.5 1 2 Miles

PRESILLA WSA ROUTES ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

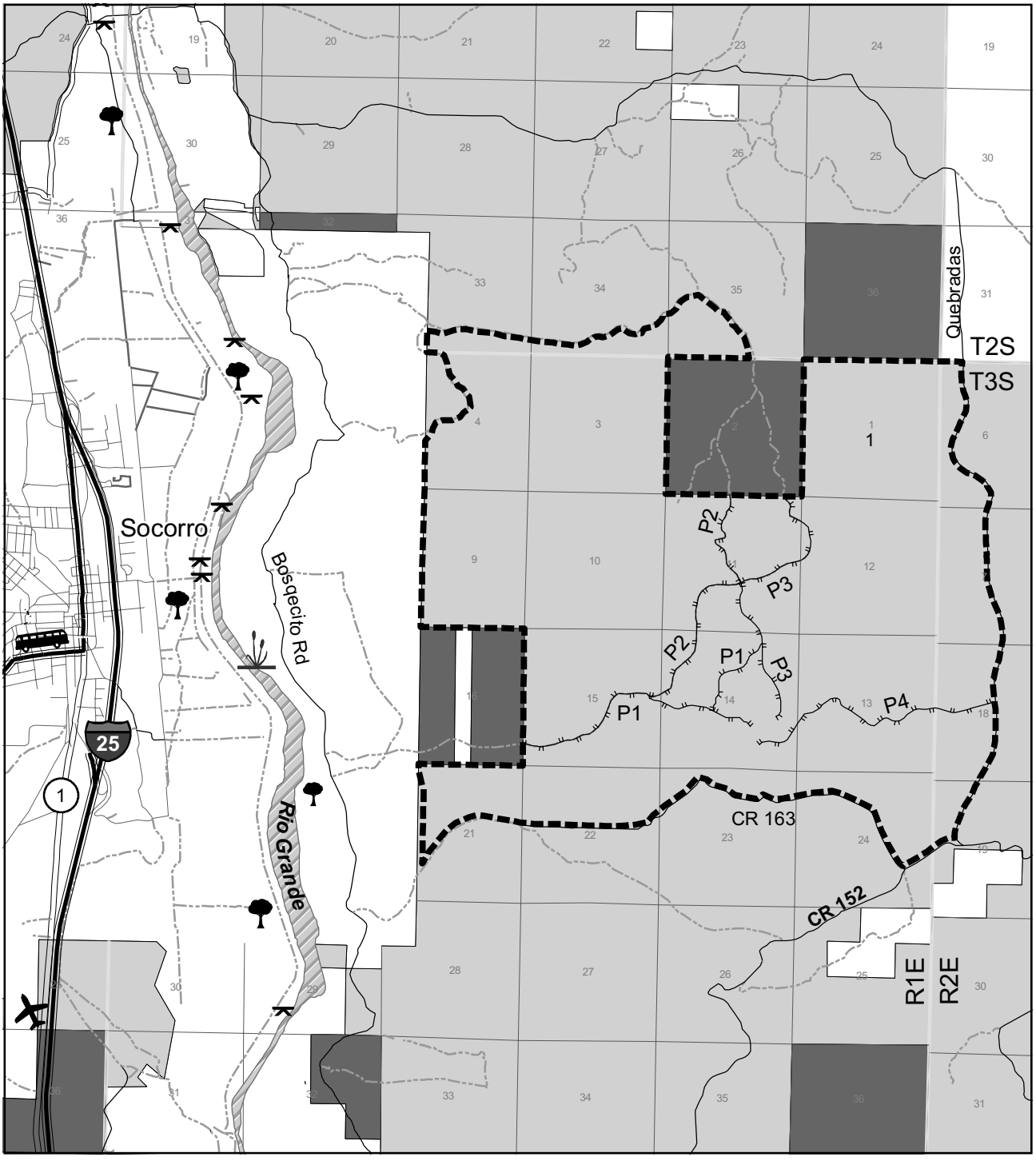
Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN PRESILLA WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

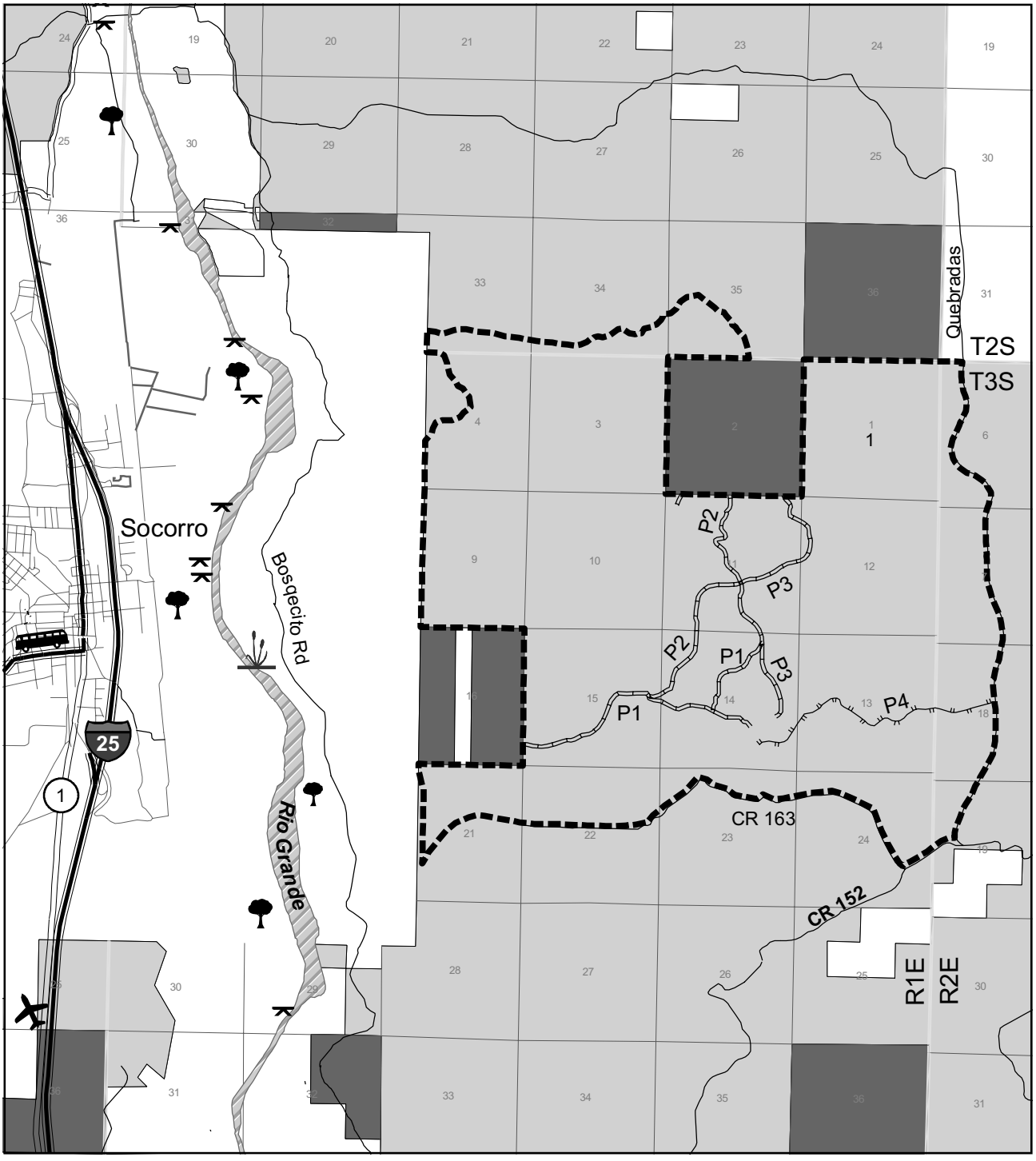
Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN PRESILLA WSA ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- Private
- State

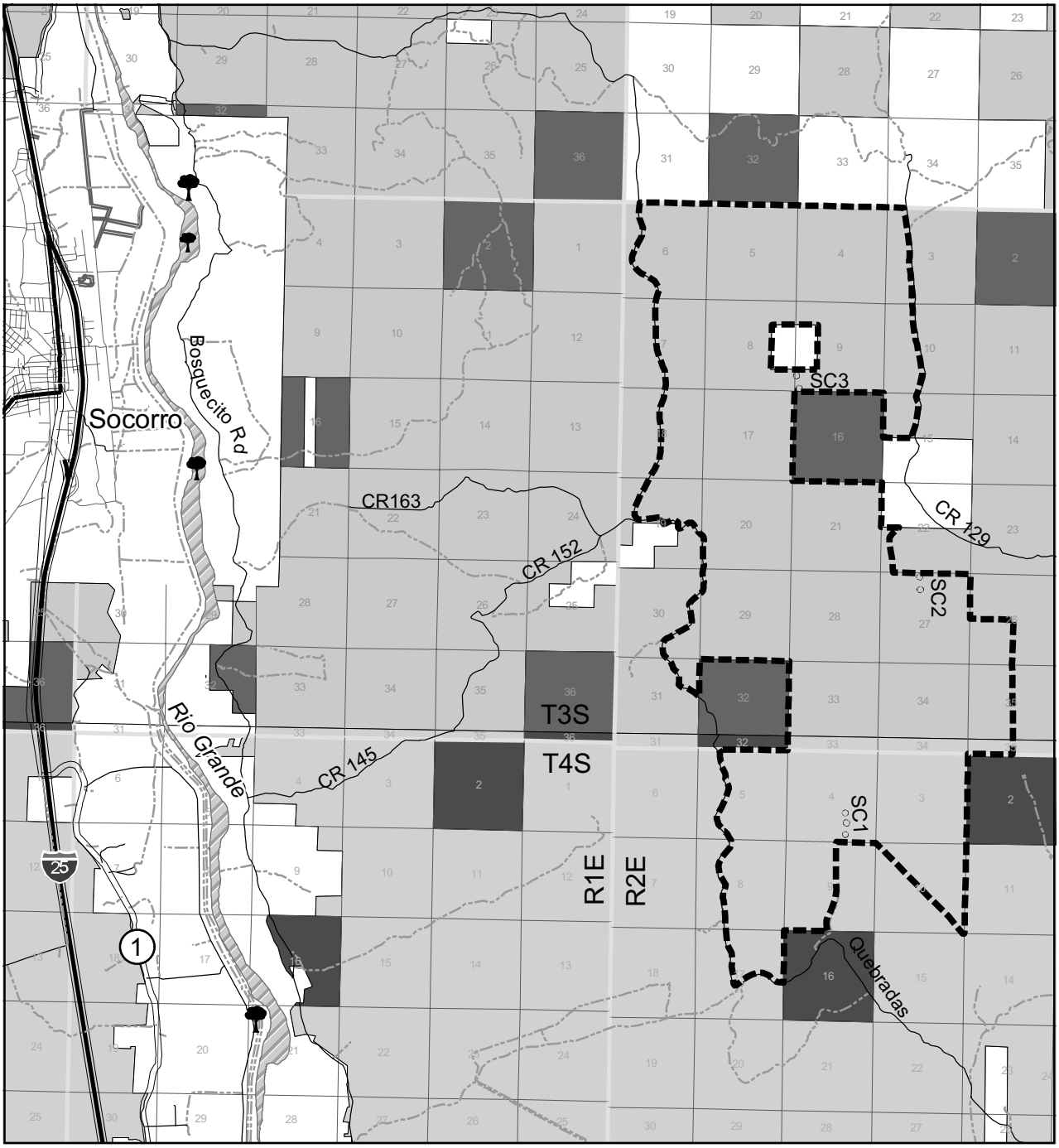
ROUTE DESIGNATIONS WITHIN PRESILLA WSA ALTERNATIVE D

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

TABLE J-10
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR
SIERRA DE LAS CAÑAS WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open				
Total	0	0	0	0
Closed (rehabilitate)		SC2 (⅛ mile)	SC2 (⅛ mile)	SC (⅛ mile)
Total	0	⅛	⅛	⅛
Closed (permitted/ authorized only)		SC1 (¼ mile) SC3 (¼ mile)	SC1 (¼ mile) SC3 (¼ mile)	SC1 (¼ mile) SC3 (¼ mile)
Total	0	½	½	½
Post WSA Route	SC1 (¼ mile) SC2 (⅛ mile) SC3 (¼ mile)			
Total	⅜ mile	0	0	0



0 1 2 4 Miles

Legend

- WSA
- Way
- Post WSA Route

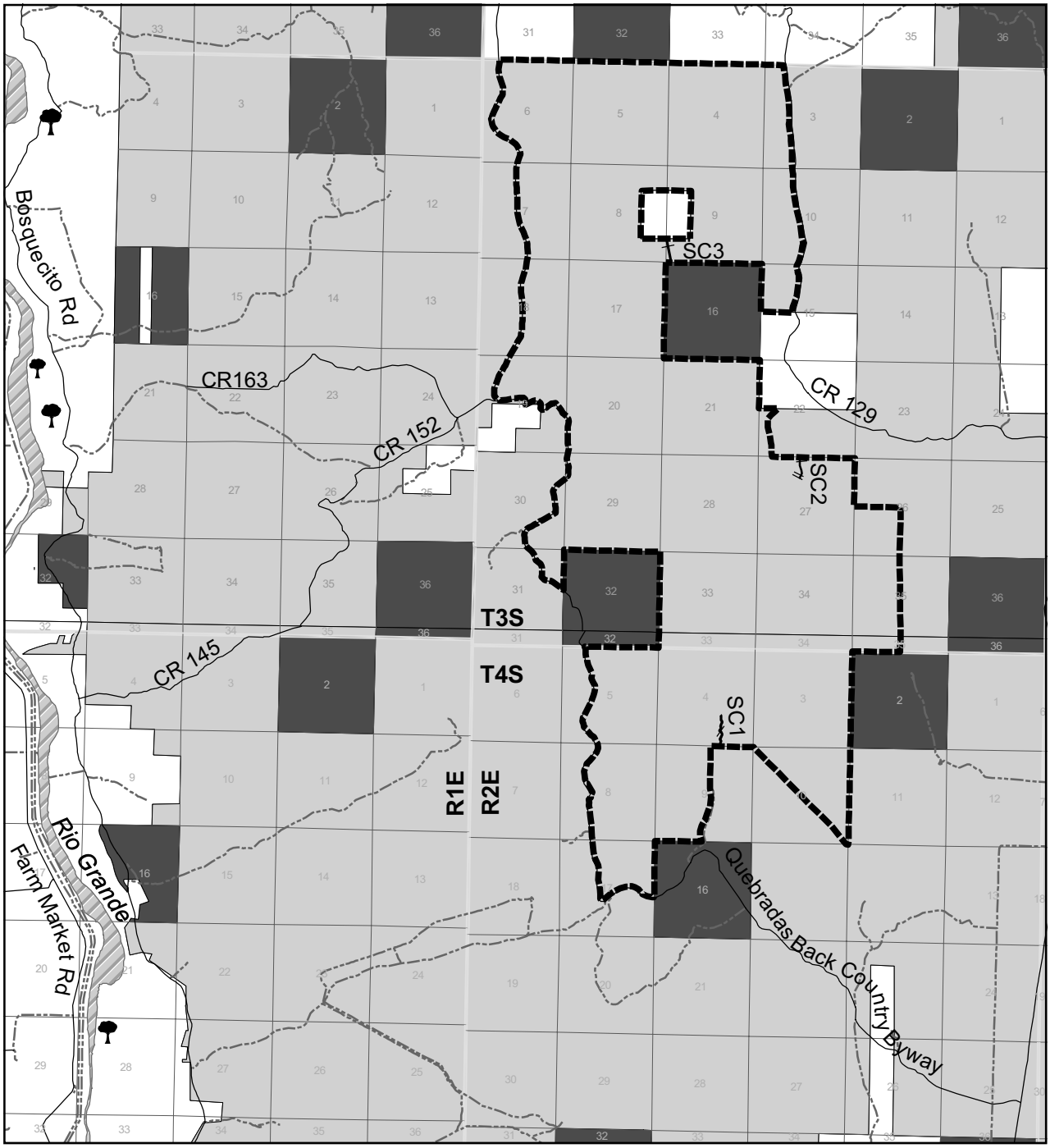
Land Status

- BLM
- Private
- State

SIERRA DE LAS CANAS WSA ROUTES ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



0 0.5 1 2 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

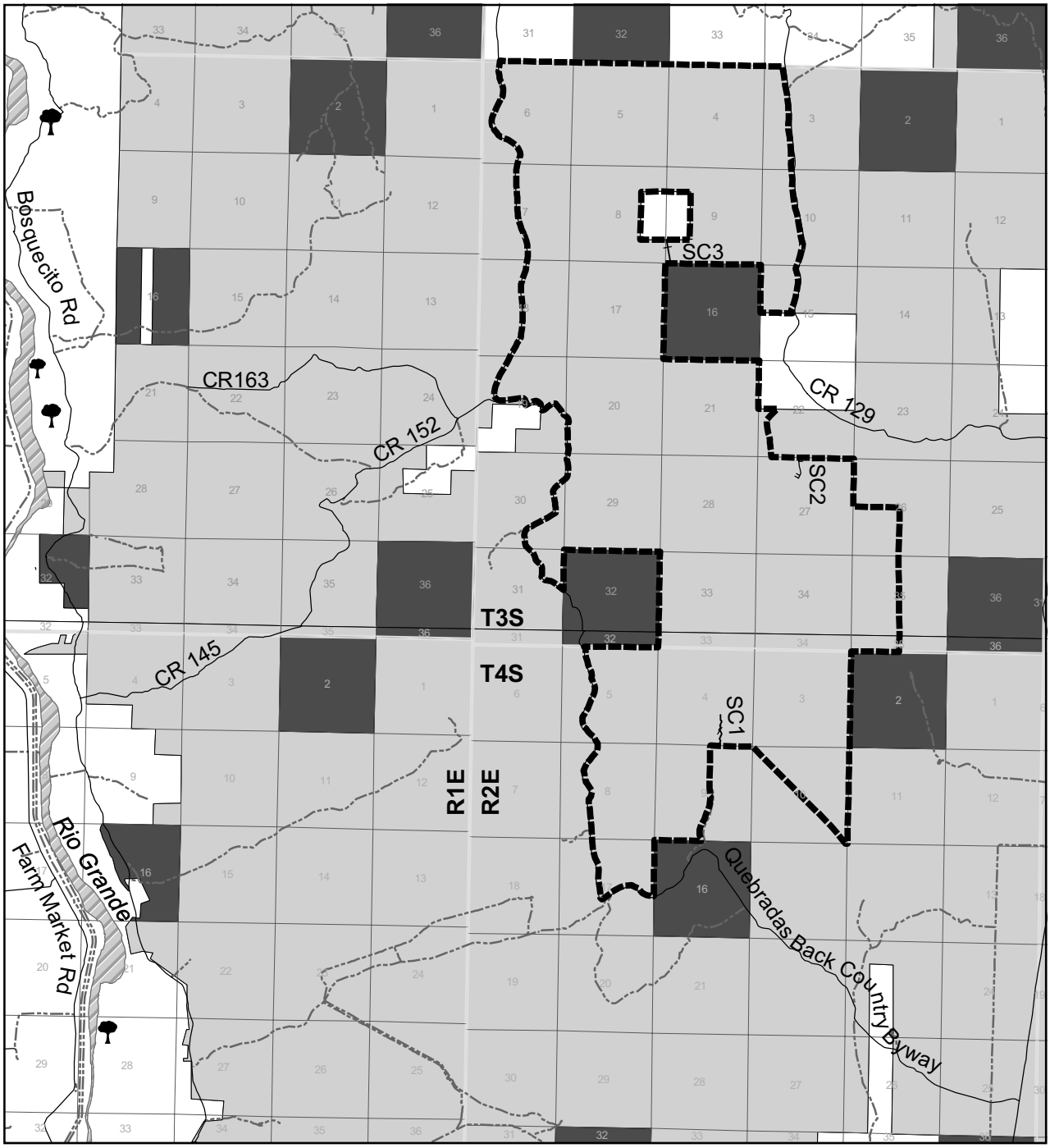
Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN SIERRA DE LAS CANAS WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

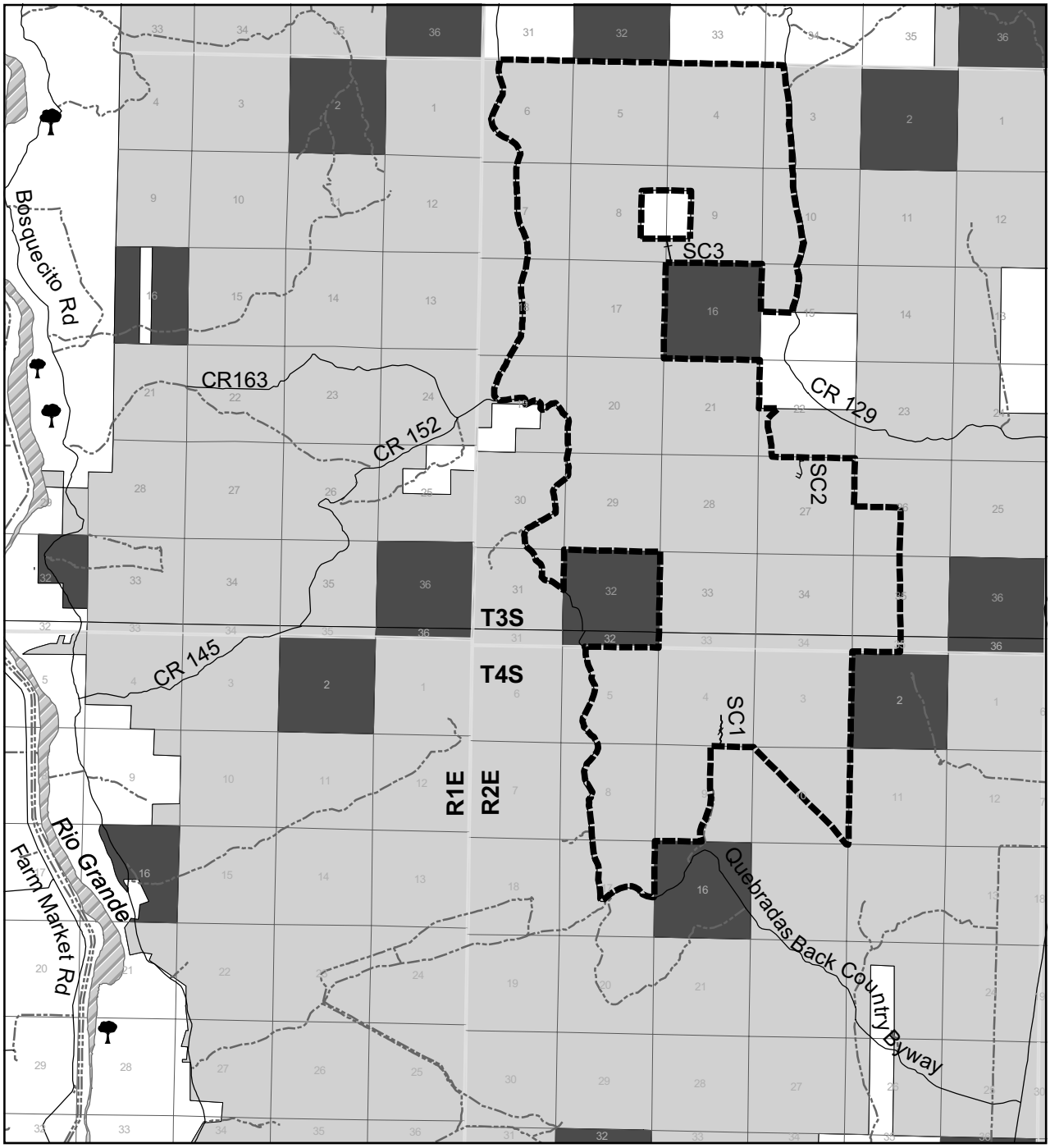
- BLM
- Private
- State

0 0.5 1 2 Miles

ROUTE DESIGNATIONS WITHIN SIERRA DE LAS CANAS WSA ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



0 0.5 1 2 Miles

Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- Private
- State

ROUTE DESIGNATIONS WITHIN SIERRA DE LAS CANAS WSA ALTERNATIVE D

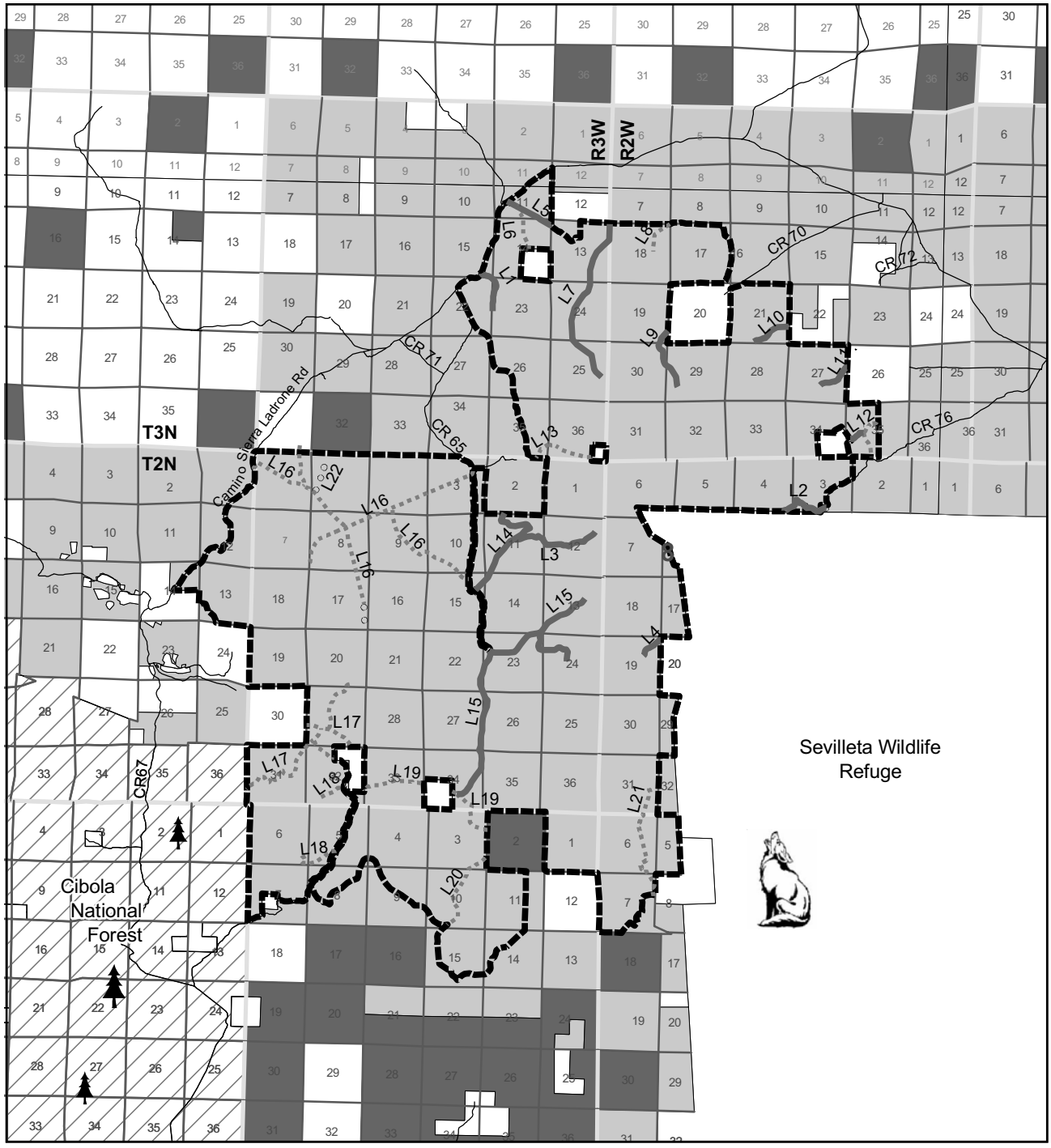
N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

TABLE J-11
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR
SIERRA LADRONES WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	L6 (1 mile) L8 (¼ mile) L12 (¼ mile) L13 (1 mile-CS) L16 (9 miles) L17 (4½ miles) L18 (1 mile) L19 (1 mile) L20 (1½ miles) L21 (2½ miles)	L8 (¼ mile) L12 (¼ mile) L16 (9 miles) L17 (3½ miles) L19 (1 mile) L20 (1½ miles)	L8 (¼ mile) L12 (¼ mile) L16 (9 miles) L17 (3½ miles) L19 (1 mile) L20 (1½ miles)	L4 (½ mile) L6 (1 mile) L7 (2½ miles) L8 (¼ mile) L9 (1 mile) L10 (½ mile) L11 (¼ mile) L12 (1¼ mile) L13 (1 mile) L14 (1½ miles) L15 (6 miles) L16 (9 miles) L17 (4½ miles) L18 (1 mile) L19 (1 mile) L20 (1½ miles) L21 (2½ miles)
Total	22	15½	15½	35¼
Closed (rehabilitate)	*L2 (½ mile) *L3 (1 mile) L4 (½ mile)	L1 (1 mile) L2 (½ mile) L3 (1 mile) L5 (1 mile) L6 (1 mile) L18 (1 mile) L22 (1 mile)	L1 (1 mile) L2 (½ mile) L3 (1 mile) L5 (1 mile) L6 (1 mile) L18 (1 mile) L22 (1 mile)	L1 (1 mile) L2 (½ mile) L3 (1mile) L5 (1 mile) L22 (1 mile)
Total	2	6½	6½	4½
Closed (permitted/ authorized only)	L7 (2½ miles) L9 (1 mile) L10 (½ mile) L11 (¼ mile) L12 (1 mile) L14 (1½ miles) L15 (6 miles)	L4 (½ mile) L7 (2½ miles) L9 (1 mile) L10 (½ mile) L11 (¼ mile) L12 (1 mile) L13 (1 mile) L14 (1½ miles) L15 (6 miles) L17 (1 mile) L21 (2½ miles)	L4 (½ mile) L7 (2½ miles) L9 (1 mile) L10 (½ mile) L11 (¼ mile) L12 (1 mile) L13 (1 mile) L14 (1½ miles) L15 (6 miles) L17 (1 mile) L21 (2½ miles)	
Total	12¾	17¾	17¾	0
*Post WSA Route	L1 (1 mile) L5 (1mile) L22 (1 mile)			
Total	3	0	0	0

NOTE: CS = Cherry-stem Road



Legend

- WSA
- Way
- Post WSA Route
- Closed

Land Status

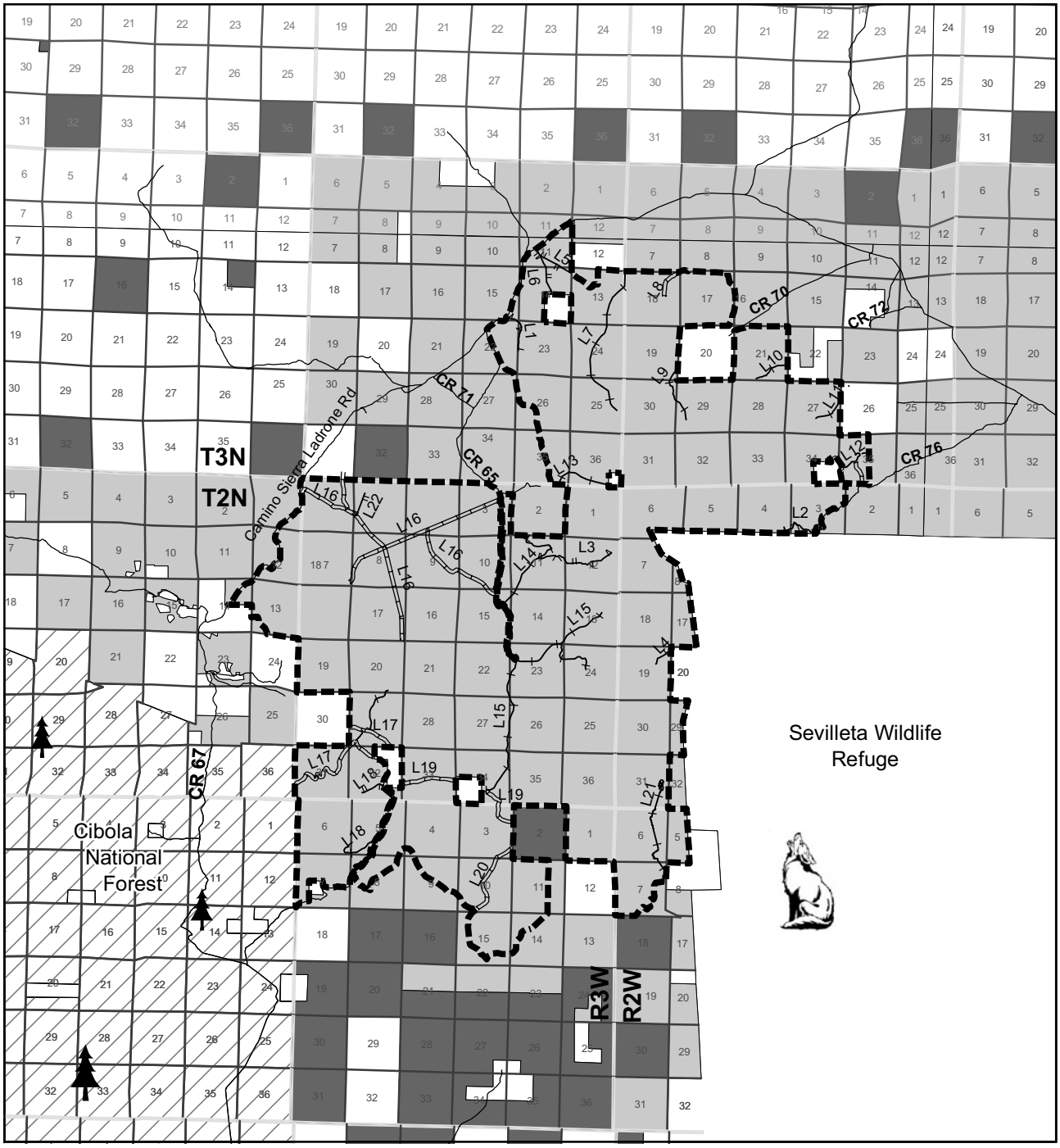
- BLM
- FS
- Private
- State

0 1 2 4 6 Miles

SIERRA LADRONES WSA ROUTES ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

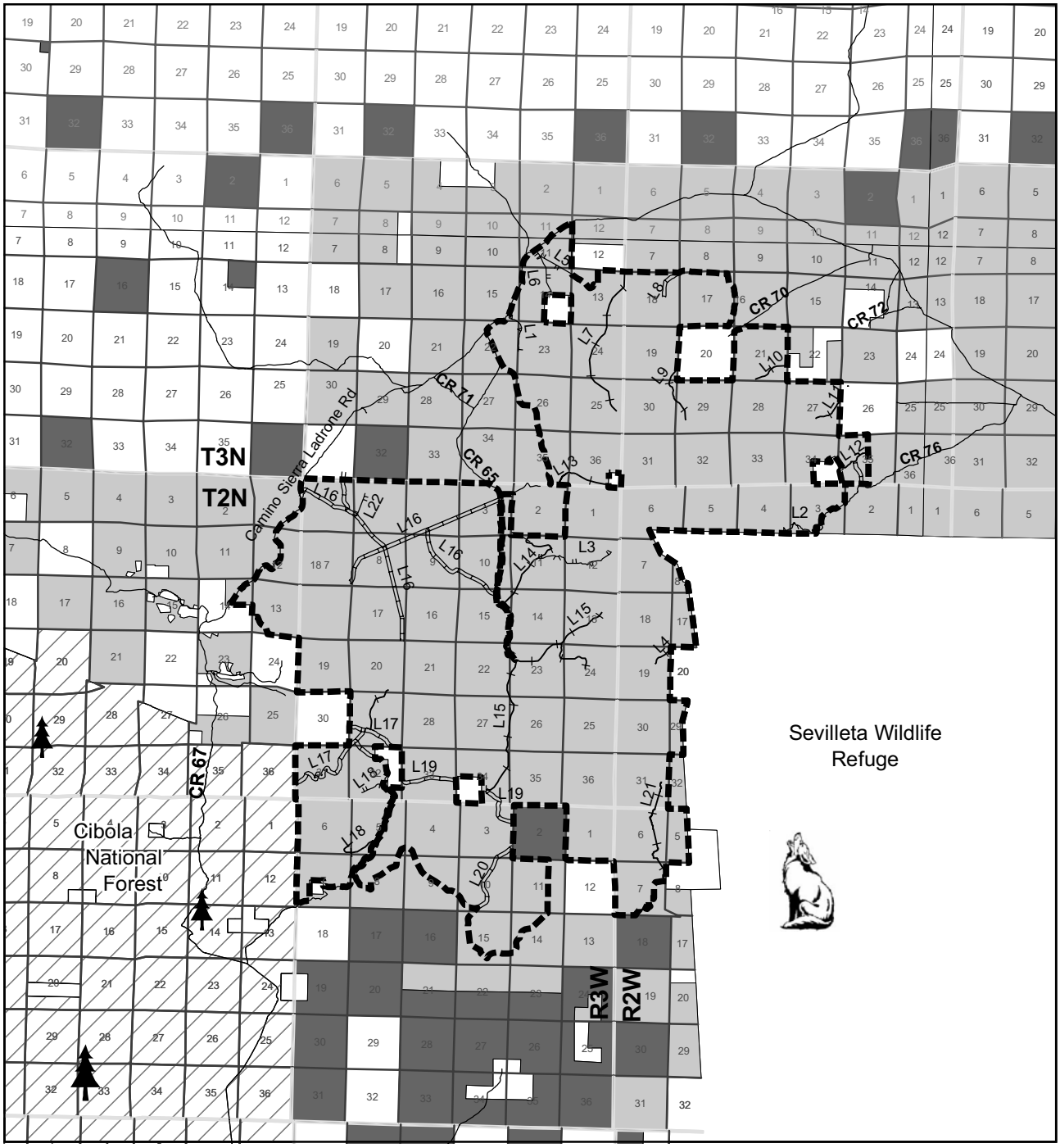
Land Status

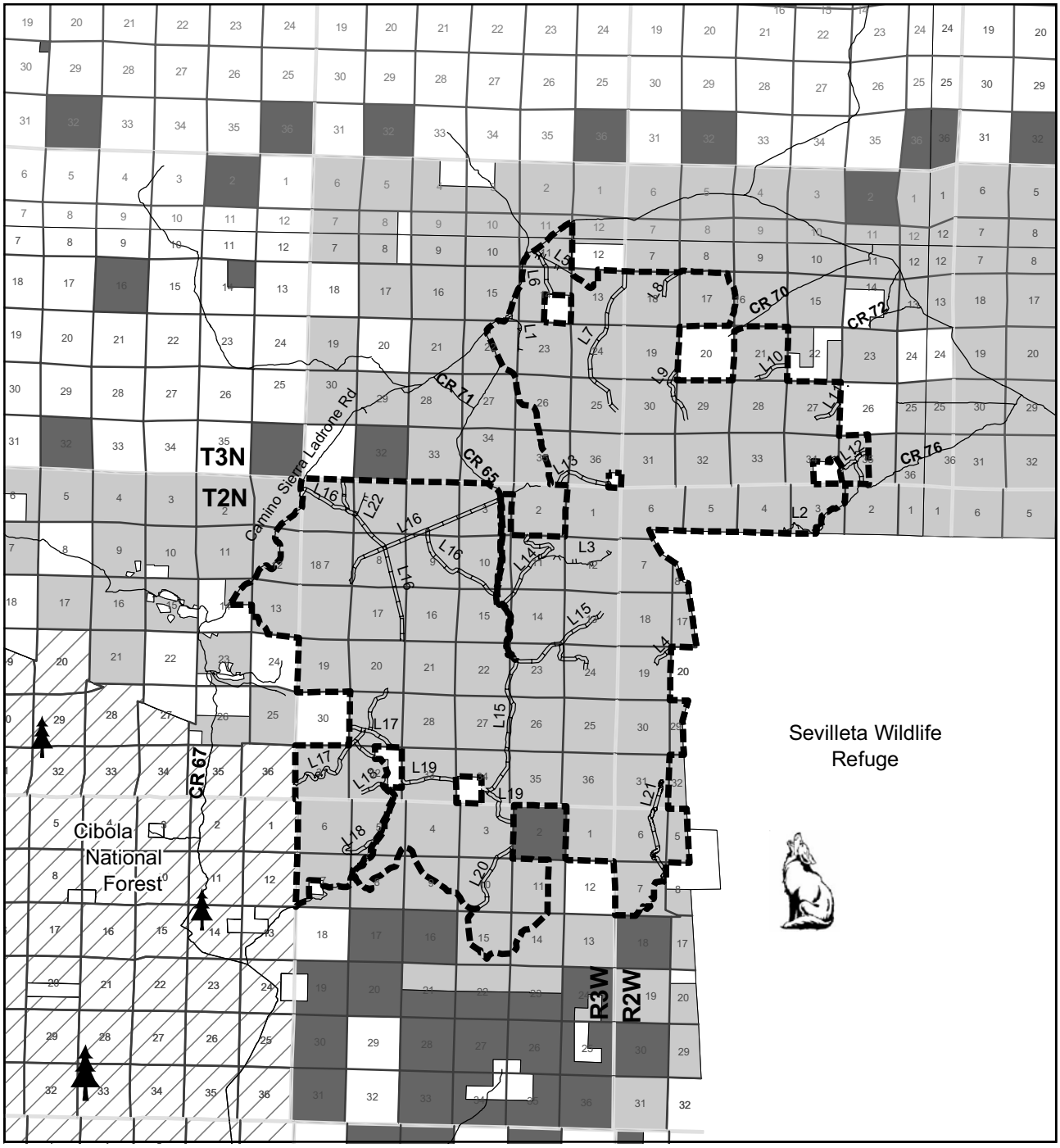
- BLM
- FS
- Private
- State

ROUTE DESIGNATIONS WITHIN SIERRA LADRONES WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

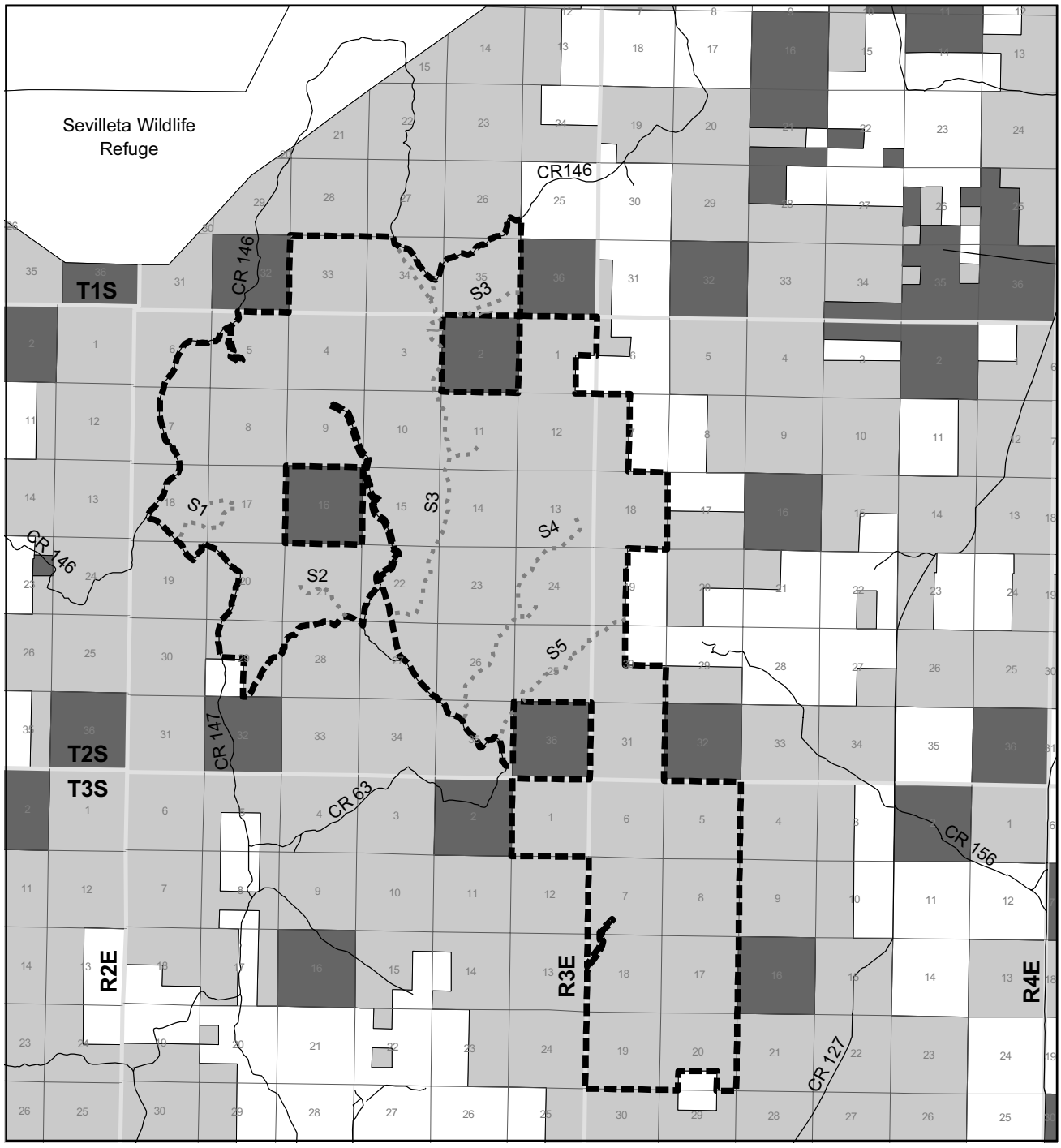

T3N
T2N
R3W
R2W
CR 65
CR 67
CR 70
CR 71
CR 72
CR 76
Camino Sierra Ladrone Rd
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
L16
L17
L18
L19
L20
L21
L22
Sevilleta Wildlife Refuge
Cibola National Forest
0 1 2 4 6 Miles
Legend
WSA
Close(Permit)
Close(Rehab)
Open
Land Status
BLM
FS
Private
State
N
ROUTE DESIGNATIONS
WITHIN SIERRA LADRONES WSA
ALTERNATIVE C
No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.
Sierra Ladrones WSA
Socorro Co



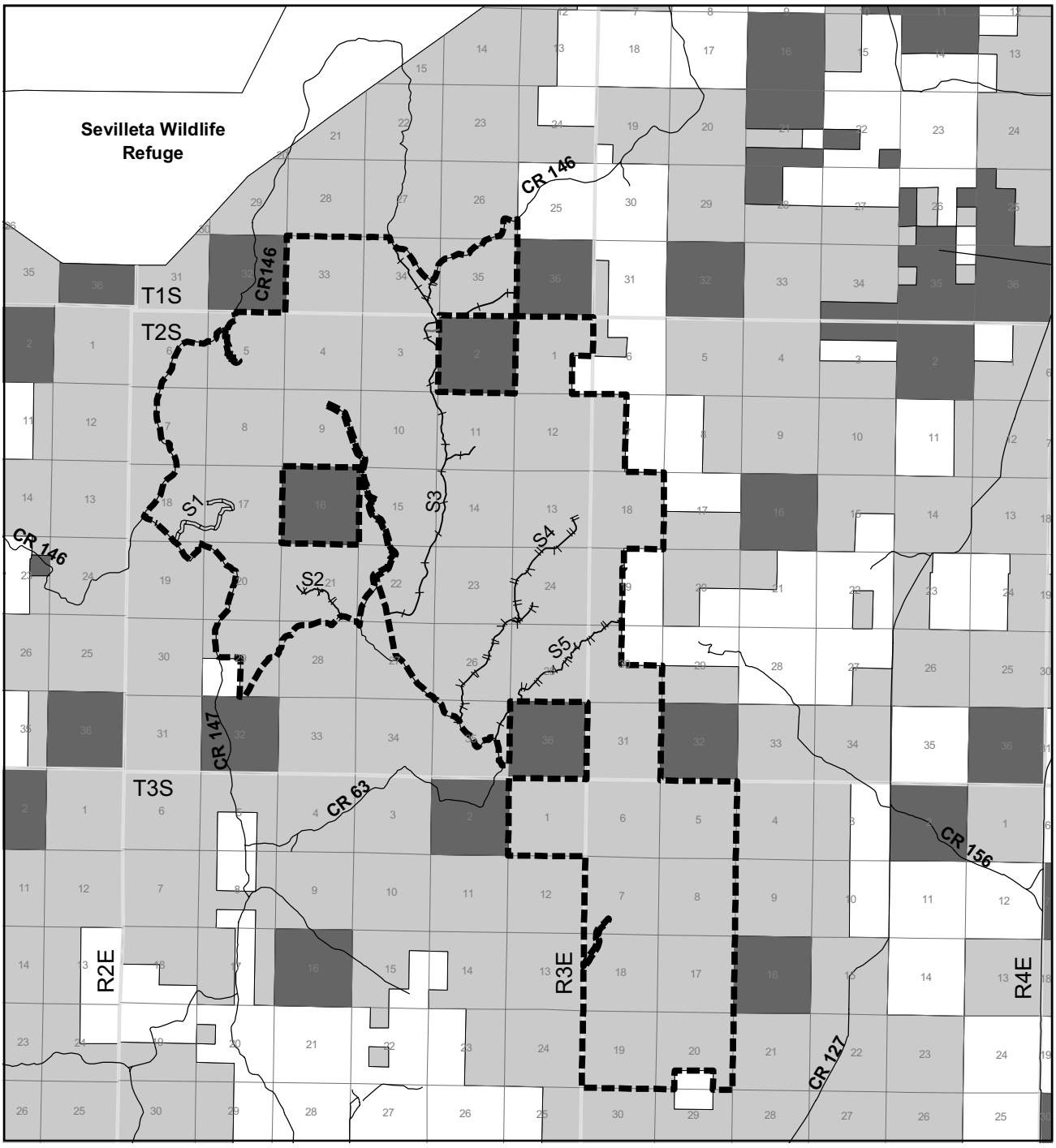
ROUTE DESIGNATIONS WITHIN SIERRA LADRONES WSA ALTERNATIVE D

TABLE J-12
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR STALLION WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	S1 (2 miles) S2 (1 mile) S3 (8 miles) S4 (5 miles) S5 (3 miles)	S1 (2 miles)	S1 (2 miles)	S1 (2 miles) S2 (1 mile) S3 (8 miles) S4 (5 miles) S5 (3 miles)
Total	19	2	2	19
Closed (rehabilitate)		S2 (1 mile) S4 (5 miles) S5 (2 miles)	S2 (1 mile) S4 (5 miles) S5 (2 miles)	
Total	0	8	8	0
Closed (permitted/ authorized only)		S3 (8 miles) S5 (1 mile)	S3 (8 miles) S5 (1 mile)	
Total	0	9	9	0
Post WSA Route				
Total	0	0	0	0



STALLION WSA ROUTES ALTERNATIVE A



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

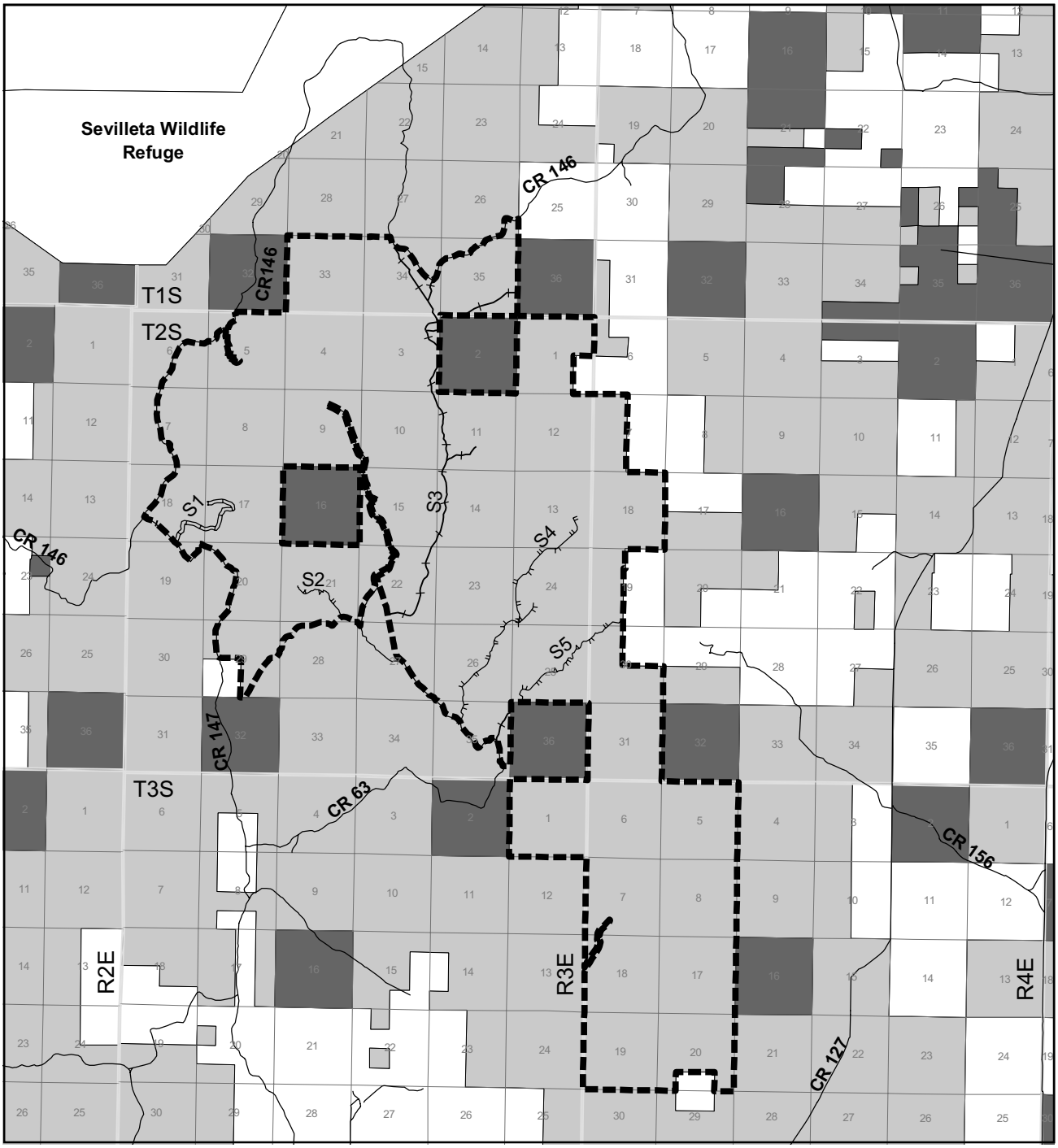
- BLM
- Private
- State

0 1 2 4 Miles

ROUTE DESIGNATIONS WITHIN STALLION WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

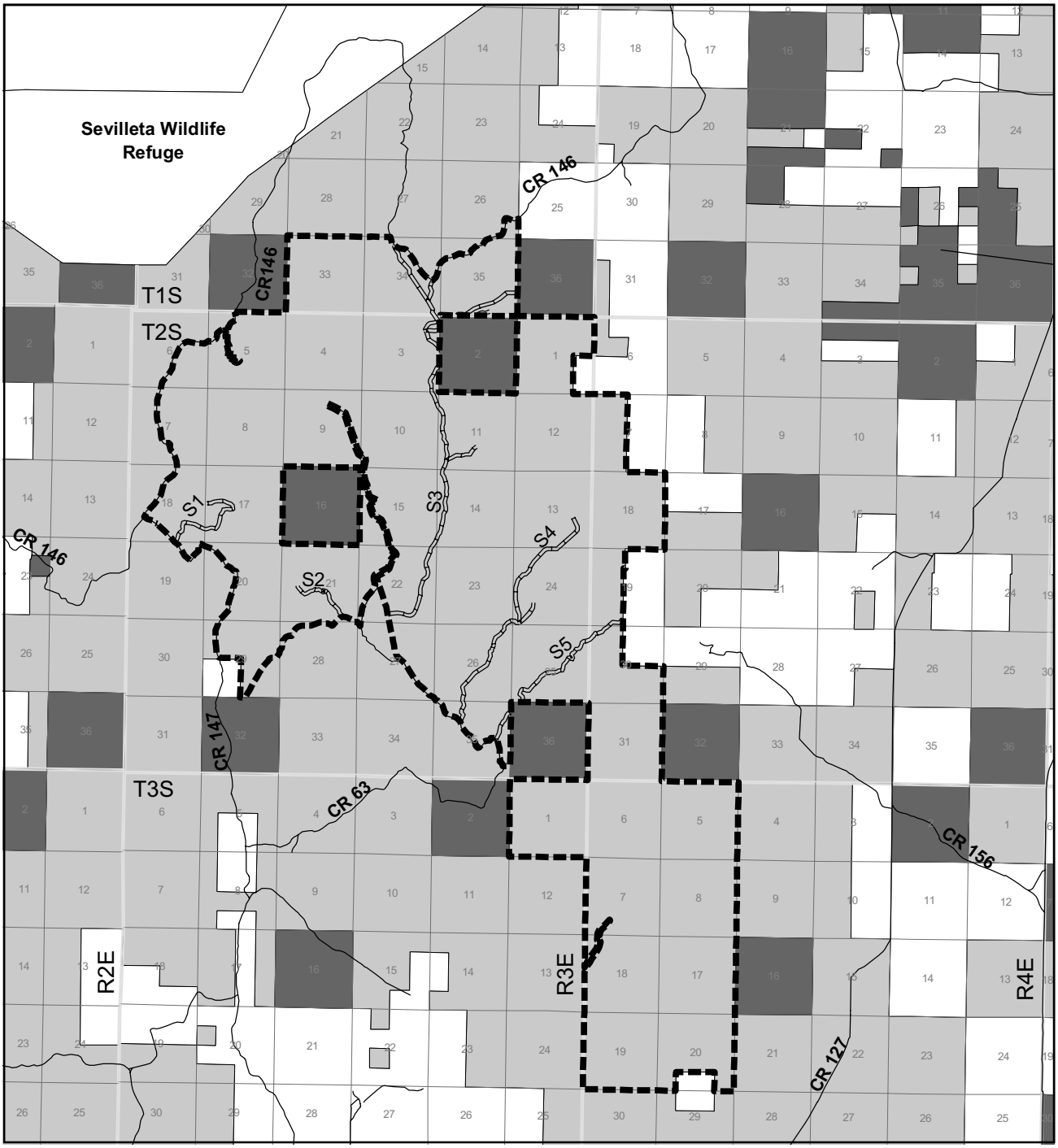
- BLM
- Private
- State

0 1 2 4 Miles

ROUTE DESIGNATIONS WITHIN STALLION WSA ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- Private
- State

0 1 2 4 Miles

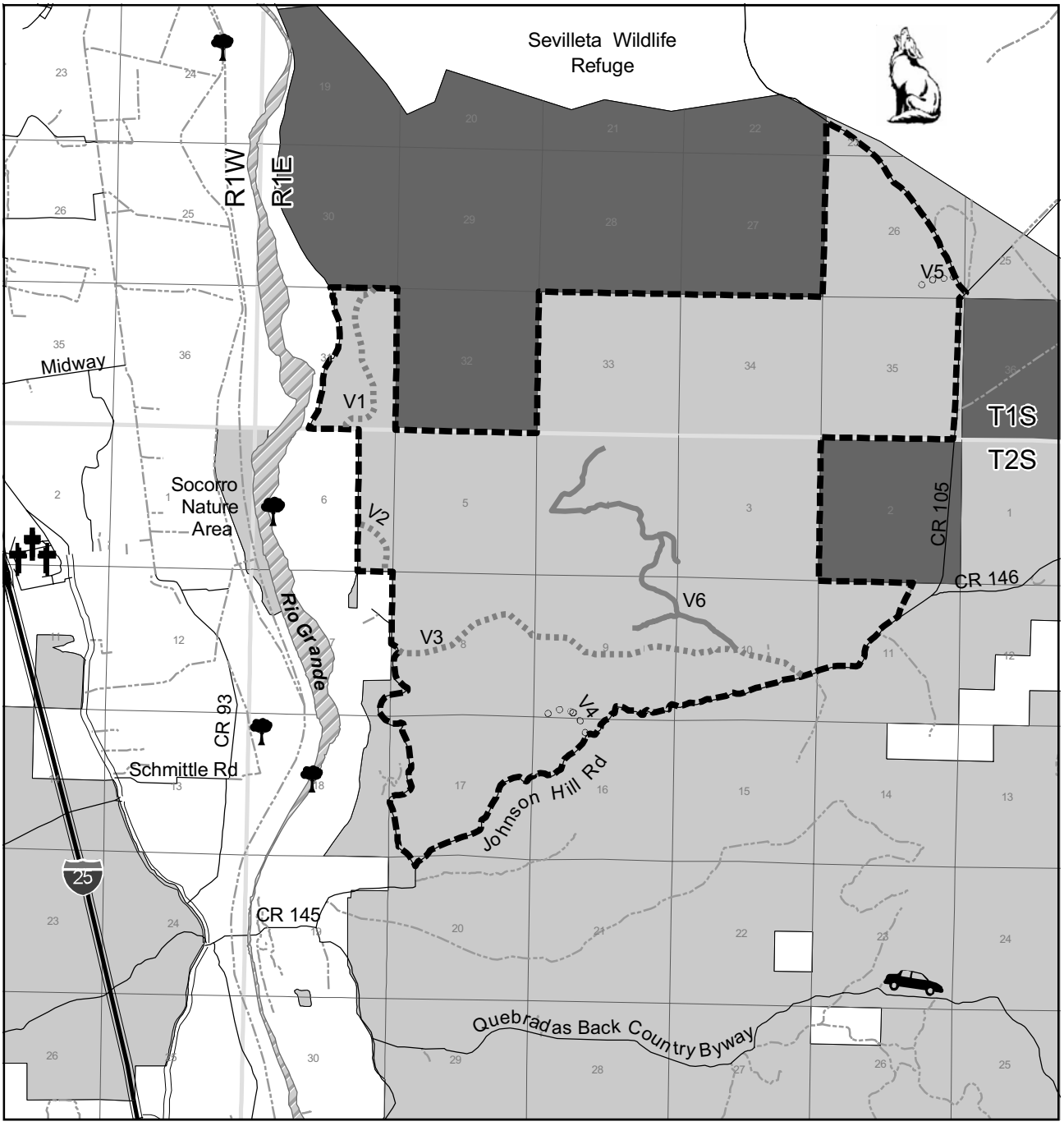
ROUTE DESIGNATIONS WITHIN STALLION WSA ALTERNATIVE D

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data

TABLE J-13
MILES OF ROUTE DESIGNATION BY ALTERNATIVE FOR VERANITO WILDERNESS STUDY AREA

Route Designation	Miles of Route by Alternative			
	A	**B**	**C**	**D**
Open	V1 (1½ miles) V2 (½ mile) V3 (3 miles)			V1 (1½ miles) V2 (½ mile)
Total	5	0	0	2
Closed (rehabilitate)		V1 (1½ miles) V3 (3 miles) V4 (¼ mile) V5 (¼ mile) V6 (3½ miles)	V1 (1½ miles) V3 (3 miles) V4 (¼ mile) V5 (¼ mile) V6 (3½ miles)	V3 (3 miles) V4 (¼ mile) V5 (¼ mile) V6 (3½ miles)
Total	0	8½	8½	7
Closed (permitted/ authorized only)	*V6	V2 (½ mile)	V2 (½ mile)	
Total	0	½	½	0
Post WSA Route	V4 (¼ mile) V5 (¼ mile) V6 (3½ miles)			
Total	4	0	0	0



Legend

- WSA
- Way
- Post WSA Route
- Closed

Land Status

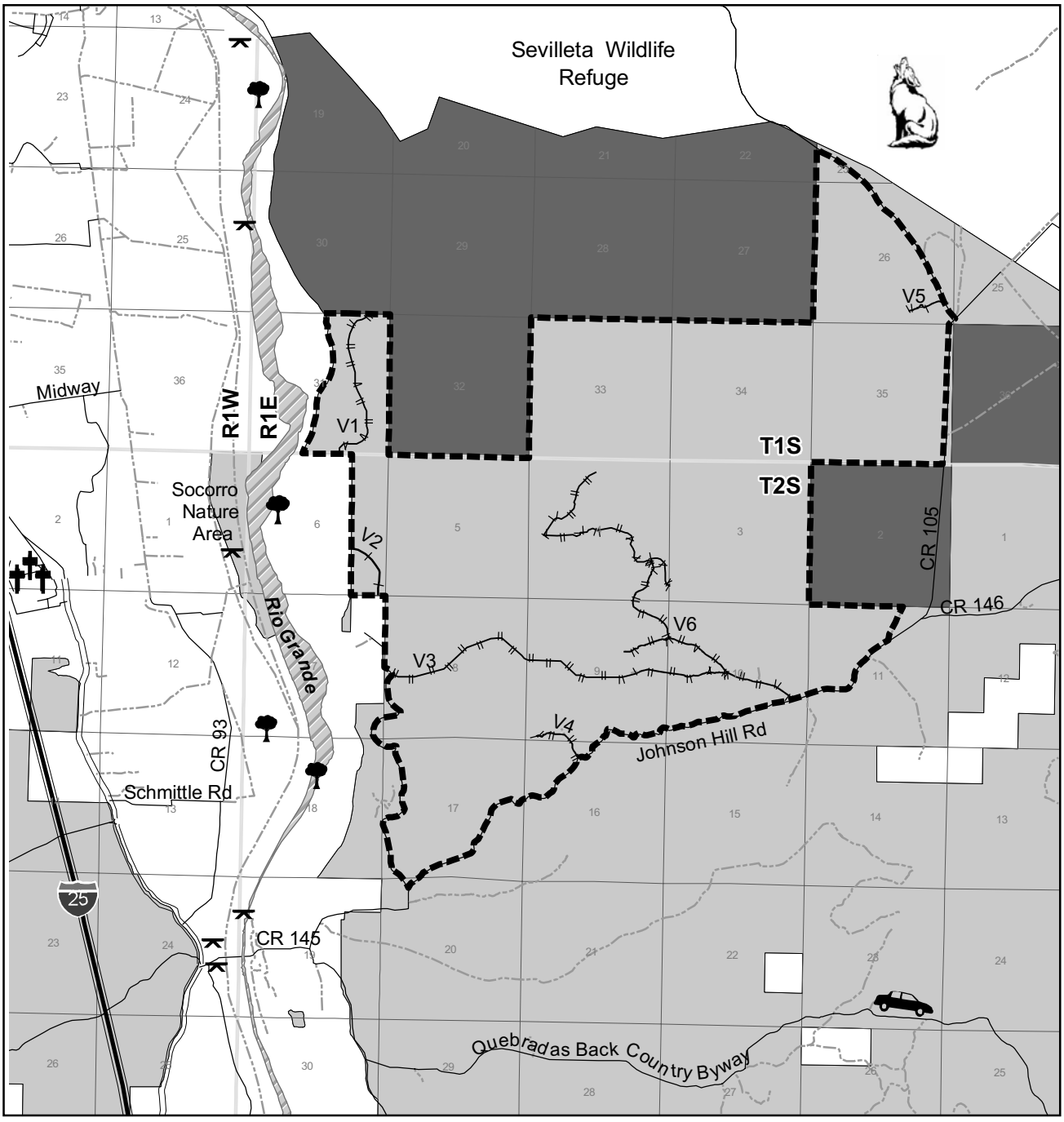
- BLM
- Private
- State

0 0.5 1 2 Miles

VERANITO WSA ROUTES ALTERNATIVE A

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

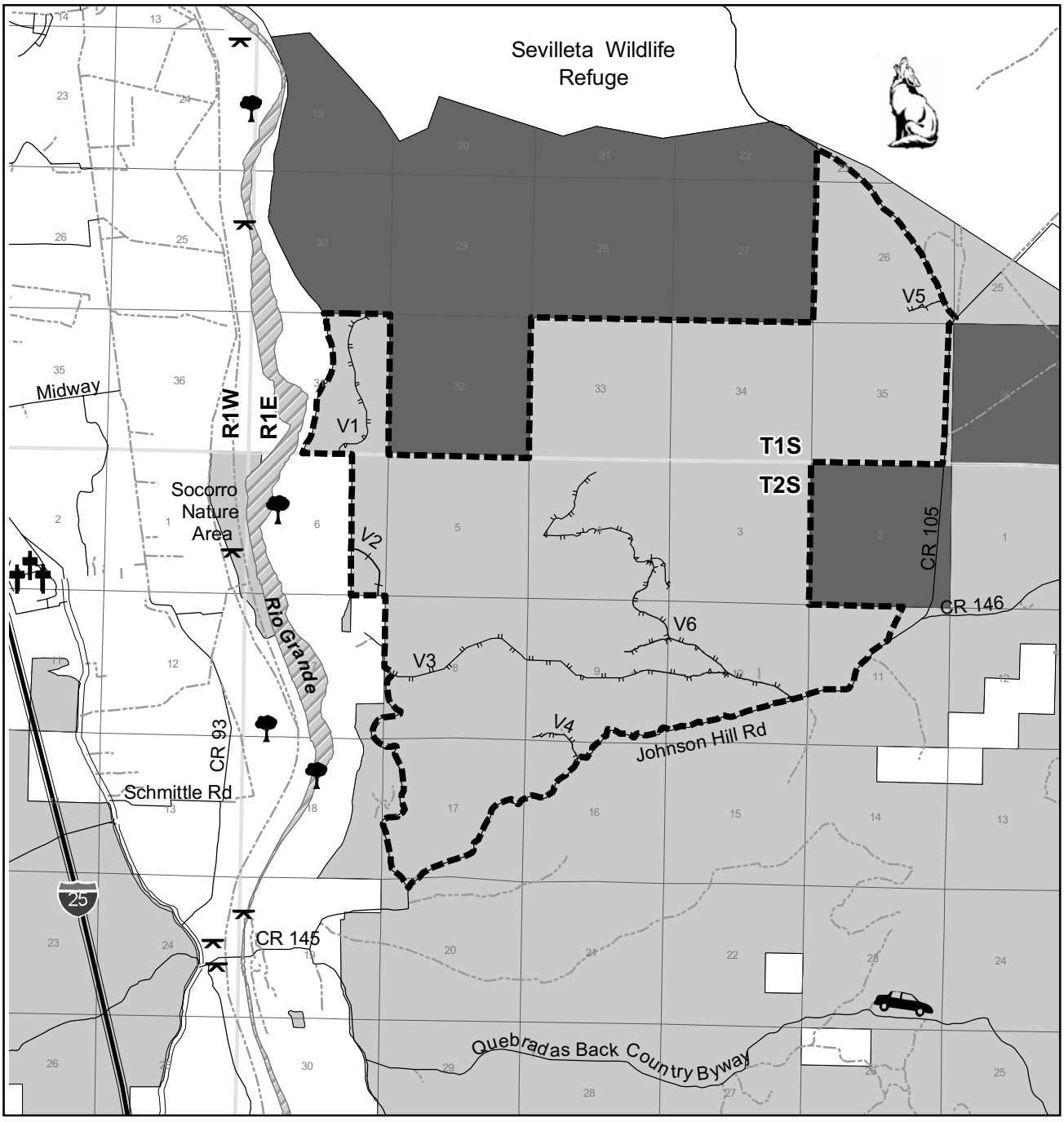
- BLM
- Private
- State

0 0.5 1 2 Miles

ROUTE DESIGNATIONS WITHIN VERANITO WSA ALTERNATIVE B

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

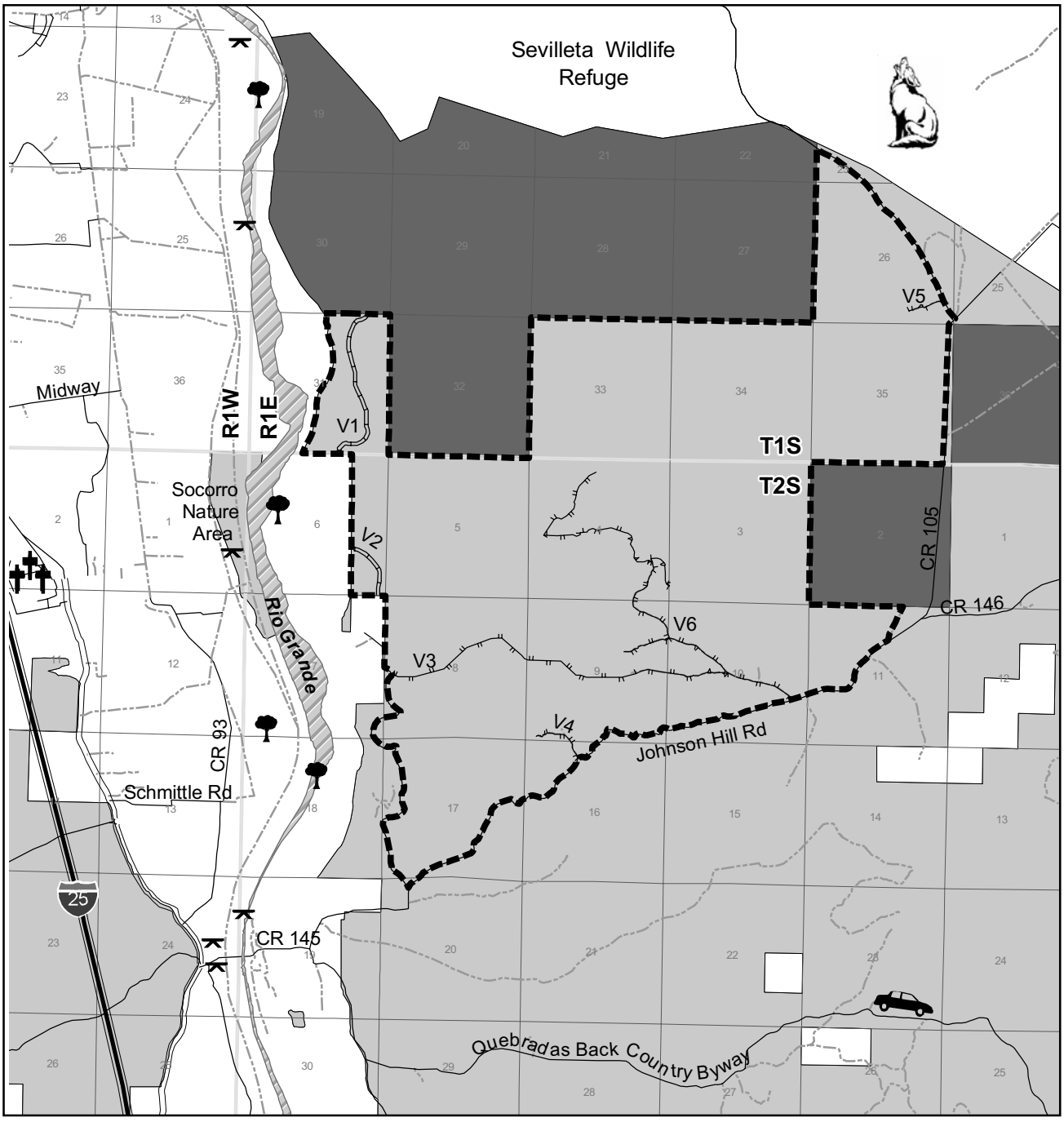
- BLM
- Private
- State

0 0.5 1 2 Miles

ROUTE DESIGNATIONS WITHIN VERANITO WSA ALTERNATIVE C

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.



Legend

- WSA
- Close(Permit)
- Close(Rehab)
- Open

Land Status

- BLM
- Private
- State

0 0.5 1 2 Miles

ROUTE DESIGNATIONS WITHIN VERANITO WSA ALTERNATIVE D

N

No warranty is made by BLM as to the accuracy, reliability, or completeness of the data.

Appendix K

Existing Special Designations and Justification for Proposed Special Designations

APPENDIX K
EXISTING SPECIAL DESIGNATIONS AND JUSTIFICATION FOR PROPOSED SPECIAL DESIGNATIONS

The following appendix contains (1) descriptions of the areas with special designations currently managed by the Socorro Field Office, (2) a description of the criteria and process for nominations for areas of critical environmental concern (ACECs), and (3) descriptions and justifications for the proposed special designations. Acreages provided for the existing and proposed special designations are based on best available geographical information system (GIS) data and include only Bureau of Land Management (BLM)-managed lands. The acreages do not include State or privately owned inholdings that may be present within these areas. Differences between previous acreage estimates that were used in the 1989 Resource Management Plan (RMP) and current GIS-based estimates are summarized in Table 3-9, Acreages of Wilderness Study Areas (WSAs) on BLM-Managed Surface Estate and Table 3-19, Acreages of Special Designations, in Chapter 3.

EXISTING SPECIAL DESIGNATIONS

Areas of Critical Environmental Concern

ACECs are designated by the BLM where special management attention is needed to protect and prevent irreparable damage to important historic, cultural, and scenic values; fish and wildlife resources, or other natural systems or processes; or to protect human life and safety from natural hazards (BLM 2003). The six ACECs located within the Planning Area include Sawtooth, San Pedro, Ladron Mountain, Agua Fria, Horse Mountain, and Tinajas. These ACECs, except proprietary areas, are shown on Map 3-11, Special Designations: Areas of Critical Environmental Concern and Special Management Areas. The boundaries of the Sawtooth ACEC are proprietary due to the sensitivity of the resources being protected. A brief description of each ACEC is provided below.

Sawtooth Proprietary ACEC

The Sawtooth Proprietary ACEC, located in Catron County northwest of Datil, New Mexico, includes 125 acres of public land. Steep ridges and foot slopes characterize the area. This ACEC provides habitat for a small population of *Erigeron rhizomatous (*Rhizome fleabane or Zuni fleabane). The U.S. Fish and Wildlife Service (USFWS) listed this species as a threatened plant under the Endangered Species Act in 1985. The ACEC provides a refuge for this small population by protecting the area from damage from off-highway vehicle (OHV) use, right-of-way authorizations, mineral entry, or other potentially disturbing activities (BLM 1989).

The Sawtooth ACEC would be carried forward under all alternatives.

San Pedro Proprietary ACEC

The San Pedro Proprietary ACEC, located in Socorro County east of San Antonio, New Mexico, includes 1,201 acres of public land. Low ridges, slopes, arroyos, and watercourses characterize the area. This ACEC is habitat to *Amsonia fugatei* (BLM 1989), a species listed as a New Mexico Rare Plant by the New Mexico Rare Plant Technical Council (2003). This species of *Amsonia*, native to the southwestern United States and northwestern Mexico, consists of a few, generally small, isolated populations (BLM 1989). Protection of this isolated population is important because "no two populations are precisely alike and classification is a problem when comparing phenotypic variation within and between populations" (McLaughlin 1985, as referenced in BLM 1989).

The San Pedro ACEC would be managed as a Special Management Area (SMA) under Alternatives B, C, and D.

Ladron Mountain ACEC

The Ladron Mountain ACEC, located in the north-central portion of Socorro County, New Mexico, includes 57,195 acres of public land; several private and State Trust land inholdings are located within the ACEC. The jagged peaks of the Sierra Ladron provide a prominent landmark as they rise from the Rio Grande Valley, from approximately 5,200 feet to an elevation of 9,176 feet. This rough topography, coupled with extreme vegetative diversity, makes the Sierra Ladron critical to the protection of raptor wintering and nesting habitat, and for dwindling mule deer populations (BLM 1989). The Ladron Mountain ACEC contains habitat for rare and endemic, State-listed sensitive plant species including the threadleaf false carrot (*Aletes filifolia*), planks catchfly (*Silene Dlankii)*, and Wrights spiderlily (*Tradescantia wriczhtii)* (BLM 1989). The Ladron Mountain ACEC has served as an area for the successful reintroduction of desert bighorn sheep, a New Mexico State endangered species. This ACEC serves to protect habitat for various species of wildlife and plants, as well as geologic, recreational, paleontological, and scenic values. The Ladron Mountain ACEC overlaps with portions of the Sierra Ladrones WSA.

The area managed as an ACEC would be expanded under Alternatives B and C, while the ACEC boundaries under Alternative D would be similar to Alternative A.

Agua Fria ACEC

The Agua Fria ACEC, located in Catron County west of Quemado, New Mexico, includes 9,571 acres of public land. State Trust land and private inholdings also are present in the ACEC. Elevation varies from 6,400 feet to 7,600 feet, with the majority of the ACEC characterized by mesas and open grasslands enhanced by volcanic features and vertical cliffs (BLM 1989). The Agua Fria Canyon and associated rimrocks and cliffs provide habitat for a great number of raptor species including bald eagles, golden eagles, peregrine falcons, and prairie falcons (BLM 1989). The ACEC is a long, wide, grass-covered valley bottom bordered with vertical basalt and sandstone cliffs, which provide unique visual resources and recreation opportunities (BLM 1989). In addition to the habitat values, the ACEC contains a large number of archaeological sites (i.e., petroglyphs, campsites, and villages) (BLM 1989). The ACEC serves to protect raptor wintering and nesting habitats, recreational opportunities, and geologic and scenic values. The Agua Fria ACEC overlaps with portions of the Mesita Blanca WSA and Eagle Peak WSA.

The area within this ACEC would be incorporated in other designations under Alternatives B and C, and this ACEC is eliminated under Alternative D.

Horse Mountain ACEC

The Horse Mountain ACEC, which is located in Catron County, southwest of Datil, New Mexico, includes 7,490 acres of public land. The majority of the ACEC is characterized as an area of rugged canyons and rough mountainous country with elevations ranging from 7,650 feet to 9,490 feet. The ACEC is relatively remote and rarely grazed, resulting in good habitat conditions for a variety of wildlife species. This ACEC has been identified as providing potential habitat for bald eagles and peregrine falcons (BLM 1989). This ACEC serves to protect wildlife and wildlife habitat, as well as recreational, scenic, and geologic values (BLM 1989). The Horse Mountain ACEC overlaps with portions of the Horse Mountain WSA.

The area managed as an ACEC would be expanded under Alternatives B and C, while the ACEC boundaries under Alternative D would be similar to Alternative A.

Tinajas ACEC

The Tinajas ACEC, located east of Socorro, New Mexico, includes 3,463 acres of public land. The ACEC centers on a narrow incised canyon, within which lies the Arroyo del Tajo Pictograph Site. This ACEC serves to protect the pictographs for public interpretation and sociocultural values (BLM 1989). The Tinajas ACEC overlaps with portions of the Presilla WSA.

The area managed as an ACEC would be expanded under Alternatives B and C, while the ACEC boundaries under Alternative D would be similar to Alternative A.

BACKCOUNTRY BYWAY

The Quebradas National Backcountry Byway, designated by the BLM in 1990, is located in Socorro County, New Mexico. The Quebradas National Backcounty Byway is a 24-mile drive along scenic colored cliffs, rock formations, and badlands with glimpses of the Rio Grande and surrounding mountains. The Byway can be accessed from Interstate 25 (I-25) and U.S. Highway 380 (US 380). The Byway currently is used most frequently for mountain biking and OHV riding. Surrounding uses include hiking, cultural resources viewing, livestock grazing, and wildlife management areas (e.g., wildlife refuges). This byway is shown on Map 3-11. Under Alternatives B, C, and D, the area around the byway would be managed as a Special Recreation Management Area (SRMA).

NATIONAL TRAILS

The Planning Area includes one Congressionally designated National Historic Trail and one National Scenic Trail (i.e., El Camino Real de Tierra Adentro National Historic Trail, and Continental Divide National Scenic Trail, respectively). A brief description of each follows.

El Camino Real de Tierra Adentro National Historic Trail

The El Camino Real de Tierra Adentro National Historic Trail recognizes the primary route between the colonial Spanish capital of Mexico City and the Spanish provincial capitals at San Juan de Los Caballeros (1598-1600), San Gabriel (1600-1609), and then Santa Fe (1610-1821) (BLM 2002). This historic road was in existence for more than 300 years and played a vital role in the settlement of the southwestern United States. The United States Congress and New Mexico State Legislature appropriated funds for the construction of an International Heritage Center to commemorate this historic road (BLM and New Mexico State Monuments Division 2001). This trail is shown on Map 3-11. All alternatives for this RMP Revision (RMPR) allow for corridors for a future trail through primarily private and State lands.

Continental Divide National Scenic Trail

The Continental Divide National Scenic Trail climbs and descends the peaks of the Rocky Mountains from Canada to Mexico, traversing mountainside meadows, granite peaks, and high desert saddles. As the trail winds through New Mexico, it crosses arid desert, rugged forested mountains, canyonlands, and lava flows. Two segments of this trail are located within Catron County, but only one is located primarily on public land. These segments of the trail are shown on Map 3-11. The southernmost segment is located primarily within the Pelona Mountain SMA and Continental Divide WSA, which overlap substantially. Within the Pelona Mountain SMA, BLM developed about 34 miles of primitive trail, between 1990 and 1991 (Carson 2003). Under Alternatives B, C, and D, the area around the trail would be managed as an SMA.

WILD AND SCENIC RIVERS

The public land within the Planning Area does not contain any river segments listed or suitable for inclusion in the National Wild and Scenic River System.

WILDERNESS

Wilderness located within the Cibola National Forest includes the Withington and Apache Kid Wilderness Areas. Wilderness located within the Gila National Forest includes the Blue Range, Gila, and Aldo Leopold Wilderness Areas. Designated wilderness located within the Bosque del Apache National Wildlife Refuge includes the Indian Wells, Chupadera, and Little San Pascual Wilderness Areas. There are currently no designated BLM wilderness areas within the Planning Area.

WILDERNESS STUDY AREAS

The 13 WSAs located on public land within the Planning Area include Antelope, Continental Divide, Devil's Backbone, Devil's Reach, Eagle Peak, Horse Mountain, Jornada del Muerto, Mesita Blanca, Presilla, Sierra De Las Cañas, Sierra Ladrones, Stallion, and Veranito. These WSAs are shown on Map 3-6, Wilderness Study Areas. When BLM acquires lands within a WSA, that land is managed as part of the WSA. Six of the 13 WSAs partially overlap with other specially designated areas. If areas of overlap were released from further consideration as wilderness, these areas would be managed according to the prescriptions for the ACEC or SMA (see also Table 2-3 which outlines management of WSAs if they are released from wilderness review).

SPECIAL MANAGEMENT AREAS

SMAs are areas that have been identified by the BLM for the management of a specific resource or resources. Twenty-one SMAs are located within the Planning Area. Fifteen of these SMAs are shown on Map 3-11; the boundaries of six SMAs – Iron Mine Ridge, Taylor Canyon, Newton Site, Playa Pueblos, Mogollon Pueblo, and Mockingbird Gap – are proprietary due to the sensitivity of the resources being protected. A brief description of each SMA is provided below.

Soaptree SMA

The Soaptree SMA is located approximately 27 miles southeast of San Antonio, New Mexico. The SMA includes 1,296 acres of public land just north of the Jornada del Muerto WSA. The area was designated as an SMA because of the large amounts of yucca, which provide aesthetic and recreational values for wildlife viewing, sightseeing, and hiking (BLM 1989). The Soaptree SMA would be carried forward under all alternatives.

Harvey Plot SMA

The Harvey Plot SMA is located on 8 acres of public land northeast of Bingham, New Mexico. The area was established as a study plot to provide information to determine the effect of rodents on native vegetation as well as study the ecology of range for rainfall and soil types (BLM 1989). This SMA serves to provide vegetative use data for future scientific use (BLM 1989).

Under Alternatives B, C, and D, this designation would be eliminated since it no longer requires special management.

Stallion SMA

The Stallion SMA, located about 8 miles east of Socorro, New Mexico, includes 19,702 acres of public land. Private and State Trust land inholdings occur in the SMA. The western part of the SMA encompasses the Sierra de las Cañas and Presilla WSAs. The SMA is varied in landscape with a rugged desert mountain range characterized by sheer rock escarpments, deep narrow canyons, ridges, mesa tops, broken badlands, rolling piñon-juniper, and grass covered hills (BLM 1989). Resources within the SMA include multiple vegetative communities for range and forestry, wildlife, cultural, mineral, and recreational resources (BLM 1989). This SMA serves to protect a critical watershed area through erosion control and the minimization of surface-disturbing activities. The Stallion SMA overlaps with portions of the Sierra de las Cañas WSA.

The area managed as an SMA would be reduced under Alternatives B, C, and D.

Puertecito SMA

The Puertecito SMA is located about 40 miles northwest of Socorro, New Mexico. The SMA includes 7,153 acres of public land, which does not include inholdings. The central portion of the SMA consists of deep alluvial flats, fans, and low hills. There is a series of low basalt dikes running north to northwest through this lowland area, while the Rio Salado drains eastward through the southern part of the SMA (BLM 1989). This SMA serves to protect a critical watershed area through erosion control and the minimization of surface-disturbing activities.

The Puertecito SMA would be carried forward under all alternatives.

Fence Lake SMA

The Fence Lake SMA is located about 20 miles northwest of Quemado, New Mexico. The SMA includes 25,453 acres of public land, which does not include the private and State Trust land inholdings present. There are three major landforms: the nearly level mesa tops, steep sandstone and shale escarpments and hills, and gently sloping alluvial fans and drainage ways. The soils and topography in the area's watershed are subject to headcutting, soil piping, and sheet erosion, resulting in numerous continuous and discontinuous gullies (BLM 1989). Resources found within the SMA include wildlife, range, forestry, cultural, and minerals (a small portion of the SMA lies within the maximum coal-potential area) (BLM 1989). This SMA serves to protect a critical watershed area through erosion control and the minimization of surface-disturbing activities.

Under Alternatives B and C, this area would be incorporated into another ACEC, while the SMA boundaries under Alternative D would be similar to Alternative A.

Pelona Mountain SMA

The Pelona Mountain SMA is located about 29 miles southwest of Datil, New Mexico on 70,838 acres of public land. The SMA overlaps with the western portion of the Continental Divide WSA, which is characterized by rugged canyons and rough, hilly-to-mountainous country. The SMA has been identified as providing potential habitat for bald eagles, peregrine falcons, black-footed ferrets, and many other species of wildlife including a large number of big-game species (BLM 1989). Bat Cave, a highly significant archaeological site on the National Register, is located within the Pelona Mountain SMA (BLM 1989). The Pelona Mountain SMA serves to protect elk, deer, and raptor wintering and nesting habitats; geologic, scenic, and recreational values; and the Bat Cave cultural site (BLM 1989). It overlaps with portions of the Continental Divide WSA.

Under Alternatives B, C, and D, the area under special management would be expanded and designated as an ACEC.

Iron Mine Ridge Proprietary SMA

The Iron Mine Ridge Proprietary SMA, located northeast of Bingham, New Mexico, includes 1,386 acres of public land. The SMA serves to protect several species of rare and endemic plants that occur in the area, including Wright's spiderlily (*Tradescantia Wrightii*), desert parsley (*Pseudocymooterus longiradiatus*), threadleaf false carrot (*Aletes filifolius*), and other State-listed sensitive species (BLM 1989).

Under all Alternatives B, C, and D, this designation would be dropped due to downlisting of the special status plant species.

Taylor Canyon Proprietary SMA

The Taylor Canyon Proprietary SMA, located east of Bingham, New Mexico, includes 384 acres of public land. The SMA serves to protect several species of rare and endemic plants that occur in the area, including threadleaf horsebrush (*Tetradymia filfolia*), gypsum blazing star (*Mentzelia perrenis*), and other State-listed sensitive species (BLM 1989).

Under all Alternatives B, C, and D, this designation would be dropped due to downlisting of the special status plant species.

Fort Craig SMA

The Fort Craig SMA, located south of San Marcial, New Mexico, occupies 149 acres of public land. Fort Craig was founded in 1854 as one of the first and largest military strongholds in the Territory of New Mexico (BLM 1989). The Fort Craig SMA serves to protect cultural resource values, public interpretation and recreational opportunities, and potential future scientific use (BLM 1989).

The Fort Craig SMA would be carried forward under all alternatives.

Teypama SMA

The Teypama SMA is located on 37 acres of public land south of Socorro, New Mexico. The Teypama Piro pueblo ruin, which is located in the SMA, is a late-prehistoric and early-historic habitation site of the Piro Indians, who occupied the central Rio Grande Valley at the time of Spanish contact (BLM 1989). Though the SMA has experienced damage in the past from vandals, the area serves to protect cultural resources and opportunities for public interpretation and future scientific investigation (BLM 1989).

Under Alternatives B, C, and D, the area under special management would be reduced and renamed as the Penjeacu SMA.

Newton Site Proprietary SMA

The Newton Site Proprietary SMA is located on 37 acres of public land within Catron County. The SMA consists of a 150- to 200-room pueblo, a large, double-walled kiva or plaza, and associated outlying room blocks (BLM 1989). Though the site has been previously disturbed, the SMA serves to protect cultural resources and opportunities for public interpretation and future scientific investigation (BLM 1989).

Under Alternatives B, C, and D, this SMA would be expanded.

Playa Pueblos Proprietary SMA

The Playa Pueblos Proprietary SMA is located on 203 acres of public land in Socorro County. The SMA consists of two major prehistoric pueblo ruins probably associated with the Tompiro prehistoric culture area (BLM 1989). One of the pueblos has been vandalized in the past, but the other is virtually intact (BLM 1989). Though the site has been previously disturbed in the past, the SMA serves to protect cultural resources and opportunities for public interpretation and future scientific investigation (BLM 1989).

The Playa Pueblos SMA would be carried forward under all alternatives.

Rio Salado SMA

The Rio Salado SMA, located approximately 8 miles west of Ladron Mountain, includes 5,946 acres of public land. The Rio Salado SMA includes many known archaeological sites representative of developmental and early puebloan occupation along the middle Rio Salado drainage (BLM 1989). In addition to these cultural resource values, the SMA serves to protect an unusual plant community and two limestone cave formations (BLM 1989). The Rio Salado SMA overlaps with portions of the Sierra Ladrones WSA.

Under Alternatives B and C, the area within this SMA is incorporated into another ACEC, while the SMA boundaries under Alternative D would be similar to Alternative A.

Town of Riley SMA

The Town of Riley SMA is located on the Rio Salado, north of Magdalena, New Mexico. This SMA includes 533 acres of public land. The SMA surrounds a ghost town originally known as Santa Rita, which was a town settled in the 1880s by Spanish-American homesteaders from Socorro and other villages along the Rio Grande (BLM 1989). This SMA serves to protect historical properties important to the "Followers of Santa Rita" (BLM 1989).

Under Alternatives B and D, this designation would be eliminated in order to evaluate whether there is a need for special management in this area.

Mogollon Pueblo Proprietary SMA

The Mogollon Pueblo Proprietary SMA, located northwest of Quemado, includes 640 acres of public land. This SMA includes one of the southernmost Chacoa Great House communities. The site, which was occupied from about A.D. 1000 to A.D. 1150, includes a number of large room blocks with internal kivas, a great kiva, and numerous associated middens and petroglyph panels (Duff 2002). Vandals have damaged the site and the SMA was designated to protect the ruins and petroglyphs for scientific investigation and possible public interpretation in the future (BLM 1989).

Under Alternatives B, C, and D, the area within this SMA would be incorporated into other designations.

Mockingbird Gap Proprietary SMA

The Mockingbird Gap Proprietary SMA is located on 8,685 acres of public land in Socorro County. The Mockingbird Gap site within the SMA is listed as a New Mexico State Cultural Property and consists of an extensive complex of Paleoindian campsites including both Clovis and Folsom elements (ca. 10,000 B.C.) (BLM 1989). Paleoindian sites are rare, and this multicomponent site provides special opportunities

for research in the Southwest (BLM 1989). The SMA serves to protect cultural resources for future scientific investigation (BLM 1989).

Under Alternatives B, C, and D, this area would be managed as a proprietary ACEC.

Zuni Salt Lake SMA

The Zuni Salt Lake SMA is located northwest of Quemado, New Mexico. The SMA includes 4,839 acres of public land. The SMA is a location of traditional religious significance to the Zuni Tribe and to other Native American groups in the Southwest (BLM 1989). The lake itself lies in a volcanic crater and contains highly saline water, which has been used since prehistoric times. This SMA serves to protect sociocultural values and cultural resources (BLM 1989). The Zuni Salt Lake SMA overlaps with portions of the Eagle Peak WSA.

Under Alternatives B and C, the area under special management would be expanded and designated as an ACEC. Under Alternative D, the boundaries of the area would be similar to Alternative A but the area would be designated as an ACEC.

Cerro Pomo SMA

The Cerro Pomo SMA is located west of Quemado, New Mexico, entirely within the Eagle Peak WSA. The SMA includes 8,784 acres of public land and contains significant cultural values. Diverse wildlife, vegetation, and landforms occur within the SMA (BLM 1989). The SMA serves to protect cultural and geologic resources, while providing and improving wildlife habitat and recreational opportunities.

Under Alternatives B and D, the area under special management would be expanded and designated as an ACEC. Under Alternative C, this area would be incorporated into another ACEC.

Walnut Canyon SMA

The Walnut Canyon SMA is located about 12 miles south of Socorro, New Mexico. The SMA includes 1,145 acres of public land, which does not include the State Trust Land inholdings present. The SMA is characterized by a rugged canyon and associated rough foothill country. The landscape is rugged and exhibits the diversity of color, vegetation, relief, shape, and geology characteristic of desert foothill mountain communities dissected with long, deep, and wide-arroyo-type canyons (BLM 1989). The diverse vegetation and terrain provide habitat for a variety of big game species and other wildlife including golden eagles, prairie falcons, and great horned owls (BLM 1989). The SMA serves to protect raptor wintering and nesting habitat and geologic, recreational, and scenic values (BLM 1989).

Under Alternatives B, C, and D, this designation would be eliminated since it was determined to not require special management.

The Box SMA

The Box SMA is located about 6 miles southwest of Socorro, New Mexico, and includes 300 acres. Local rock climbers use the area on a regular basis, and climbers from other states and countries also often visit the SMA (BLM 1989). The SMA provides recreational opportunities, while serving to protect scenic quality in the area (BLM 1989). About 40 acres of this SMA have been withdrawn from entry for locatable minerals (Bell 2003).

Under Alternatives B and C, the area under special management would be expanded and designated as an SRMA. Under Alternative D, the boundaries of the area would be similar to Alternative D, but the area would be designated as an SRMA.

San Lorenzo Canyon SMA

The San Lorenzo Canyon SMA is located about 10 miles northwest of Socorro, New Mexico. It includes 2,320 acres of public land. The SMA is characterized by the presence of a rugged, scenic canyon bordering the Sevilleta National Wildlife Refuge. Due to its proximity to Socorro, it offers excellent day use opportunities (BLM 1989). The SMA provides recreational opportunities, while serving to protect wildlife habitat, cultural resources, and scenic values (BLM 1989).

Under Alternatives B and C, this area would be incorporated into other designations. Under Alternative D, this area would be designated as an SRMA.

Datil Well Campground SMA

BLM manages the Datil Well Campground SMA to provide camping opportunities in a roaded natural setting and to provide interpretative and educational opportunities. Consistent with a 1989 RMP decision, BLM developed the *Datil Well Campground Recreation Management Plan* in 1992. The management actions implemented in the SMA include limiting motor vehicle use to existing roads and trails, restricting the area from right-of-way authorizations and leases, and prohibiting surface occupancy for fluid mineral leasing. In addition, BLM has withdrawn 640 acres of the SMA from entry for locatable minerals and prohibits woodcutting in the area, fulfilling 1989 RMP decisions.

Under Alternatives B, C, and D, this area would be managed as an SRMA.

NOMINATIONS FOR AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Regulations – 43 CFR 1610.7-2 Guidance – BLM Manual 1613.1

ACEC nominations may be made by members of the public, or other agencies or internally by BLM personnel. Potential ACECs must meet ***both*** of the following criteria*:*

1. ***Relevance*** – An area meets the relevance criteria if it contains one or more of the following:
    - Significant historic, cultural, or scenic value (such as rare or sensitive archeological resources and religious or cultural resources important to Native Americans)
    - A fish or wildlife resource (such as habitat for endangered, sensitive or threatened species or habitat essential for maintaining species diversity)
    - A natural system or process (such as endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian or rare geological features)
    - Natural hazards (such as areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined during the planning process that it has become part of a natural process.
2. ***Importance –*** The described value, resource, system, process or hazard must have substantial significance and values. Generally, this means that the value, resource, system, process, or hazard is characterized by one or more of the following:

- Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern (particularly when compared to any similar resource)
- Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change
- Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of Federal Land Policy and Management Act (FLPMA)
- Has qualities that warrant highlighting in order to satisfy public or management concerns about safety and public welfare
- Poses a significant threat to human life and safety or to property

To be designated as an ACEC, an area must require special management attention to protect the important and relevant values. Special management attention refers to management prescriptions or measures developed during preparation of a planning document to protect the important and relevant values of an area from the potential effects of actions permitted by the RMP, including proposed actions deemed to be in conformance with the terms, conditions, and decisions of the RMP. A management measure is considered to be "special" if it is unique to the area involved and includes terms and conditions specifically to protect the important and relevant values of a specific area. Special management often provides for consultation and coordination with identified groups and/or experts having interest or expertise in the affected values.

Publication: The State Director, upon approval of a draft RMP, plan revision, or plan amendment shall publish a notice in the *Federal Register* listing each ACEC proposed and specify the resource use limitations, if any, which would occur if it were formally designated. The notice shall provide a 60-day period for public comment on ACEC designations. Approval of the RMP, plan revision, or plan amendment constitutes formal designation. The approved plan shall include the general management practices and uses, including mitigating measures, identified to protect designated ACECs.

DESCRIPTIONS AND JUSTIFICATIONS FOR DESIGNATION OF AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Multi- Resource Nominations Management Team Review
January 12, 2003

I. Cerro Pomo (Acreage varies across alternatives)

Reasons for Nomination: Cultural Values, Recreational and Paleontological

It should be noted that this proposed ACEC includes the existing 9,571-acre Agua Fria ACEC, the 640-acre Mogollon Pueblo SMA, and 8,784-acre Cerro Pomo SMA.

ACEC Nomination includes: Alternative B (26,284 acres)
Alternative D, proprietary (449 acres)

Relevance (meets 3 of 6 criteria): Significant cultural values
Significant scenic values
Natural system or process

Justification

- Home to southernmost Chacoan greathouse community
  - National Register of Historic Places
- Multi-year cultural research project ongoing
- High level of public interest
- Cultural sites are of national significance
- High scenic value
- World class paleontological resources
- Unique geologic features
- Special management is needed for resources protection
- Potential threats from oil and gas, coal, carbon dioxide, and helium development
  - Entire area has moderate potential for oil and gas
  - Potential for coal is high (a large portion of the nominated area lies within an identified coal field)
  - Approximately 50 percent of the area has a high potential for carbon dioxide and helium
  - Southeastern portion has moderate potential for coalbed methane
- Potential threat to resource from surface-disturbing activities (e.g., mineral material disposal, rights-of-way, and OHV
- Natural system (little impact from man)
-

Importance – Meets 13 of 16 Criteria

More than local significance	Is unique	Public concern
Management concern	Is sensitive	National priority
Is irreplaceable	Is exemplary	FLPMA mandate
Is fragile	Is threatened	
Is rare	Is vulnerable	

Management Team Review/Suggestion

Threats: Erosion, Roads, Air Quality

Recommended for Nomination as proposed

Concur: Kate Padilla, Socorro Field Manager **Do Not Concur**:_____

II. Tinajas (Arroyo del Tajo (Acreage varies across alternatives)

Reasons for Nomination: Recreational and Cultural Values
Cultural resource site falls within the expanded Tinajas ACEC.

ACEC Nomination includes: Alternative B (1,062 acres)
Alternative C (7,767 acres)
Alternative D (22 acres)

Relevance (meets 3 of 6 criteria): Significant cultural values
Significant scenic values
Natural system or process

Justification

- Unique assemblage of pictographs (images painted on rock)
  - Stereophotographic technique used to record figures in 1980s
- Sacred Native American Pueblo site and ceremonial figures
- High level of public interest
- Significant research site to scientists
- High scenic value
- Unique geologic formations and sinkhole features (Tinajas)
- Opportunity for recreation (e.g., hiking and other non-disturbing activities)
-
- Quebradas Backcountry Byway under National Backcountry Byway Program
- High scenic values, and natural systems are threatened by vehicle conflicts

Importance – Meets 12 of 16 Criteria

More than local significance	Is unique	Is rare
Management concern	Is sensitive	Is vulnerable
Is irreplaceable	Is exemplary	Public concern
Is fragile	Is threatened	FLPMA mandate

Management Team Review/Suggestion

- WSA acreages not recommended for designation
- Controlled OHV use needed since OHV use is threat
- Recommended for Nomination as proposed, with following addition: Alternative D to propose that expansion area be considered in whole or in part for designation as a National Recreation Area.

Recommended for Nomination as proposed

Concur: Kate Padilla, Socorro Field Manager **Do Not Concur**:_____

III. Ladron Mountain – Devil's Backbone (includes San Lorenzo Canyon and Rio Salado)

Reasons for Nomination: Recreation, Wildlife, Cultural

ACEC Nomination includes: Alternative B (57,474 acres)
Alternative C (57,474 acres)
Alternative D (20,155 acres)

It should be noted that this proposed ACEC includes the existing 5,946-acre Rio Salado SMA and the 2,320-acre San Lorenzo SMA. The proposed ACEC includes several areas that are addressed separately below: Ladron Mountain, Devil's Backbone, and San Lorenzo.

Ladron Mountain Area

Relevance (meets 5 of 6 criteria):
Significant cultural value
Significant scenic value
Significant historic value
Significant fish or wildlife resource
Natural system or process

Justification

- Area contains three State sensitive plant species (e.g., *Aletes filifolia*, *Silene plankii* and *Tradescantia wrightii*).
- Originally the ACEC nominated by New Mexico Energy and Minerals and Natural Resource Division and the Nature Conservancy for management of rare and endemic plants
- Great Basin and Chihuahuan floras overlap in the area, resulting in unusually plant communities
- Area contains unique riparian habitat associated with several natural springs (10 to 12)
    - Provides habitat for residential and non-residential wildlife species
- Critical habitat of State-listed desert bighorn sheep
    - Should be managed as federally listed per guidance under the Endangered Species Act
    - Since being re-introduced to the Ladron Area, sheep have expanded their range to include Polvadera Mountain and Sarca Mesa Area
    - San Lorenzo Canyon, Polvadera Mountain Area, and Sarca Mesa are now "core habitat" for the desert bighorn sheep and is a core travel corridor between the Ladron Mountains and the Devil's Backbone (which is a proposed future release site for the State-listed desert bighorns)
    - Special protection and management will help maintain and enhance genetic diversity and viability of desert bighorn herds and increase the probability of a self-sustaining population of the species
- Habitat for several special status bat species
    - Should receive special protection to prevent future listing as a federally listed species under the Endangered Species Act
- Habitat for dwindling mule deer population
    - Special management and protection needed to prevent further habitat fragmentation and degradation and to protect critical habitat and maintain viability of the mule deer population. Studies are ongoing to determine if ACEC is critical habitat for other special status species.
- The nominated area's visual rating has been designated as a Class I or II
- High scenic values
- High recreation values
- Unique geological resources
- Areas contain paleontological resources
- Unique, varied archaeological sites (range from early puebloan occupation, Indian Wars, and the Civil Wars)

4. Please explain why the area must require special management attention to protect the important and relevant values.

Importance – Meets 9 of 16 Criteria

More than local significance	Is unique	Is fragile
Is irreplaceable	Is sensitive	Is threatened

Is rare	Is vulnerable	Public concern

Management Team Review/Suggestion

Threats: Urbanization/subdivisions, increased recreation use, fuels reduction, military activities, moderate potential for oil and gas

Devil's Backbone Area

Reasons for Nomination: Wildlife

Relevance (meets 1 of 6 criteria): Significant fish or wildlife resource

Justification

- Critical habitat for State of New Mexico Endangered desert bighorn sheep
  - Travel corridor between Ladron Mountain and the Devil's Backbone WSA (located at south end of Magdalena Mountains)
  - Future release site for desert bighorn sheep
  - Should be managed as federally listed per guidance under the Endangered Species Act
- Special protection and management of the proposed ACEC needed to
  - Aid in maintaining and enhancing genetic diversity and viability and therefore, a healthy, self sustaining desert bighorn sheep population
  - Protect wildlife habitat from further loss and fragmentation resulting from urbanization, energy exploration and development, unauthorized OHV use, and other similar activities that result in degradation of existing habitat
- Volunteer and BLM investments to enhance wildlife habitat and recreational opportunities in the area
  - Activates include prescribed fire, piñon-juniper thinning, wildlife water facilities, spring restoration, and enhancement and grassland restoration
  - Habitat for dwindling mule deer population
- Special management and protection needed to prevent further habitat fragmentation and degradation and to protect critical habitat and maintain viability of the mule deer population
- Adjacent acquired lands have wilderness character

Importance – Meets 8 of 16 Criteria

More than local significance	Is unique	Management concern
Public concern	Is rare	FLPMA concern
National priority	Is irreplaceable	

Management Team Review/Suggestion

Recommend nomination as proposed to be included in larger Sierra Ladron-San Lorenzo ACEC. The larger ACEC will include Sierra Ladron, San Lorenzo, and Rio Salado for Alternative B. Recommend adding this area to the combined ACEC, which would include Ladron, San Lorenzo, and Rio Salado under Alternative C. Need to include a fourth alternative (e.g., Alternative D).

Threats: Low potential for oil and gas, low potential for carbon dioxide and helium, medium geothermal potential, medium potential for saleables

Rio Salado Area

Relevance (meets 3 of 6 criteria): Significant historic value, significant cultural value, significant scenic value

Provide a brief description of the specific relevance values (such as the specific endangered species and/or the habitat essential to maintain species diversity):

This area contains significant prehistoric sites, including a high density of P-II roomblocks that are essential to our understanding of Anasazi cultural development and its local expression. The Rio Salado is also a natural travel corridor and contains significant sites related to its function as such. Many historic period sites having both national significance and an extremely high level of public interest also are

present, including the retreat route of General Sibley's Confederates after the battle of Glorieta, Indian War sites involving Apaches and Buffalo Soldiers, and other sites related to the area's function as a travel corridor.

Importance – Meets 9 of 16 Criteria

More than local significance	Is unique	Management concern
Public concern	Is rare	Is sensitive
Is vulnerable	Is irreplaceable	Is fragile

Provide a brief description of the importance of the resource(s) requiring special management attention.
See explanation in paragraph above.

Please explain why the area must require special management attention to protect the important and relevant values.

The sites with great importance as described above are very vulnerable, and many are difficult or impossible to detect with routine surface inventory that is generally employed as part of the section 106 National Historic Preservation Act process. Designation would afford a higher level of protection and indicate a management priority in terms of protection, research, and interpretation.

Special management prescriptions are measures needed to protect the relevant values of an ACEC. At least one prescription is required for each nominated ACEC (BLM Manual 1613). Management prescriptions can vary across plan alternatives. Different management strategies set forth by the different prescriptions for the various alternatives will be analyzed in the environmental impact statement (EIS).

Please provide a description of management prescriptions or measures needed for the ACEC. Please explain why the area must require special management attention to protect the important and relevant values.

Controlled surface use:

Increased surveys would be required, including archival work to identify sensitive areas lacking in surface manifestations.

These measures are warranted by the national significance, vulnerability, scientific and interpretive potential described above, as well as by the high degree of public interest in these values.

Recommended for Nomination to include expanded Ladron, San Lorenzo, and Rio Salado areas

Concur: Kate Padilla, Socorro Field Manager **Do Not Concur**:_____

IV. Horse Mountain (Acreage varies across alternatives)

Reasons for Nomination: Recreation, Wildlife

ACEC Nomination includes: Alternative B (5,388 acres)
Alternative C (5,388 acres)
Alternative D (2,596 acres)

Relevance (meets 3 of 6 criteria): Significant fish or wildlife resources
Significant scenic values
Natural system or process

Justification

- The USFWS has identified the area as potential habitat for two federally listed threatened and endangered species: bald eagle and peregrine falcon
    - BLM is mandated to protect and enhance habitat for special status species under the Migratory Bird Treaty Act
    - Area is currently monitored and surveyed to determine extent of use by these species and to determine if the area provides critical habitat for other special status species
    - Raptor wintering and nesting habitat
- Core wildlife habitat for a variety of wildlife species
    - Potentially occurring wildlife species (including elk, mule deer, wild turkey, black bear, javelina, mountain lion, bobcat, coyote, and gray fox)
    - Lands serves as a wildlife corridor between BLM and Forest Service lands
    - Variety of raptors, songbird, reptiles, amphibians, and rodents
- Designated by New Mexico Department of Game and Fish as a "primitive," "quality," and "high demand" hunting unit due to unique setting and high quality wildlife habitat
- Habitat for dwindling mule deer population
    - Special management and protection needed to prevent further habitat fragmentation and degradation and to protect critical habitat and maintain viability of the mule deer population
- Considerable volunteer and BLM investment have been devoted to enhance wildlife habitat and recreational opportunities in the area
    - Activities include prescribed fire, piñon-juniper thinning, wildlife water facilities, spring restoration and enhancement, and grassland restoration
    - Area provides primitive recreation, significant scenic and geologic resources
- Includes acquired lands with wilderness characteristics
- The area is roadless, which protects the land from human disturbances
- Area should be protected from OHV, subdivision and energy exploration to protect habitat loss, fragmentation, and scenic and natural conditions

Importance – Meets 6 of 16 Criteria

More than local significance	National priority
Management concern	FLPMA mandate
Public concern	Is unique

Management Team Review/Suggestion

Threats: Moderate potential for oil and gas, moderate potential for carbon dioxide and helium, moderate geothermal potential, moderate potential for saleables.

Recommended for Nomination as proposed

Concur: Kate Padilla, Socorro Field Manager **Do Not Concur**:_____

V. Pelona Mountain

Reasons for Nomination: Recreation, Wildlife

ACEC Nomination includes: Alternative B (51,091 acres)
Alternative C (52,336 acres)
Alternative D (34,547 acres)

Relevance (meets 4 of 6 criteria): Significant cultural value
Significant scenic value
Significant fish or wildlife resource
Natural system or process

Justification

- The USFWS has identified the area as potential habitat for two federally listed threatened and endangered species: bald eagle and peregrine falcon
    - BLM is mandated to protect and enhance habitat for special status species under the Migratory Bird Treaty Act
    - Area is currently monitored and surveyed to determine extent of use by these species and to determine if the area provides critical habitat for other special status species
- Designated by New Mexico Department of Game and Fish as a "primitive," "quality," and "high demand" hunting unit due to unique setting and high quality wildlife habitat
- Habitat to one of New Mexico's largest elk herds
- Core wildlife habitat for a variety of wildlife species
    - Wildlife species (including elk, mule deer, wild turkey, black bear, mountain lion, bobcat, coyote, and gray fox)
    - Variety of raptors, songbird, reptiles, amphibians, and rodents
- Habitat for dwindling mule deer population
    - Special management and protection needed to prevent further habitat fragmentation and degradation and to protect critical habitat and maintain viability of the mule deer population
- Serves as important wildlife corridor between BLM and Forest Service lands
- Considerable volunteer and BLM investment has been devoted to enhance wildlife habitat and recreational opportunities in the area
    - Activities include prescribed fire, piñon-juniper thinning, wildlife water facilities, spring restoration and enhancement, and grassland restoration
    - Portions of a National Scenic Trail (The Continental Divide National Scenic Trail) located within nominated area
- National significance
- Includes acquired lands with wilderness characteristics
- Provides primitive recreation
- Area is relatively roadless, which protects the land from human disturbance
- Area has significant scenic and geologic resources
- Area contains historic structures
    - Bat Cave on National Register of Historic Places

Importance – Meets 7 of 16 Criteria

More than local significance	Is unique	Management concern
Public concern	Is sensitive	
National priority	FLPMA concern	

Management Team Review/Suggestion

Questions: How large is potential raptor habitat area? Identify mule deer fragmentation threat area?

Threats: Moderate potential for oil and gas, moderate potential for carbon dioxide and helium, moderate geothermal potential, low/high potential for saleables

Concur: Kate Padilla, Socorro Field Manager **Do Not Concur**:_____

VI. Sawtooth

1. Is the nomination a new ACEC? Yes □ No **X**
   If yes, specify the estimated acreage 125 acres.

2. Is the nomination an expansion of an existing ACEC? Yes □ No **X**
   If yes, specify the size of the existing ACEC _____ acres and the number of acres proposed in the expansion _____.

3. Indicate the relevance of the nomination:

Significant historic value	□	Significant fish or wildlife resource	**X**
Significant cultural value	□	Natural system or process	□
Significant scenic value	□	Natural hazard	□

Provide a brief description of the specific relevance values (such as the specific endangered species and/or the habitat essential to maintain species diversity):

The area contains the plant species *Erigeron rhizomatous* (Zuni fleabane). This plant species has been listed Federally Threatened (USFWS 1988) under the Endangered Species Act of 1973. The area was nominated in the prior 1989 Socorro RMP as an ACEC and special management due to the sensitivity of the species. This mutual concern is shared by both the New Mexico Energy, Minerals, and Natural Resources Department and the Nature Conservancy.

4. Indicate the importance of the described value, resource, system, process, or hazard:

More than local significance	**X**	Is fragile	**X**	Is sensitive	□
Is irreplaceable	**X**	Is rare	**X**	Is exemplary	□
Public Concern	**X**	Is unique	**X**	Is threatened	**X**
National priority	**X**				
FLMPA Mandate	**X**				
Management Concern	**X**				
Threats:					
Life	□	Is vulnerable		**X**	
Property	□	Is endangered		□	
Safety	□				

Provide a brief description of the importance of the resource(s) requiring special management attention.

The BLM is mandated by the Endangered Species Act to protect and enhance habitat for the federally listed species.

The species is known from 12 scattered populations (11 on U.S. Forest Service lands, 1 on BLM lands) in the Zuni, Datil, and Sawtooth Mountains of west-central New Mexico. *Erigeron rhizomatus* is threatened by modification of its habitat due to mineral exploration and development (USFWS 1988). The distribution of Zuni fleabane is geologically associated with the distribution of uranium deposits in west-central New Mexico. Any significant development of these deposits would seriously jeopardize the Zuni fleabane and probably prompt reclassification from threatened to endangered.

5. Please explain why the area must require special management attention to protect the important and relevant values.

Planned actions and management prescriptions should be implemented to protect and enhance habitat to promote future delisting of the species.

A planned action in the prior Socorro RMP was to withdraw minerals from the ACEC, which has been done (see serial number NMNM 095118 mineral withdrawal).

Habitat for Zuni fleabane is found on steep north-facing slopes (up to 40 degrees) on the Baca formation clays, which are highly erodible. The vegetation community is piñon-juniper, which could make the population susceptible to wildfire. Other concerns may be intensive recreation or livestock use in the Zuni fleabane habitat.

6. Special management prescriptions are measures needed to protect the relevant values of an ACEC. At least one prescription is required for each nominated ACEC (BLM Manual 1613). Management prescriptions can vary across plan alternatives. Different management strategies set forth by the different prescriptions for the various alternatives will be analyzed in the EIS.

   Please provide a description of management prescriptions or measures needed for the ACEC. Please explain why the area must require special management attention to protect the important and relevant values.

   Alternative B–Proposed Socorro RMP Revision

   1. Limit motor vehicle use to designated routes.
   2. Exclude the authorization of rights-of-way and leases.
   3. Apply fluid mineral leasing stipulation S-NSO-T&E.
      The above prescriptions are needed to protect the fragile soils and to prevent disturbance in Zuni fleabane habitat.
   4. Acquire legal access.
      This prescription would be for administrative purposes.
   5. Exclude from vegetative material sales.
      This prescription is needed to protect the fragile soils and to prevent disturbance in Zuni fleabane habitat.
   6. May be placed in Fire Management Unit Category A, B, C, or D.
      Fire suppression had been previously recommended for Zuni fleabane habitat. Considering the piñon-juniper community that this species is found in, it must have evolved with wildfire. Fire use may be considered depending on the condition class the habitat is in, and other existing conditions.
   7. Develop an allotment management plan.

Concur: Kate Padilla, Socorro Field Manager **Do Not Concur**:_____

VII. Mockingbird Gap

1. Is the nomination a new ACEC? Yes **X** No □
   If yes, specify the estimated acreage 8,685

2. Is the nomination an expansion of an existing ACEC? Yes □ No □
   If yes, specify the size of the existing ACEC _____ acres and the number of acres proposed in the expansion _____.

3. Indicate the relevance of the nomination:

Significant historic value	**X**	Significant fish or wildlife resource	□
Significant cultural value	**X**	Natural system or process	□
Significant scenic value	□	Natural hazard	□

   Provide a brief description of the specific relevance values (such as the specific endangered species and/or the habitat essential to maintain species diversity):

   The Mockingbird Gap ACEC contains a rare complex of Paleoindian sites. Paleoindian sites represent the earliest uncontested cultural horizon in North America. Unlike later periods, this cultural expression was quite uniform throughout the continent, contributing to the national significance of the area. Very few sites of this time period are known, and it is imperative that these sites are preserved for research. In addition, while we are familiar with the sequence of cultural horizons, which archaeologists base on diagnostic tool types, and which in turn are based on prevailing technology, this area has yielded evidence of the transition from the technology and typology of the Clovis period to the Folsom period. This aspect of the Mockingbird Gap site is discussed in most archaeology textbooks dealing with the Paleoindian period in North America.

4. Indicate the importance of the described value, resource, system, process, or hazard:

More than local significance	**X**	Is fragile	**X**	Is sensitive	**X**
Is irreplaceable	**X**	Is rare	□	Is exemplary	**X**
Public Concern	□	Is unique	□	Is threatened	**X**
National priority	□				
FLMPA Mandate	□				
Management Concern	**X**				

Threats:	Life	□	Is endangered	□
	Property	□	Is vulnerable	**X**
	Safety		□	

   Provide a brief description of the importance of the resource(s) requiring special management attention.
   See paragraph above.

5. Please explain why the area must require special management attention to protect the important and relevant values.

   Because of their great antiquity, preservation issues related to the survival of different types of artifactual material from this time period, and due to depositional factors in the area, these sites are not always detected through routine surface inventory generally employed in compliance with Section 106 of the National Historic Preservation Act. Extra care must be taken to see that these sites are preserved for future research.

6. Special management prescriptions are measures needed to protect the relevant values of an ACEC. At least one prescription is required for each nominated ACEC (BLM Manual 1613). Management prescriptions can vary across plan alternatives. Different management strategies set forth by the different prescriptions for the various alternatives will be analyzed in the EIS.

   Please provide a description of management prescriptions or measures needed for the ACEC. Please explain why the area must require special management attention to protect the important and relevant values.

   1. Controlled surface use

2. Increase standard cultural survey requirements to take into account potential impacts on subsurface sites which may lack surface manifestations. Requirements should be based on the nature of expected impacts from the proposed project, and may include monitoring for projects which include trenching. Proposed undertakings should be evaluated based on level of surface disturbance and the potential for the project to impact buried sites. Low impact projects such as fence replacements may not require more than standard section 106 compliance.
3. Limit motor vehicle use to existing roads and trails.
4. Restrict authorizations for rights-of-way and leases.

Concur: Kate Padilla, Socorro Field Manager **Do Not Concur**:_____

VIII. Zuni Salt Lake Sanctuary Zone

Alternative B (46,746 acres)
Alternative C (156,601 acres)
Alternative D (2,107 acres)

Cultural resource staff proposes that the existing 4,839-acre Zuni Salt Lake SMA be managed as an ACEC under the action alternatives. It is felt that the formal Determination of Eligibility to the Nation Register of Historic Places for the larger Sanctuary Area provides considerable protection through requirements to consult with Tribes and State Historic Preservation Office in the course of compliance with Section 106 of the National Historic Preservation Act; however, it does not preclude mineral leasing and potential impacts associated with development. These requirements to consult apply to any Federal undertaking within the boundaries of the site and have the potential to affect cultural resources. Any foreseeable impacts could be addressed during the consultation process.

1. Is the nomination a new ACEC? Yes **X** No □
2. Is the nomination an expansion of an existing ACEC? Yes □ No **X**

3. Indicate the ***Relevance*** of the nomination:

Significant historic value	**X**	Significant fish or wildlife resource	□
Significant cultural value	**X**	Natural system or process	**X**
Significant scenic value	**X**	Natural hazard	□

Provide a brief description of the specific relevance values (such as the specific endangered species and/or the habitat essential to maintain species diversity):

- Area is of great importance to the Zuni Tribe
  - Sacred site for the religious deity, the Salt Mother
  - Offerings are made on the site
  - A Salt gathering ceremony is performed by male Zuni youths at the site
- The Sanctuary Zone has historic value
  - Place where six Tribes have ceased hostilities to allow salt gathering for time immemorial
  - Eligible for the National Register of Historic Places
- Numerous cultural and burial sites are located throughout the area
- Cultural sites are of national significance
- High scenic value
- Unique volcanic caldera produces a distinct and irreplaceable brine lake ecosystem
- The lake is maintained through various groundwater contributions of water and soluble salts as well as surface runoff. The delicate hydrologic balance of the surrounding area must be preserved in order for the lake to continue and to continue the supply of salt for area Tribes.

4. Indicate the importance of the described value, resource, system, process, or hazard:

More than local significance	**X**	Is fragile	**X**	Is sensitive	**X**
Is irreplaceable	**X**	Is rare	**X**	Is exemplary	**X**
Public Concern	**X**	Is unique	**X**	Is threatened	**X**
National priority	**X**				
FLMPA Mandate	**X**				
Management Concern	**X**				

Threats:	Life	□	Is vulnerable	**X**
	Property	□	Is endangered	**X**
	Safety	□		

Provide a brief description of the importance of the resource(s) requiring special management attention.

The volcanic caldera is a unique geologic formation in the region, producing a distinct and irreplaceable brine lake ecosystem maintained by various groundwater contributions of water and soluble salts, as well as surface runoff. The delicate hydrologic balance of the surrounding area must be preserved for the lake to continue, and to continue the supply of salt to the Tribes. The site is on the National Trust for Historic Preservation's List of the Eleven Most Endangered Historic Places of 2003.

5. Please explain why the area must require special management attention to protect the important and relevant values.

   The current RMP now under revision contains a "SMA" intended to protect the Zuni Salt Lake. Actions associated with the proposed development of the Fence Lake Mine, some 12 miles away, have been shown to negatively impact the lake and cultural resources within the Sanctuary Zone. For this reason the special management attention currently afforded by the BLM RMP is insufficient for insuring protections and therefore increased special management measures are needed in the revised RMP.

6. Special management prescriptions are measures needed to protect the relevant values of an ACEC. At least one prescription is required for each nominated ACEC (BLM Manual 1613). Management prescriptions can vary across plan alternatives. Different management strategies set forth by the different prescriptions for the various alternatives will be analyzed in the EIS.

   Please provide a description of management prescriptions or measures needed for the ACEC.

   1. Limit motor vehicle use to existing roads and trails.
   2. Restrict authorization of rights-of-way and leases.
   3. Any proposed cumulative groundwater diversion over 3 acre-feet per year/per square mile within a 60-mile radius of the Zuni Salt Lake will require BLM review and approval according to a protocol agreed upon by the BLM and Pueblo of Zuni.
   4. Any proposed actions (land, minerals, etc) within the ACEC will require consultation with the Governor of Pueblo of Zuni.
   5. Restrict mineral material disposals.
   6. Exclude the area from fluid leasing.
   7. Restrict geophysical operations.

   Why Special Management Attention:

   The Sanctuary Zone has been identified as a natural area of great significance to six Native American Tribes and contains numerous archaeology sites, burial sites, trails, and other traditional cultural properties important to the heritage of those Tribes and essential for their cultural memory as well as current use. Without special measures these values would decline.

   The Zuni Salt Lake is a unique and precarious ecosystem shared by Tribes and the reason for the existence of the Sanctuary Zone. Technical studies have revealed a vulnerability to the continued functioning of the lake ecosystem when sufficient water is withdrawn from aquifers connected to the lake or there is disturbance to the surface runoff.

Management Team Review/Suggestions

Threats: Actions associated with the proposed development of the Fence Lake Mine, some 12 miles away, may negatively impact the lake and cultural resources within the Sanctuary Zone. For this reason the special management attention currently afforded by the RMP is insufficient for insuring protections and therefore increased special management measures are needed in the revised RMP.

Concur: Don Ellsworth, Acting Field Manager **Do Not Concur**:_____

DESCRIPTIONS AND JUSTIFICATIONS FOR DESIGNATION OF SPECIAL RECREATION MANAGEMENT AREAS

I. Box Canyon SRMA

Acreage: Alternative B (1,107 acres)
Alternative C (1,501 acres)
Alternative D (300 acres)

Box Canyon SRMA is located 6 miles west of Socorro. The area can be reached within 15 minutes from Socorro.

Box Canyon is proposed for management as a SRMA to manage unique recreation opportunities and experiences for climbing and bouldering. The 1989 RMP designated the area as a SMA managed primarily for recreation uses.

A coordinated management plan was developed for the area in February 1999 and the management goal in that plan is as follows: "The Box will be managed to enhance recreational values, primarily rock climbing and bouldering, and to maintain the scenic quality. Special protection should be given to cultural sites as well as desert bighorn sheep and bats and their habitats. Any recreation facilities will be built and maintained to a standard that protects these and other resources, the public and fosters a pride of public ownership and partnership. Any development should blend with the landscape and not degrade scenic quality."

Vehicle use in the area will be designated as limited with all routes designated as open or closed. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

The existing Coordinated Activity Plan would be revised to incorporate decisions made in the RMPR. Revision of the Activity Plan would occur within five years of completion of the RMPR (contingent upon funding).

II. Datil Well SRMA

Acreage: 669 acres

The site is located 1 mile west of Datil and one hour from Socorro. The site can be accessed from either Highway 12 or Highway 60.

The area is proposed as a SRMA to manage for a variety of recreation experiences and opportunities. The 1989 RMP designated the area as an SMA.

A Recreation Area Management Plan was developed for the SMA in January 1992. Some of the opportunities associated with the site include day use, hiking on up to 3 miles of trails, group outings and the group shelter, camping, and wildlife observation. The Management Goal in the 1992 plan is that "The BLM will manage and maintain the Datil Well Campground recreation area to provide recreation opportunities, basic services including visitor safety and comfort, facility and grounds maintenance, coordination of employee and volunteer schedules and projects, and development and implementation of interpretation and environmental education programs."

Under proposed management, main access routes would be designated open for vehicle use. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

The existing management plan would be evaluated and revised as needed to incorporate management decisions from this RMPR upon its completion.

Revision of the Recreation Area Management Plan, if needed, would be done within five years upon completion of the RMPR (contingent upon available funding).

III. Socorro Nature Area SRMA

Acreage: 80 acres

The area is located east of Lemitar off of I-10 north of Socorro.

This area was not addressed in the 1989 RMP. The area was developed as a result of local interest and efforts in recent years. It is proposed for management as a SRMA.

Resources and activities available include primarily day use for picnicking and environmental education, hiking, sightseeing in Bosque Habitat, access to the Rio Grande, some camping, mountain biking, and interpretation.

A management plan has not been prepared. An interim plan is currently being developed. The primary objectives would be to provide for day use and environmental education and interpretation. A volunteer host is also proposed for the site to reduce vandalism and have an on-site presence to enhance user's experiences. Planned actions proposed in Appendix C will help improve these experiences and opportunities.

Vehicle use within the area would be designated as limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources. An interim activity plan is being developed. A management plan would be developed within five years upon completion of the RMPR (contingent on funding).

IV. Quebradas Backcountry Byway SRMA

Acreage: Approximately 3,130 acres, which includes the area within a quarter-mile buffer from centerline of the roadway.

The area is located east of Socorro and accessed from I-25 and US 380. The Byway can be reached within 15 minutes from Socorro.

The area is proposed for management as an SRMA to manage for a variety of recreation opportunities and experiences such as driving for pleasure, high scenic quality, geologic sightseeing, interpretation and environmental education, mountain biking, and access to hiking areas such as Presilla and Sierra de las Cañas WSAs.

The Backcountry Byway was designated in 1991 after completion of the 1989 RMP. It was established after receiving input from the local community, chamber of commerce, and various groups and individuals. A primary objective would be to manage for the values described above and emphasize the development of interpretation opportunities along the Byway through auto tour brochures, wayside exhibits, trailheads/parking area, and other tools to enhance visitor experiences and provide for health and safety.

The route (Byway) is a county road and would be open for all vehicle use. The Byway is shown on Map 3-11.

A travel management plan would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

V. Gordy's Hill SRMA

Acreage: Alternative B (7,647 acres)
Alternative C (3,087 acres)
Alternative D (7,174 acres)

The area is located about 7 miles northeast of Socorro and can be reached within 15 minutes. It was allocated as an "intensive use" Open Area for OHVs in the 1989 RMP and included about 1,200 acres. A larger area would be designated and managed as a SRMA for recreational activities, including OHV use, with use limited to designated routes.

This area has historically been used by the OHV community for over 30 years. Uses include motorcycles, 4-wheel-drive vehicles, and all-terrain vehicles. Additionally, this area is used annually for the Socorro Valley 100 motorcycle races and hill climbs. The general area is also scenic and provides opportunities for mountain biking as well.

The management objectives are to delineate routes and the types of use for those routes as well as to develop and implement management actions that would provide for health, safety, information, and enhance the user's experience. Signing and facility development would be a key part of meeting these objectives.

OHV use would be limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

A map for public use showing routes open for use would be developed. An activity plan has not been developed for the area; however, there is a great need to develop a plan to manage the area. This area is the highest priority area to develop a management plan once the RMPR is completed. It should be completed within three years of the RMPR.

DESCRIPTIONS AND JUSTIFICATIONS FOR IDENTIFICATION OF SPECIAL MANAGEMENT AREAS

I. Continental Divide National Scenic Trail

Acreage: Alternative B (57,663 acres)
Alternative C (11,757 acres)
Alternative D (8,702 acres

The trail corridor would be identified as a SMA. A portion of the trail passes through the Continental Divide WSA.

The Continental Divide National Scenic Trail was established as a part of the National Scenic Trail system by Public Law 95-625, the National Parks and Recreation Act of 1978. The trail runs the entire length of the Continental Divide within the United States from Mexico to Canada. As the trail winds through New Mexico, it crosses arid desert, rugged forested mountains, canyonlands, and lava flows. Two segments of the trail are located in Catron County, but only one is located primarily on public land. These segments are shown on Map 3-11. About 34 miles of trail has been developed within the Planning Area. Most of that is on Pelona Mountain within the Pelona Mountain SMA. The corridors were identified by user groups such as the Continental Divide Trail Alliance and the Continental Divide Trail Society. The corridors establish areas for a potential future trail location and emphasize management within the corridors, which would ultimately culminate in obtaining legal public access and an on-the-ground trail through areas which are primarily private (willing sellers, etc.), State, and BLM lands. Planned actions for the trail as well as retaining these areas would help in establishing a trail and maintaining experiences within the corridors.

The Congressional designation of the Continental Divide National Scenic Trail automatically gives the trail national significance in all its segments. The two organized national interest groups, Continental Divide Trail Association and Continental Divide Trail Society, monitor planning, construction, management, and use of the trail.

The trail would be managed to meet the objectives of the enabling legislation, establish and maintain a trail route through the planning area that would meet up with trail routes to the south and the north, and provide a long distance trail hiking experience for the users.

The trail corridor would be limited to designated routes for motorized vehicles except for that portion inside the Continental Divide WSA, which would be closed to motorized vehicles. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

An activity plan would be prepared for the trail once a route has been established across non-Federal lands within the Planning Area, probably five to seven years from the completion of the Socorro RMPR. Any activity plan should be coordinated with neighboring BLM offices and agencies with Continental Divide Trail management responsibilities.

II. Fence Lake SMA

Acreage: Alternative D (25,453 acres)

Fence Lake was identified as a SMA in the 1989 RMP. Under Alternatives B and C, this area would be incorporated into the Zuni Salt Lake ACEC. The proposed SMA under Alternative D is the same area that is currently managed as the Fence Lake SMA.

Fence Lake SMA is located in the northwestern Catron County about 20 air miles northwest of Quemado, New Mexico. There are three major landforms: the nearly level mesa tops, steep sandstone and shale escarpments and hills, and gently sloping alluvial fans and drainages. The soils and topography are subject to headcutting,

soil piping, and sheet erosion resulting in numerous continuous and discontinuous gullies (BLM 1989). Resources found within the SMA include wildlife, range forestry, cultural, and minerals. A small portion of the SMA lies within the maximum coal potential area (BLM 1989). This SMA was designated to highlight the need to manage and protect a critical watershed through erosion control and minimization of surface-disturbing activities.

Management objectives for the area primarily deal with protecting and rehabilitating the watershed condition.

Motorized vehicle use would be limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

III. Fort Craig SMA

Acreage: 149 acres

Fort Craig would be identified as a SMA under all alternatives.

Fort Craig, now in ruins, was a U.S. territorial period military fort, critical in both the Indian Wars and the western theater of the Civil War. Founded in 1854, it was one of the first and largest forts established in the new U.S. Territory of New Mexico. The site is listed on the National Register of Historic Places. Fort Craig is developed, with interpretive facilities, restrooms, and picnic tables.

Management goals are protection of cultural resource values, public interpretation, future scientific use, and recreational opportunities.

Vehicle use would be limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources. An activity plan for management of the area has been developed and would be revised or amended as needed in the future.

IV. Newton Site SMA

Acreage: 6,789 acres

Under the action alternatives, the Newton Site is expanded and identified as a Proprietary SMA. That is, location of the site would not be identified to the public in order to maximize protection of the area.

The Newton Site consists of a 150- to 200-room Chacoan greathouse pueblo and surrounding prehistoric community. The site was occupied from about A.D. 1200 to A.D. 1325 and represents an important locus for scientific investigation. The site has been heavily disturbed by vandals and uncontrolled student excavations prior to acquisition by the Federal Government, but retains good potential for scientific research.

Management goals are to preserve and protect significant cultural resource sites, provide opportunities for research, under Alternative D only, accommodate heritage tourism contingent on public/community demand and opportunities for appropriate mitigation of the effects of visitation.

Vehicle use would be limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

V. Penjeacu (formerly Teypama) SMA

Acreage: 11 acres

Penjeacu would be identified as a SMA under all alternatives.

Penjeacu Piro pueblo ruin is a late prehistoric and early historic habitation site of the Piro Indians, who occupied the central Rio Grande Valley at the time of Spanish contact. The site is listed on the National Register of Historic Places, and consists of over 200 rooms with kivas and a central plaza. It is located on a terrace of the west bank of the Rio Grande and overlooks the floodplain, where the agricultural economy of the occupants was no doubt based. The site has experienced severe damage from vandals, but retains great potential for scientific investigation.

Management goals for the Penjeacu SMA would be manage the area for protection of cultural resource values, public interpretation, and present and future scientific use.

Vehicle use would be limited to designated routes or eliminated, depending on the alternative selected. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

VI. Playas Pueblo SMA

Acreage: 203 acres

The Playas Pueblo would be identified as a proprietary SMA under all action alternatives.

This SMA consists of two major prehistoric pueblo ruins probably associated with the Tompiro prehistoric culture area. These sites are notable in addition to their size (200 plus rooms each) because of the fact that they are not located on water courses, but rather seem to have exploited wide, shallow internal drainages and, if early ceramic assessments are correct, were occupied over extraordinarily long time periods. Ceramic sequences for one of the sites suggest occupation from about A.D. 1150 through the A.D. 1700s. One of the ruins has been extensively vandalized, but retains good scientific potential, while the other remains virtually intact.

The management goal for the Playas Pueblo SMA is to preserve and protect the cultural resource sites of Playas Pueblo for current and future scientific use.

Vehicle use would be limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

VII. Puertecito SMA

Acreage: 7,153 acres

The Puertecito would continue to be identified and managed as a SMA under all alternatives.

The Puertecito SMA is located approximately 40 miles northwest of Socorro. The central portion of the SMA consists of deep alluvial flats, fans, and low hills. A series of low basalt dykes run north to northwest through the lowland area. Many of the watersheds within the SMA begin outside the boundary of the SMA. Generally, the watersheds are subject to severe sheet erosion and gully erosion during intensive rainstorms. Much of the erosion is due to reduced surface cover, intensive rainfall and runoff periods, and the fact that many of the soils in the SMA are highly erodable. This SMA was designated for the purposes of focusing watershed management and to improve soil stability. Parts of the SMA have had erosion control projects and tests completed in the past. In 1964, 2,200 acres were ripped and seeded. An experimental dike project consisting of contour dikes (13,800 feet) and wire checks (4,150 feet) was constructed in 1982.

The management goal for the area are to protect and rehabilitate the critical watershed area and minimize surface-disturbing activities.

Vehicle use would be limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

VIII. San Pedro Proprietary SMA

Acreage: 1,201 acres

The San Pedro area would be identified as a proprietary SMA under all action alternatives. That is, the location of the area would not be identified to the public in order to maximize protection of special status plant species.

The San Pedro Proprietary SMA contains populations of BLM special status species and New Mexico State sensitive species, *Amsonia fugatei* or Fugate's blue star. In the previous RMP for the Socorro Field Office, this area had been nominated by the Nature Conservancy and New Mexico Energy, Minerals, and Natural Resources Department for special management. Most of the known populations occur on public lands, with some smaller populations found on the Sevelleta National Wildlife Refuge and private lands. Habitat consists of limy conglomerate ridges and associated outwash slopes in Chihuahuan desert scrub at 5,000 to 5,900 feet in elevation. Vegetation within the area is composed of juniper, snakeweed, creosote bush, Apache-plume, black grama, galletta, fluffgrass, sand dropseed, and variety of other species.

Fugate's blue star is not palatable to the kinds of livestock presently occupying the area. Populations are small and localized, and individually may be severely impacted by human activity.

Management goals for the San Pedro Proprietary SMA would be to protect the area from surface-disturbing activities and to maintain the habitat in which the special status species is found.

IX. Soaptree SMA

Acreage: 1,296 acres

The Soaptree area would continue to be managed as a SMA.

The Soaptree SMA is located approximately 27 miles southeast of San Antonio, New Mexico. The area is managed as an SMA because of the aesthetic and recreational values it possesses. The area lies just north of the Jornada del Muerto WSA. Large dense yucca stands dominate the desert scenery. Although yucca stands occur in other parts of the Planning Area, they do not attain the size and density that they do in this area. With the increasing demand for yucca for landscape purposes, it is prudent to monitor and conserve areas for future use by the public.

Management goals for the Soaptree SMA would be to maintain the area for livestock grazing; protect the unique, natural and scenic yucca ecosystem; and to improve recreational opportunities.

Motorized vehicles will be limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

X. Stallion SMA

Acreage: 10,883 acres

The Stallion area would continue to be managed as a SMA. The SMA also includes portions of the Presilla and Sierra de las Canas WSAs.

The Stallion SMA is located approximately 8 air miles east of Socorro, New Mexico. Vegetation in the SMA is typical of the upper Chihuahuan Desert at the northern extreme of its range. Major vegetation types include desert shrub, piñon-juniper, creosote bush, and grassland. Soils in the SMA vary from moderately deep to deep and loamy in swales and lowlands to coarse textured, gravelly, ranging from deep to shallow over bedrock. Much of the SMA is in a critical erosion class with the remaining area being moderate. Active and severe sheet and gully erosion is occurring over much of the SMA, particularly in the central and eastern parts. A number of

erosion control projects have been completed in the past on portions of the SMA, primarily entailing construction of wire check dams. Most of the work appears to have been completed by 1965.

Management goals for the SMA include protecting and rehabilitating the watershed condition by installing erosion control projects and controlling surface-disturbance activities.

Motorized vehicle use would be limited to designated routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources.

XI. Town of Riley SMA

Acreage: 533 acres

The Town of Riley would be designated as a SMA under Alternatives A and C only. The designation was dropped under Alternatives B and D to evaluate whether this area requires special management to address resource concerns.

Riley is something of a ghost town, but may be unique in that descendants of the original settlers of the town continue a cultural tradition known as "Followers of Santa Rita." They perform religious observances and maintain the graveyard at Santa Rita Church. A religious task structure is maintained even though the descendants are scattered over a wide region, and return annually for a mass and fiesta.

Management goals are to preserve and protect historic properties and to ensure that no adverse effects occur to the socio-cultural traditions of the "Followers of Santa Rita" as a result of BLM-authorized undertakings.

Vehicle use would be limited to existing routes. Travel management plans would be completed within five years of the completion of the RMPR, contingent upon the availability of funding and staffing resources. An activity plan prescribing management for the area would not be developed.

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Appendix L

Wildlife and Special Status Species

APPENDIX L
WILDLIFE AND SPECIAL STATUS SPECIES

This appendix includes supplementary information on (1) best management practices (BMPs) and management parameters that would apply to the wildlife habitat management program, (2) aplomado falcon management guidelines, (3) additional information on federally listed special status species, (4) a table of Federal- and State-listed species in the Planning Area (Table L-1 on page L-12), and (5) a table of noxious weeds that may be found in the Planning Area (Table L-2 on page L-17).

HABITAT ENHANCEMENT PROJECTS AND GENERAL BEST MANAGEMENT PRACTICES

Habitat enhancement projects would be implemented at the landscape level. The following management parameters and associated BMPs would be utilized as needed to protect and enhance wildlife habitat:

- Upland habitats, including grasslands, shrub steppe, forest, and woodlands, will be managed so that the forage, water, cover, structure, and security necessary for wildlife are available on public land. Vegetative communities will be managed for the desired plant community based on the ecological site. Management will be accomplished by enhancing, restoring, and maintaining wildlife habitat by reducing the amount of woody vegetation encroachment.

- Restore, maintain, or improve riparian vegetation, habitat diversity, and associated watershed function to achieve healthy and productive riparian areas and wetlands. Management will be accomplished by enhancing, restoring, and maintaining, riparian areas which have been degraded through the invasion of non-native vegetation, such as Tamarisk and Russian olive.

- Manage livestock forage production to support wildlife population levels identified by the New Mexico Department of Game and Fish (NMDGF).

- In addition to continuing management guidance, develop and apply appropriate BMPs, fluid mineral stipulations, and/or mitigation measures, as determined through the environmental analysis process, for renewable energy development, fluid mineral development, and other surface-disturbing activities within the Socorro Field Office resource area for the protection of wildlife resources within areas of critical environmental concern, special management areas, and habitat management plan/cooperative resource management plan management areas, and other crucial habitat areas identified through inventory, survey, and study. Areas may include habitat for special status species, nesting areas, raptor nests; prairie dog towns; and desert bighorn sheep, mule deer, pronghorn antelope, and elk birthing areas.

- Apply seasonal use restrictions within crucial habitat areas or habitat for special status species, which may include high-use raptor areas, prairie dog towns, desert bighorn sheep, mule deer, pronghorn antelope, elk birthing areas, and other crucial habitat areas identified through inventory, survey, and study.

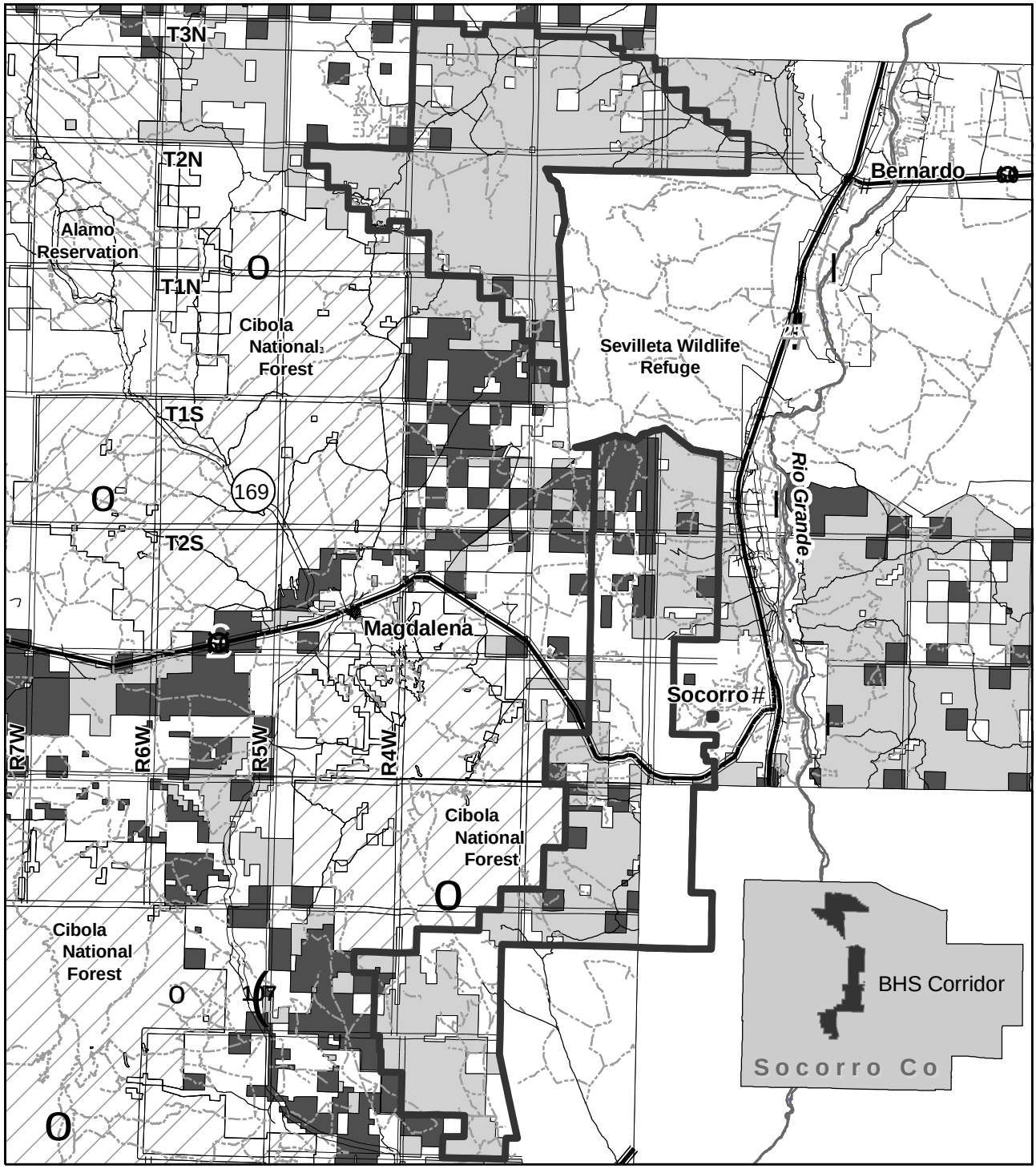
- To protect desert bighorn sheep, domestic sheep, and goats will be excluded within occupied and historic habitat areas and the delineated desert bighorn sheep corridor/management area will be managed to enhance habitat conditions (Map L-1).

- Limit human and wildlife interactions within crucial habitat areas identified through inventory, survey, and study.

- The Bureau of Land Management (BLM) should take actions that further progress towards conditions indicating attainment of the Standards for Public Land Health and Guidelines for Livestock Grazing Management. Such actions would include management that restores, protects, and enhances the resources necessary to support, as site potential allows, native wildlife species and their associated habitats in their historical proportions (BLM Manual Section 6840).

The following BMPs and/or management parameters would apply to the wildlife habitat management program in the Socorro Decision Area.

- Implement vegetative treatments to restore and enhance wildlife habitat. Treatments may include:
  - prescribed fire
  - mechanical treatment
    - hand crews with chain saws
    - heavy equipment (chaining, mowing, mulching, grubbing, etc.)
  - chemical treatments
- Maintain integrity and safety of existing habitat improvement projects.
  - perform annual or biannual inspection of all projects
  - maintain projects as needed
- Increase availability and distribution of year-round water.
  - develop springs/seeps where as necessary
  - construct artificial watering facilities where needed
- Modify fences or other man-made structures to limit impacts to wildlife.
- Construct/maintain watershed rehabilitation structures for purposes of reducing erosion.
- Continue to inventory, survey, and study wildlife populations for purposes of determining habitat needs and requirements or areas which require special protection and management.
- Limit adverse human/wildlife interactions.
  - limiting vehicle access into certain areas
  - road closures and obliterations (action alternatives include closure of approximately 26 miles to address wildlife concerns. Closure of other selected routes would occur as needed).
  - implement seasonal use restrictions into areas of resource concern
- Construct protective exclosures/fences around riparian areas, wildlife watering facilities, and other areas of resource concern.
- Monitor and inventory all habitat improvement projects to ensure that project objectives are being met.
  - global positioning system and incorporate into geographic information system
  - monitor use and effectiveness



Legend

- Federal
- State
- County
- Existing Access
- Corridor

Land Status

- BLM
- FS
- Indian
- Private
- State

0 1.5 3 6 Miles

BIG HORN SHEEP CORRIDOR

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Map L-1

- Implement/authorize predator damage management activities to meet species-specific management goals and objectives.
- Reintroduce, supplement, or translocate native species in suitable habitat.
- Implement environmental education events to meet management goals and objectives.
- Install/maintain signage where necessary to meet management goals and objectives.
- Implement updated Utah Field Office Guidelines for Raptor Protection From Human and Land Disturbance (U.S. Fish and Wildlife Service Utah Field Office).
- Implement wildlife management BMPs that relate to wildlife management (see Appendix C).

NORTHERN APLOMADO FALCON MANAGEMENT GUIDELINES

The following requirements would apply within the historic range of the northern aplomado falcon, in addition to a 15-mile buffer area around it in areas that are determined to be potential habitat. These requirements apply to all surface-disturbing activities. BMPs described for special status species would also apply to the northern aplomado falcon.

Surface Occupancy Requirements for Northern Aplomado Falcon Habitat

Unitization

Outside of the areas that are discretionarily closed to fluid mineral leasing, potential northern aplomado falcon habitat would be open to leasing, but fluid mineral leasing stipulation S-CSU-W4 requires new lessees to form exploratory units and to submit a plan of development prior to commencing drilling activity. This special protection measure will allow the BLM to manage the surface in an orderly way, as well as to control the rate of reservoir development. The BLM has the authority to approve Unit Agreements; require specific provisions of Unit Agreements; establish the rate of exploration and development; approve the tract allocation formula; and terminate units that cease production (or where production was never established). The objective is to protect grassland habitat and associated special status species of wildlife through improved planning of future oil and gas development on a unit. A simple definition of unitization is the operation of multiple leases as a single lease under a single operator. A Federal Oil and Gas Unit would result in less surface disturbance. Wells would be drilled in the most favorable locations without regard for spacing. The operator and the BLM would establish corridors for access roads and pipelines, and there would be no need for redundant facilities. There are also lease benefits in that individual leases could be extended beyond their primary term without actual production, as long as there is production on the unit. The Socorro Field Office currently has one existing unit (Cathead Mesa Unit).

Grazing Management Actions for the Protection of Aplomado Falcon Nests

This is not a nest site plan. A nest site plan is site specific. This is a list of potential actions that may be undertaken when an aplomado nest or nest selection activities may be disturbed by livestock grazing and related activities. Other actions may be developed and substituted as we gain understanding of aplomados and their management.

The objective is to avoid disturbance causing the loss of an aplomado falcon nest. Disturbance is defined here as activities of people or livestock that lead to the abandonment or loss of a potential (i.e., nest selection in progress) or existing aplomado falcon nest.

1. BLM will prepare an annual site plan, in cooperation with the grazing allottee, U.S. Fish and Wildlife Service (USFWS), NMDGF, and other cooperators, for each aplomado nest or perhaps nest cluster, pasture, or allotment where nesting is discovered.
2. Depending on the level of or potential for nest disturbance and the specific grazing allotment situation the following measures may be applied with respect to accomplishing the stated objectives with the least disturbance to both the falcons and the grazing allottee.
    a. Deactivate all livestock facilities (water troughs, supplement sites, etc.) within 2 miles of nest sites to divert cattle use to other areas of a pasture from March (or discovery of nest site) thru fledging (fledging may occur as early as May or as late as early August).

    Or

    b. Herd livestock away from the nest area. All herding activities must remain at least 0.25 mile from active nest sites.

    Or

    c. Remove grazing from the nest pasture(s) from March (or discovery of nest site) thru fledging (fledging may occur as early as May or as late as early August).

    Or

    d. Remove grazing from the allotment from March (or discovery of nest site) thru fledging (fledging may occur as early as May or as late as early August).

    Or

    e. With US FWS approval, construct a temporary exclosure or drift fence to protect nest. Maintain a distance between ¼ and ½ mile from nest.

    Or

    f. With USFWS approval, BLM may place a small cattle barrier to protect the nest tree/yucca (examples: powder river or hog wire panels with t posts; steel L-shaped frames wired together and staked to the ground; a small solar electric fence). Use of these measures has a high likelihood of causing serious disturbance to the nest. Measures would be taken to minimize the impact (minimize time to set up, minimize visual impacts, time during the day to prevent egg cooling, time during female feeding forays, etc).

    g. Enactment of livestock management measures should be accomplished within 1 week or as soon as possible thereafter.
3. Modify open water storages within 3 to 5 miles of occupied aplomado habitat. Ensure that there is some form of open water left available to birds and bats if large water sources are covered.
    a. Cover open water storage units with small mesh netting.
    b. Install floating neoprene covers on open water storages.
    c. Replace open storages with closed ones.
4. Install and maintain bird escape ramps on all water troughs on public land.
5. Reduce human disturbance such as construction, working cattle, road, or range improvement maintenance within 0.25 to 0.50 mile of a nest.
6. Reduce threat of wildfire impacting nest structure.
    a. Because allottees are quite often important links in fire suppression and are likely to request help from local volunteer fire departments. The Socorro Field Office fire

program should work closely with volunteer fire departments for quick, but appropriate, response to wildfire in nest areas.

1. Avoid fire operations, including aircraft use, as much as possible in the immediate nest area.
    a. Keep ground operations at least 0.5 mile from nest site.
    b. Keep air operations above 2,000 feet above ground level within 0.5 mile of nest sites.

b. Use fire retardant to create fire breaks and protect nest structures (yuccas) during critical periods.

BEST MANAGEMENT PRACTICES FOR SPECIAL STATUS SPECIES

Tracking the Reasonable Foreseeable Development

The BLM will closely monitor acres disturbed to ensure the reasonable foreseeable development is an appropriate planning estimate. The number of acres projected to be disturbed directly from activities is 420 acres over the next 15 years. For helium and carbon dioxide resources, the approximate number of acres that are projected to be disturbed from exploration and development activities is 1,000 acres.

Preliminary Investigations

Activities occurring during preliminary investigations may include remote sensing; mapping of rock outcrops and seeps (either of which result in little or no surface disturbance); and seismic, gravity, and magnetic surveys.

A lease is not required to conduct such preliminary investigations. However, the geophysical operator is required to file a completed Form 3150-4, "Notice of Intent to Conduct Oil and Gas Exploration Operations" for all operations on public lands.

In general, the BLM requires an examination of resource values and development of appropriate surface protection and reclamation measures prior to the geophysical contractor beginning surface-disturbing activities associated with preliminary investigations. The BLM will solicit involvement from public land users (e.g., grazing allottees) to develop site-specific protection measures and reclamation specifications. Compliance monitoring should occur during and after seismic exploration activities when or if necessary. Compliance inspections during the operation ensure that requirements and guidelines are being followed. Compliance inspections upon completion of work ensure that the lines are clean and drill holes are plugged properly.

The frequency of authorized seismic exploration will be dependent upon resource conditions and seasonal restrictions (timing limitations) that may be imposed to reduce conflicts with watershed conditions, wildlife, and hunting. Management practices specific to wildlife and vegetation resources include the following:

- Prior to surveying/flagging routes for geophysical surveys or other preliminary activities, the project area shall be surveyed for raptor nests. Surveys will be conducted by professional biologists approved by the Authorized Officer. The Universal Transmercator grid locations of all raptor nests will be reported to the Authorized Officer. All raptor nests will be avoided by the required distances described under the surface disturbing activities section. A raptor nest is defined as any raptor or corvid nest.

- In areas that constitute occupied or potential northern aplomado falcon habitat, a protocol survey for this species will be conducted along with the general raptor nest survey described above, prior to surveying/flagging lines.
- During operations at any time, all habitat features (pinnacles, cliffs, ledges, caves, and trees, shrubs, and yuccas greater than six feet in height) containing or capable of containing a raptor nest will be avoided by vehicular traffic or other activities likely to destroy them.
- Time activities to avoid wet periods.
- In areas that allow for off-road travel, minimize the off-road impact of large vehicles. Use wide, flat-tread, balloon tires (especially on seismic thumper trucks) where possible. Use all-terrain vehicles rather than large vehicles where possible.
- Occupied habitat for special status species will be avoided in a manner similar to surface use requirements (avoid occupied habitat up to 0.5 mile) unless impacts are adequately mitigated.

Surface-Disturbing Activities

In siting facilities, the following measures must be followed:

- Prior to surveying/flagging locations for pads, routes for roads, and any other preliminary activity, the project area will be surveyed for raptor nests. Surveys will be conducted by professional biologists approved by the Authorized Officer. All raptor nests will be avoided by the distances and seasonal periods listed below.

  Distance:
  - Eagle – 0.5 mile (February 1-July 15)
  - Prairie Falcon – 0.5 mile (March 1-August 1)
  - Ferruginous Hawk – 0.5 mile (February 1-July 15)
  - Aplomado Falcon – 0.5 mile (January 1-July 31)
  - Gunnison Prairie Dog – 0.25 mile (February 15-June 15)
  - Black Tailed Prairie Dog – 0.25 mile (January 1-June 15)
  - All other raptor species – 0.25 mile, during observed nest establishment through fledgling

Long duration land use activities will not be allowed to occur within the species-specific spatial buffer zone of active nests or occupied prairie dog towns listed above. Short duration activities will be avoided within the species-specific spatial buffer zones during the dates listed above. Short duration activities will be limited to the spatial buffer zone outside of the boundary of the occupied prairie dog town and will not occur within the occupied town. All other raptor species nests will be avoided by the spatial buffer zone only during the period listed above, regardless of the duration of the activity. Before land use activities can commence a raptor and prairie dog survey must be completed.

A short duration activity is defined as an activity that would begin outside of a given breeding season and end prior to initiation of a given breeding season. A long duration activity is defined as an activity which would continue into or beyond a given nesting/breeding season. An active nest is defined as any nest that has been occupied in the last seven years. A nest will be determined active or inactive by the Authorized Officer. Surveys will be conducted by professional biologists approved by the Authorized Officer.

- In areas that constitute occupied or potential northern aplomado falcon habitat, a protocol survey for this species will be conducted along with the above general raptor nest survey prior to surveying/flagging locations.

- During operations at any time, all habitat features (pinnacles, cliffs, ledges, caves, and trees, shrubs, and yuccas greater than six feet in height) containing or capable of containing a raptor nest will be avoided by vehicular traffic or other activities likely to destroy them.
- In areas that allow for off-road travel, minimize the off-road impact of large vehicles. Use wide, flat-tread, balloon tires (especially on seismic thumper trucks) where possible. Use all-terrain vehicles rather than large vehicles where possible.
- Tree and vegetation clearing will be limited to the minimum area required.
- Construction activities will be timed to avoid wet periods.
- Power lines will be constructed to standards outlined in the most recent version of "Suggested Practices for Raptor Protection on Power Lines" published by the Edison Electric Institute/Raptor Research Foundation, unless otherwise agreed to by the Authorized Officer. The holder is responsible for demonstrating that power pole designs not meeting these standards are raptor safe. Such proof will be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modifications or additions to power line structures constructed under this authorization, should they be necessary to ensure the safety of large perching birds. The modifications and/or additions will be made by the holder without liability or expense to the United States.
- Occupied habitat for special status species will be avoided in a manner similar to surface use requirements (avoid occupied habitat up to 0.5 mile) unless impacts adequately mitigated.
- All equipment installed on Federal leases will be constructed to prevent birds and bats from entering them and, to the extent practical, to discourage perching and nesting.
- Open top tanks, reserve pits, disposal pits, or other open pits will be required to be equipped to deter entry by birds, bats, or other wildlife.
- In areas that allow for off-road travel, minimize the off-road impact of large vehicles. Use wide, flat-tread, balloon tires (especially on seismic thumper trucks) where possible. Use all-terrain vehicles rather than large vehicles where possible.
- Time activities to avoid wet periods.

FEDERALLY LISTED SPECIAL STATUS SPECIES

Table L-1 includes Federal- and State-listed species in the Planning Area. Federally listed special status species are discussed below.

Zuni fleabane (*Erigeron rhizomatus*)

Status: Federally listed as Threatened, State listed as Endangered
Habitat: Nearly barren detrital clay hillsides with soils derived from shales of the Chinle or Baca formations (often seleniferous); most often on north- or east-facing slopes in open piñon-juniper woodlands at 7,300 to 8,000 feet.

Chiricahua leopard frog (*Rana chiricahuensis***)**

Status: Federally listed as Threatened, State Species of Concern
Habitat: Occurs in cienegas (wetland communities surrounded by arid lands), pools, livestock tanks, lakes, reservoirs, streams, and rivers from 3,200 to 8,900 feet in central and southwestern New Mexico.

Bald eagle (*Haliaeetus leucocephalus*)

Status: Federally listed as Threatened, State listed as Threatened

Habitat: Occurs in New Mexico mainly as a migrant and winter resident. Primarily occurs in riparian areas adjacent to major rivers, reservoirs, and ponds. Roosts in large trees that may be close to foraging areas. Other potential foraging habitats include grass flats, rolling uplands, and creosote rolling uplands.

Least tern (*Sterna antillarum*)

Status: Federally listed as Endangered, State listed as Endangered
Habitat: Least tern nest on the ground, typically on sites that are sandy and relatively free of vegetation. Such areas include sandbars in river floodplains. In New Mexico and other parts of the southern Great Plains, alkali flats also are potential nesting areas.

Mexican spotted owl (*Strix occidentalis lucida*)

Status: Federally listed as Threatened, State Species of Concern
Habitat: Habitat characteristics highly sought by Mexican spotted owls include coniferous forests with high canopy closure, high stand density, a multi-layered canopy, uneven-aged stands, numerous snags, and high amounts of downed woody matter.

Northern aplomado falcon (*Falco femoralis septentrionalis*)

Status: Federally listed as Endangered, State listed as Endangered
Habitat: Habitat consists of grassy plains interspersed with mesquite, cactus, and yucca.

Piping plover (*Charadrius mebdus*)

Status: Federally listed as Threatened, State listed as Endangered
Habitat: Piping plover occur on sandflats or along bare shorelines of rivers and lakes.

Southwestern willow flycatcher (*Empidonax traillii extimus*)

Status: Federally listed as Endangered, State listed as Endangered
Habitat: Breeding sites are associated closely with dense groves of willows, tamarisk, Russian olive, and other riparian woodland vegetation; often associated with a scattered overstory of cottonwood.

Gila chub (*Gila intermedia*)

Status: Federally Proposed Endangered, State listed as Endangered
Habitat: Gila River basin.

Gila trout (*Oncorhynchus gilae*)

Status: Federally listed as Endangered, State listed as Threatened
Habitat: Gila trout inhabits small, cool, clear mountain streams with riparian vegetation that provides a fairly complete canopy.

Loach Minnow (*Tiaroga cobitis*)

Status: Federally listed as Threatened, State listed as Threatened
Habitat: The loach minnow inhabits riffle areas with moderate-to-rapid water velocities and moderate-to-high gradients.

Rio Grande Silvery Minnow (*Hybognathus amarus*)

Status: Federally listed as Endangered, State listed as Endangered
Habitat: Rio Grande silvery minnow occupy a variety of habitats in low-gradient, large streams with shifting sand or silty bottoms.

Spikedace (*Meda fulgidae*)

Status: Federally listed as Threatened, State listed as Threatened
Habitat: The preferred habitat of spikedace varies with season and age class. Young fish typically occupy stream-margin habitats, where the water velocity is low and the depth is less than 3 inches. Adults are most commonly found in main channel areas, where water velocity is higher and with depths of 3 to 8 inches. In winter months, the species tends to congregate along cobble-bottomed stream margins where such habitats are available.

Alamosa (springsnail) tryonia (*Tryonia alamosae*)

Status: Federally listed as Endangered, State listed as Threatened
Habitat: Alamosa spring snail is an aquatic species that occurs in low-velocity water near thermal spring sources.

Socorro isopod (*Thermosphaeroma thermophilus*)

Status: Federally listed as Endangered, State listed as Endangered
Habitat: This species exists in extremely limited habitat – thermal spring waters with temperatures ranging from 25 to 33 degrees celcius.

Socorro (springsnail) pyrg (*Pyrgulopsis neomexicana*)

Status: Federally listed as Endangered, State listed as Endangered
Habitat: The Socorro pyrg is an aquatic, gilled invertebrate found in springs and brooks, living among aquatic plants, on stones, or in the uppermost layer of an organic muck substratum.

Black-footed ferret (*Mustela nigripes*)

Status: Federally listed as Endangered, State Species of Concern
Habitat: Black-footed ferret occur in mixed shrub habitats. They are associated closely with prairie dog colonies, whose burrows provide retreats for ferrets. The dependency of the black-footed ferret on this prey species is such that reduction in the number of ferrets is directly related to reduction in prairie dog densities.

Mexican gray wolf (*Canis lupus baileyi*)

Status: Federally listed as Endangered, State listed as Endangered
Habitat: Wolves were once found in shortgrass plains, sacaton grassland, sycamore, cottonwood, rabbitbrush, chapparal, and oak savanna.

Pecos sunflower (*Helianthus paradoxus*)

Status: Federally threatened, State listed as Endangered
Habitat: A wetland species that grows on wet, alkaline soils at spring seeps, wet meadows, stream courses, and pond margins.

TABLE L-1
FEDERAL AND STATE-LISTED SPECIES IN PLANNING AREA

Common Name	Scientific Name	Federal Status	State Status	BLM	County
PLANTS					
Abajo penstemon	*Penstemon lentus*		Sensitive		Catron
Arizona sunflower	*Helianthus arizonensis*	Sensitive	Sensitive		Catron
Cory's joint-fir	*Ephedra coryi*	Sensitive	Sensitive		Socorro
Davidson's cliff carrot	*Pteryxia davidsonii*	Sensitive	Sensitive		Catron
Fugate's amsonia	*Amsonia fugatei*	Sensitive	Sensitive	Sensitive	Socorro
Gila groundsel	*Packera quaerens*	Sensitive	Sensitive		Catron

TABLE L-1
FEDERAL AND STATE-LISTED SPECIES IN PLANNING AREA

Common Name	Scientific Name	Federal Status	State Status	BLM	County
Gila thistle	*Cirsium gilense*	Sensitive	Sensitive		Catron
Gooding's bladderpod	*Lesqerella gooddingii*	Sensitive	Sensitive		Catron
Heartleaf groundsel	*Packera cardamine*	Sensitive	Sensitive		Catron
Hess' fleabane	*Erigeron hesssii*	Sensitive	E	Sensitive	Catron
Laguna fame flower	*Talinum brachypodium*	Sensitive	Sensitive		Socorro
La Jolla prairie clover	*Dalea scariosa*	Sensitive	Sensitive	Sensitive	Socorro
Mogollon clover	*Trifolium longipes ssp. neurophyllum*	Sensitive	Sensitive		Catron
Mogollon death camas	*Anticlea mogollonensis*	Sensitive	Sensitive		Catron
Mogollon dock	*Rumex tomentellus*	Sensitive	Sensitive		Catron
Mogollon hawkweed	*Hieracium fendleri* var. *mogollense*	Sensitive	Sensitive		Catron
Mogollon whitlow grass	*Draba mogollonica*	Sensitive	Sensitive		Catron, Socorro
Mohave panicum	*Panicum mohavense*	Sensitive	Sensitive	Sensitive	Socorro
Mount Graham beardtongue	*Penstemon deaveri*	Sensitive	Sensitive		Catron, Socorro
New Mexico beardtongue	*Penstemon neomexicanus*		D		Catron
Nutrioso milk-vetch	*Astragalus nutriosensis*	Sensitive	Sensitive		Catron
Organ Mountains giant hyssop	*Agastache pringlei var. verticillata*	Sensitive	Rare		Catron
Organ Mountains paintbrush	*Castelleja organorum*		Rare	Sensitive	Catron, Socorro
Parish's alkali grass	*Puccinellia parishii*	Sensitive	E	Sensitive	Catron
Pecos sunflower	*Helianthus paradoxus*	T	E	Sensitive	Socorro
Plank's campion	*Silene plankii*	Sensitive	Sensitive	Sensitive	Socorro
Porter's globe mallow	*Sphaeralcea procera*		Rare	Sensitive	Socorro
Rock fleabane	*Erigeron scopulinus*	Sensitive	Sensitive	Sensitive	Catron, Socorro
Sacramento groundsel	*Senecio sacramentanus*		Rare		Catron
San Andres rock daisy	*Perityle staurophylla var. homoflora*	Sensitive	Sensitive		Socorro
San Mateo penstemon	*Penstemon pseudoparvus*	Sensitive	Sensitive		Socorro
Sand pricklypear	*Opuntia arenaria*	Sensitive	E	Sensitive	Socorro
Southwest Solomon's seal	*Polygonatum cobrense*		Sensitive		Catron
Standley's whitlow grass	*Draba standleyi*	Sensitive	Sensitive	Sensitive	Socorro
Tall bitterweed	*Hymenoxys brachyactis*	Sensitive	Sensitive		Socorro
Wooton's alumroot	*Heuchera wootonii*	Sensitive	Sensitive		Catron
Wooton's hawthorn	*Crataegus wootoniana*	Sensitive	Sensitive		Catron
Wright's campion	*Silene wrightii*	Sensitive	Sensitive	Sensitive	Catron, Socorro
Wright's globe mallow	*Sphaeralcea wrightii*		Sensitive	Sensitive	Socorro
Wright's marsh thistle	*Cirsium wrightii*	Sensitive	Sensitive	Sensitive	Socorro
Zuni fleabane	*Erigeron rhizomatus*	T	E	Sensitive	Catron
Zuni milk-vetch	*Astragalusmissouriensis var. accumbens*	Sensitive	Sensitive	Sensitive	Catron
WILDLIFE					
Amphibians					
Arizona toad	*Bufo microscaphus microscaphus*		Sensitive	Sensitive	Catron, Socorro

TABLE L-1
FEDERAL AND STATE-LISTED SPECIES IN PLANNING AREA

Common Name	Scientific Name	Federal Status	State Status	BLM	County
Chiricahua leopard frog	*Rana chiricahuensis*	C	Sensitive		Catron, Socorro
Lowland leopard frog	*Rana yavapaiensis*			Sensitive	Catron
Birds					
American peregrine falcon	*Falco peregrinus anatum*		T		Catron, Socorro
Northern aplomado falcon	*Falco femoralis septentrionalis*	E	E		Socorro
Baird's sparrow	*Ammodramus bairdii*		T	Sensitive	Catron, Socorro
Bald eagle	*Haleaeetus leucocephalus*	T	T		Catron, Socorro
Bell's vireo	*Vireo bellii*		T		Catron, Socorro
Black tern	*Chlidonias niger surinamensis*			Sensitive	Socorro
Brown pelican	*Pelecanus occidentalis carolinensis*		E		Catron
Burrowing owl	*Athene cunicularia hyugaea*			Sensitive	Catron, Socorro
Common black hawk	*Buteogallus anthracinus anthracinus*		T		Catron, Socorro
Common ground dove	*Columbina passerina pallescens*		E		Socorro
Ferruginous hawk	*Buteo regalis*			Sensitive	Catron, Socorro
Gila woodpecker	*Melanerpes uropygialis*		T		Catron
Gray vireo	*Vireo vicinior*		T		Catron, Socorro
Interior least tern	*Sterna antillarum*	E	E		Catron, Socorro
Loggerhead shrike	*Lanius ludovicianus*			Sensitive	Catron, Socorro
Mexican spotted owl	*Strix occidentalis lucida*	T	Sensitive		Catron, Socorro
Mountain plover	*Charadrius montanus*		Sensitive		Catron, Socorro
Neotropic cormorant	*Phalacrocorax brasilianus*		T		Socorro
Northern goshawk	*Accipiter gentilis*		Sensitive	Sensitive	Catron, Socorro
Piping plover	*Charadrius melodus*	T	E		Socorro
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	E		Catron, Socorro
Varied bunting	*Passerina versicolor*		T		Catron
Violet-crowned hummingbird	*Amazilia violiceps ellioti*		T		Socorro
White-faced ibis	*Plegadis chihi*			Sensitive	Socorro
Whooping crane	*Grus americana*		E		Socorro
Yellow-billed cuckoo	*Coccyzus americanus*	C			Catron, Socorro
Fish					
Chihuahua catfish	*Ictalurus sp.*		Sensitive		Catron
Desert sucker	*Catostomus clarki*		Sensitive	Sensitive	Catron
Flathead chub	*Platygobio gracilis*			Sensitive	Socorro
Gila chub	*Gila intermedia*		E	Sensitive	Catron
Gila trout	*Onchorhynchus gilae*	E	T		Catron
Loach minnow	*Tiaroga cobitis*	T	T		Catron
Longfin dace	*Agosia chyrsogaster*			Sensitive	Catron
Rio Grande chub	*Gila pandora*		Sensitive		Socorro

TABLE L-1
FEDERAL AND STATE-LISTED SPECIES IN PLANNING AREA

Common Name	Scientific Name	Federal Status	State Status	BLM	County
Rio Grande shiner	*Notropis jemezanus*		Sensitive	Sensitive	Socorro
Rio Grande silvery minnow	*Hybognathus amarus*	E	E		Socorro
Roundtail chub	*Gila robusta*		E	Sensitive	Catron
Sonora sucker	*Catostomus insignus*		Sensitive	Sensitive	Catron
Speckled dace	*Rhinichthys osculus*			Sensitive	Catron
Spikedace	*Meda fulgida*	T	T		Catron
Mammals					
Arizona montane vole	*Microtus montanus arizonensis*		E		Catron
Allen's big-eared bat	*Idionycteris phyllotis*		Sensitive	Sensitive	Catron, Socorro
Black-footed ferret	*Mustela nigripes*	E	Sensitive		Catron, Socorro
Cave myotis	*Myotis velifer*		Sensitive	Sensitive	Catron, Socorro
Common hog-nosed skunk	*Conepatus leuconotus*		Sensitive		Catron, Socorro
Desert bighorn sheep	*Ovis canadensis mexicana*		E		Socorro
Eastern red bat	*Lasiurus borealis*		Sensitive		Catron
Big free-tailed bat	*Nyctinomops macrotis*		Sensitive	Sensitive	Catron, Socorro
Fringed myotis	*Myotis thysanodes thysanodes*		Sensitive	Sensitive	Catron, Socorro
Gunnison's prairie dog	*Cynomys gunnisoni*		Sensitive		Catron, Socorro
Desert pocket gopher	*Geomys bursarius arenarius*		Sensitive		
Hooded skunk	*Mephitis macroura milleri*		Sensitive		Catron
New Mexico jumping mouse	*Zapus hudsonius luteus*		T	Sensitive	Socorro
Little brown bat	*Myotis lucifigus occultus*		Sensitive	Sensitive	Catron, Socorro
Long-eared myotis	*Mytois evotis evotis*		Sensitive	Sensitive	Catron, Socorro
Long-legged myotis	*Myotis volans interior*		Sensitive	Sensitive	Catron, Socorro
Mexican gray wolf	*Canis lupus baileyi*	E	E		Catron
Organ Mountains Colorado chipmunk	*Tamias quadrivattatus australis*		T	Sensitive	Socorro
Oscura Mountain's Colorado chipmunk	*Tamias quadrivattatus oscuraensis*		T	Sensitive	Socorro
Townsend's big-eared bat	*Plecotus townsendii pallescens*			Sensitive	Catron, Socorro
Pecos River muskrat	*Ondatra zibethicus ripensis*		Sensitive	Sensitive	Socorro
Red fox	*Vulpes vulpes*		Sensitive		Catron, Socorro
Ringtail	*Bassariscus astutus*		Sensitive		Catron, Socorro
Small-footed myotis	*Myotis ciliolabrum melanorhinus*		Sensitive	Sensitive	Catron, Socorro
Spotted bat	*Euderma maculatum*		T	Sensitive	Catron, Socorro
Western red bat	*Lasiurus blossevillii*		Sensitive		Catron
Western spotted skunk	*Spilogale gracilis*		Sensitive		Catron, Socorro
White-nosed coati	*Nasua narica*		Sensitive		Catron
Yuma myotis	*Mytois yumanensis*		Sensitive	Sensitive	Catron, Socorro
Reptiles					
Narrowhead garter snake	*Thamnophis rufipunctatus rufipunctatus*		T	Sensitive	Catron

TABLE L-1
FEDERAL AND STATE-LISTED SPECIES IN PLANNING AREA

Common Name	Scientific Name	Federal Status	State Status	BLM	County
Texas horned lizard	*Phrynosoma cornutum*			Sensitive	Socorro
Big Bend slider	*Trachemys gaigeae*		Sensitive		Socorro
Invertebrates					
Alamosa springsnail	*Tryonia alamosae*	E	T		Socorro
Chupadera springsnail	*Pyrgulopsis chupaderae*	C	E		Socorro
Gila springsnail	*Pyrgulopsis gilae*	C	T		Catron
NM hot springsnail	*Pyrgulopsis thermalis*	C	T		Catron
Ovate vertigo snail	*Vertigo ovata*		T		Socorro
Socorro isopod	*Thermosphaeroma thermophilus*	E	E		Socorro
Socorro mountainsnail	*Oreohelix neomexicana*		Sensitive		Socorro
Socorro springsnail	*Pyrgulopsis neomexicana*	E	E		Socorro

SOURCE: Federal and State listed species: New Mexico Department of Game and Fish 2005 (BISON-M database);
NOTES: C = Candidate D = Delisted E = Endangered T = Threatened

NOXIOUS WEEDS

Table L-2 includes noxious weeds that may occur in the Planning Area. This list is specific to Socorro County; to date, only salt cedar and Russian olive have been found on BLM land within Catron County.

TABLE L-2
NOXIOUS WEEDS POTENTIALLY OCCURRING IN PLANNING AREA

Class "A" Weeds: Non-native species with a limited distribution in the County. High priority preventing new infestations and eliminating existing infestations.	
African Rue*	*Peganum harmala*
Alfombrilla	*Drymaria arenarioides*
Black henbane	*Hyoscyamus niger*
Bull thistle*	*Cirsium vulgare*
Camelthorn*	*Alhagi pseudalhagi*
Canada thistle	*Cirsium arvense*
Cheatgrass	*Bromus tectorum L.*
Dalmation toadflax	*Linaria genisitifolia ssp dalmatica*
Diffuse knapweed	*Centaurea diffusa*
Dyer's woad	*Isatis tinctoria*
Eurasian watermilfoil	*Myriophyllum spicatum*
Giant salvinia	*Salvinia molesta*
Halogeton	*Halogeton glomeratus*
Hoary cress*	*Cardaria draba*
Hydrilla	*Hydrilla verticillata*
Jointed goatgrass	*Aegilops cylindrical*
Leafy spurge	*Euphorbia esula*
Malta starthistle*	*Centaurea melitensis*
Musk thistle	*Carduus nutans*
Onionweed	*Asphodelus fistulosus*
Poison hemlock	*Conium maculatum L.*
Purple loosestrife	*Lythrum salicaria*
Purple starthistle	*Centaurea calcitrapa*
Scotch thistle	*Onopordum acanthium*
Spotted knapweed	*Centaurea maculosa*

Teasel	*Dipsacus fullonum*
Yellow starthistle	*Centaurea solstitialis*
Yellow toadflax*	*Linaria vulgaris*
Class "B: Weeds: Non-native species that are presently limited to portions of the County. Designated for control in areas where they are not yet widespread.	
Parrot feather*	*Myriophyllum aquaticum*
Perennial pepperweed*	*Lepidium latifolium*
Russian knapweed*	*Acroptilon repens*
Siberian Elm*	*Ulmus pumila*
Tree of Heaven*	*Ailanthus altissima*
Class "C" Weeds: Non-native species widespread in the County and State. Long-term programs are necessary to manage these species.	
Field bindweed*	*Convolvulus arvensis L.*
Russian olive*	*Elaeagnus angustifolia L.*
Salt cedar*	*Tamarix sp.*

* Indicates infestations currently found and mapped in Socorro County.

Appendix M

Old Growth Forest Definitions

APPENDIX M
PALEONTOLOGICAL RESOURCES MANAGEMENT

Existing guidance provided in Bureau of Land Management (BLM) Manual 8270-1 "General Procedural Guidance for Paleontological Resource Management" and BLM Handbook H-1601-1, Land Use Planning Handbook were used to provide management common to all alternatives within the Planning Area. To protect vertebrate localities and noteworthy invertebrate or plant localities, BLM has developed a geographic information system (GIS) tool to classify the Planning Area based on a probability to discover important fossils in a particular area. Management prescriptions for specific sensitivity level areas provide procedures for BLM specialists and proponents of actions to follow while conducting site-specific analysis for future proposals within the Decision Area.

Under all proposed action alternatives, the Socorro Field Office lands would manage paleontological resources based on the GIS database maps, other ongoing inventories and databases of fossil resources in New Mexico, and in some instances, on a case-by-case basis. Protection of such resources, where appropriate, would be accomplished to facilitate suitable scientific, educational, and recreational uses of fossils; foster public awareness and appreciation for the area's paleontological heritage; and manage paleontological values to protect and preserve specimens that are present in the Decision Area.

MANAGEMENT PRESCRIPTIONS BY CLASS

Paleontological resource management classes are shown on Map M-1.

Class 1: No concern related to paleontological resources unless other site specific surveys note fossil resources in the project area.

Class 2: No concern related to paleontological resources unless other site-specific surveys note fossil resources in the project area.

Class 3: Concern related to paleontological resources must be evaluated on a case-by-case project basis. Existing data available through the New Mexico Museum of Natural History and Science and BLM offices will be used to identify possible resources in the area. GIS tools would be used to screen for appropriate actions. Assessments and additional mitigation could be done on a case-by-case basis.

Class 4: Concern related to paleontological resources is high and active management prescribed. Proposed ground-disturbing activities require assessment to determine whether significant paleontological resources occur in the area of a proposed action. Notification of requirements will be made to proponents prior to commitment of the resources (for example: leasing, land disposals, surface mines, pipelines, large scale construction projects). Use existing data, GIS screening tools, and site-specific inventories in the assessment. Based on the specific assessment, develop additional management actions, including mitigation for identified paleontological resources.

Class 5: Concern related to Class 5 lands is towards identification and protection of paleontological resources. Identify Class 5 lands through existing and ongoing inventories, known localities, and ongoing refinement of the paleontological GIS layer for the Planning Area.

Currently there are no mapped Class 5 fossils; however, there may be local occurrences of Class 4 or 5 fossils determined from database searches of existing and ongoing inventories, and on a case-by-case basis.

PRESENCE OF RESOURCES

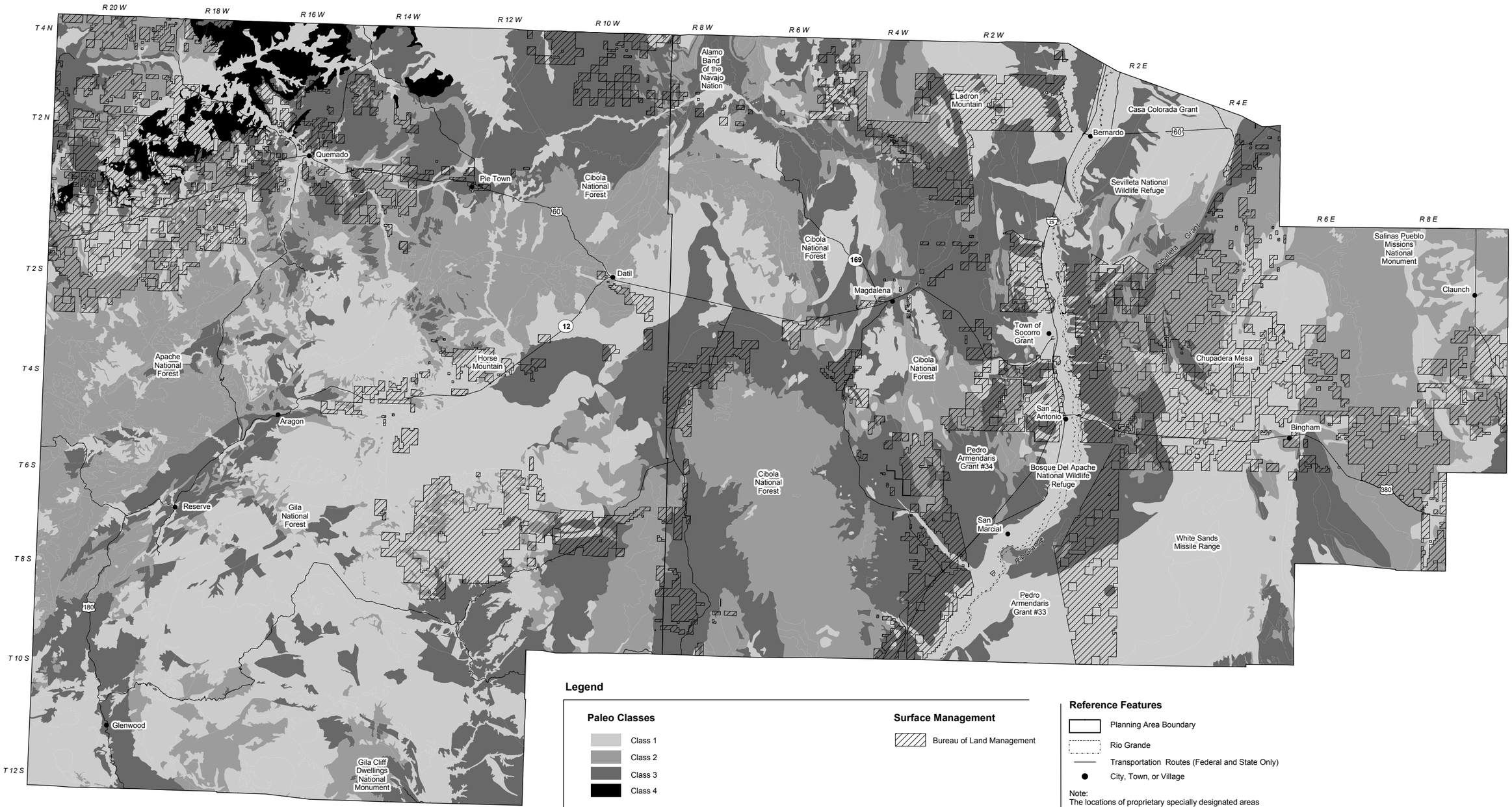
Rock units representing more that 1.5 billion years of geologic time are present in the Socorro Field Office. Many of these units contain paleontological resources and specifically important vertebrate, noteworthy invertebrate, and plant fossils. The potential for a given geologic unit to contain paleontological resources varies by geologic time and the environment represented by specific rock units. As the potential for paleontological resources increases, the need for mitigating surface-disturbing activities also increases.

The BLM has classified geologic formations in the Socorro Field Office according to the Probable Fossil Yield Classification. The planning tool provides for the development of sensitivity levels based on specific geologic units, usually at the formation level and are classified according to the probability of yielding paleontological resources. Probable Fossil Yield Classification is based on probabilities, not certainties or special circumstances. There will be exceptions to each criterion used as the basis for classification and should be handled as unique situations. Mitigation for these situations are handled on a case-by-case basis, as needed. Mitigation requirements may include: (1) additional database searches for site specific paleontological resources, (2) site specific on-the-ground surveys prior to surface disturbance or construction activities, (3) trained field monitors present during construction or ground disturbing activities, (4) recovery, evaluation and curation of the fossil, or (5) avoidance of the site because of the extent and significance of the fossil discovery. The classifications with descriptions follow.

Class	Description	Basis	Comments
1	Igneous and metamorphic (tuffs are excluded from this category) geologic units or units representing heavily disturbed preservational environments that are not likely to contain recognizable fossil remains.	• Fossils of any kind are not known to occur except in the rarest of circumstances • Igneous or metamorphic origin • Landslides deposits	The land manager's concern for paleontological resources on Class 1 acres is negligible. Ground-disturbing activities would not require mitigation except in rare circumstances.
2	Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils.	• Vertebrate fossils known to occur very rarely or not at all • Age greater than Devonian • Age younger than 10,000 years • Deep marine origin • Aeolian origin • Diagenetic alteration	The land manager's concern for paleontological resources on Class 2 acres is low. Ground-disturbing activities are not likely to require mitigation.
3	Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Also sedimentary units of unknown fossil potential.	• Units with sporadic known occurrences of vertebrate fossils • Vertebrate fossils and significant nonvertebrate fossil known to occur inconsistently: predictability known to be low • Poorly studied/or poorly documented	The land manager's concern for paleontological resources on Class 3 acres may extend across the entire range of management. Ground-disturbing activities need to be evaluated on a case-by-case basis for the need to mitigate.

Class	Description	Basis	Comments
4	Geologic units that are highly fossilferous and have produced significant vertebrate fossils and/or significant invertebrates.	• Significant soil/vegetation cover; outcrop not likely to be impacted • Other characteristics that lower the vulnerability of both known and unidentified fossil sites	The land manager's concern for paleontological resources on Class 4 acres is toward management and away from unregulated access. Proposed ground-disturbing activities would require assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action will impact the paleontological resources. Mitigation beyond initial findings would range from no further mitigation necessary to full and continuous monitoring of significant localities during the action.
5	Highly fossiliferous geologic units that regularly and predictably produce vertebrate fossils and/or scientifically significant nonvertebrate fossils and that are at risk of natural degradation and/or human-caused impacts.	• Vertebrate fossils and/or scientifically significant nonvertebrate fossils are known and documented to occur consistently, predictably, and/or abundantly • Unit is exposed: little or no soil/vegetative cover • Outcrop areas are extensive, outcrop erodes readily, may form badlands • Easy access to extensive outcrop in remote areas • Other characteristics that increase the sensitivity of both known and unidentified fossil sites	The land manager's highest concern for paleontological resources should focus on Class 5 acres. Mitigation of ground-disturbing activities is required and may be intense. Areas of special interest and concern should be designated and intensely managed.

SOURCE: Originally developed by the Paleontology Center of Excellence and the Region 2 (U.S. Forest Service) Paleo Initiative, 1996. Some modification by Dale Hansen, Regional Paleontologist, Wyoming, 2002 and Patricia M. Hester, Regional Paleontologist, New Mexico, 2004.



Paleontological Resource Management Classes

Socorro Field Office RMPR/EIS

October 2006

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

Miles
0 2.5 5 10 15 20

Kilometers
0 2.5 5 10 15 20

N
W E
S

Location in New Mexico

P:\BLM\Socorro_RMPR_EIS\GIS\plots\Draft-RMPREIS\xApp_M\Map M-1 Paleo_classes.pdf

Legend

Paleo Classes

- Class 1
- Class 2
- Class 3
- Class 4

Surface Management

- Bureau of Land Management

Reference Features

- Planning Area Boundary
- Rio Grande
- Transportation Routes (Federal and State Only)
- City, Town, or Village

Note:
The locations of proprietary specially designated areas have not been mapped to ensure protection of sensitive resources.

Source:
Base Map Information: BLM, Socorro Field Office 2003
Jurisdiction Information: BLM, Socorro Field Office 2003

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

Map M-1

Appendix N

Paleontological Resources Management

APPENDIX N
OLD GROWTH FOREST DEFINITIONS

OVERVIEW

The Bureau of Land Management (BLM) National Science and Technology Center staff was asked to develop an information base of old-growth forest descriptions that could contribute to the use of the Healthy Forests Restoration Act (HFRA) authorities, and which might be used in BLM land use plans. Section 102(e)(2) of the HFRA provides that covered projects using HFRA authority are to "fully maintain, or contribute toward the restoration of, the structure and composition of old-growth stands according to the pre-fire suppression of old-growth conditions characteristic of the forest type, taking into account the contribution of the stand to landscape fire adaptation and watershed health, and retaining the large trees contributing to old-growth structure." The Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide address the old-growth and large tree retention requirements on pages 25 through 29.

The library staff at the National Science and Technology Center conducted an exhaustive literature search for old-growth descriptions. Although scientific literature citations related to old-growth forests are numerous, few publications or published articles contain more than generic definitions of old growth. A review of the definitions suggests that old-growth forest is typically distinguished by the following:

- Large size trees of specific species
- Wide variation in age classes and stocking levels
- Accumulations of large-size dead standing and fallen trees
- Decadence in the form of broken or deformed tops and boles
- Multiple canopy layers
- Canopy interspaces and under story patchiness

In the early 1990s, each region of the U.S. Department of Agriculture (USDA) U.S. Forest Service (Forest Service) developed descriptions of old growth for Society of American Foresters (SAF) forest cover types found in the region. The Forest Service's national standard for the descriptions contains five structural attributes for consideration in developing minimum criteria for old-growth determination: live trees in the main canopy, variation in tree diameters, dead trees, tree decadence, and number of tree canopies. Descriptions did not have to include all five attributes. The descriptions could include additional region-specific attributes if they were considered important in determining old-growth stands.

Copies of the Forest Service's descriptions were obtained by the BLM library. They were reviewed for applicability to BLM-managed forests and to the HFRA requirement for "pre-fire suppression old-growth conditions." A list of forest cover types for BLM-managed lands was obtained from the Forest Service's Forest Inventory and Analysis (FIA) database with assistance from FIA staff at the Rocky Mountain and Pacific Northwest Research Stations. The FIA and SAF cover types do not correlate one-to-one in all cases; FIA lists more cover types for the western United States than does the SAF. However, in most cases the relationship between the SAF and FIA cover types was fairly straightforward.

Table N-1 (at the end of Appendix N) shows old-growth descriptions available by the Forest Service Region and SAF Forest Cover Type. It identifies their applicability to the BLM by listing the states or portions of a state encompassed within Forest Service regional boundaries. The "Meets HFRA Requirement" column identifies which descriptions likely meet the needs of the BLM with respect to the HFRA requirement for a pre-fire suppression condition.

Most forest types on BLM-managed lands are included in the Forest Service's old-growth descriptions. One should not take the information in the table at total face value; some generalizations had to be made. The Forest Service Region 1 descriptions are not for cover types defined by the SAF; they are region-specific cover types. Those descriptions were correlated to the most similar SAF cover type for use in the table.

Some forest cover types occur on BLM-managed lands that are not present, or are of minor occurrence, on National Forests. Consequently, old-growth descriptions for the several piñon, juniper, and oak cover types found on BLM-managed lands are not in the Forest Service's descriptions. The FIA also includes a mesquite cover type in Arizona; an old-growth description for mesquite is not available. A description for old-growth western juniper, as noted in the references, was found in a separate published work from Forest Service Region 6 (Waichler et al. 2001)

Although old-growth descriptions for most BLM cover types are included in the Forest Service work, there are some limitations with the descriptions themselves. Most of the descriptions do not explicitly describe "pre-settlement" old-growth conditions as per the HFRA requirement. Some descriptions do meet the requirement in that they address conditions (such as stocking, age, etc.) as would be found in a pre-settlement old-growth forest. For example, the Region 3 southwestern ponderosa pine description discusses the role of fire in old-growth development. Therefore, one can conclude that the description fits conditions before the influence of settlement and fire suppression.

Each description was judged on its ability to meet the HFRA requirement for a pre-settlement or pre-fire suppression condition. In the case of dry forest types, to be HFRA applicable, a description had to include a discussion of the effects of fire and the fire return interval in creating old-growth stands. At higher elevations with more wet forest types, fire is generally a stand-replacing event which reverts the stand to an earlier seral stage or even causes a forest type conversion. All descriptions for high elevation forest types are believed to meet HFRA requirements.

When in doubt about the role of fire, or where the description is vague about the influence of fire suppression, descriptions are believed to not meet HFRA requirements. The Region 5 and Region 6 descriptions clearly identify conditions existing today that they consider old-growth. Their old-growth descriptions identify "average" characteristics of ecologically old stands, or stands beyond maturity in a timber management context. The descriptions include the effects of modern human influences on the forest. They do not describe a pre-settlement condition.

Because of missing descriptions or descriptions not meeting the HFRA requirement, additional descriptions may need to be developed for some BLM cover types. Also, this section does not intend to imply that the references descriptions should be used as written. They may require changing to meet BLM situations.

Much of this information cited in this section was developed before the advent of easily transferable documents and consequently is only partially available electronically. In some Forest Service Regions the information is posted on a website. In other instances, the information is available only in hard copy from Regional Offices. Copies of all documents are available from the BLM library but may have to be sent as a hard copy.

ATTRIBUTES AND CLASSIFICATION

Old growth definition structural attributes were developed for the five primary forest cover types in the Southwest (U.S. Department of Agriculture, Forest Service, Southwestern Region 1992). The attributes shown in Table N-2 (at the end of Appendix N) for each of the forest cover types are to be used to inventory and identify candidate stands for old-growth forest classification. The structural attributes will help identify stands that meet the minimum threshold characteristics to be considered as old-growth forest, excluding any consideration of stand size or location.

OLD GROWTH DEFINITIONS

Piñon-juniper Forest Cover Type

The piñon-juniper (239) woodland forest cover typed occupies approximately 6.6 million acres.

The piñon and juniper species that are in the Southwest are Rocky Mountain piñon, Arizona piñon (single-leaf piñon), border piñon, alligator juniper, redberry juniper, Rocky Mountain juniper, one-seed juniper, Utah juniper, and Pinchot juniper. Piñon-juniper woodlands commonly integrate to such vegetation as chaparral (shrub-dominated communities), grasslands, shrubsteppes (codominant mixtures of grasses and shrubs), evergreen oak woodlands (or encinal), and ponderosa pine or other forest types. There are 70 piñon-juniper associations that can be described in the Southwest (Moir and Carleton 1987).

The specific species or species mix found at any particular site is largely due to climatic, geographic, and elevation differences. Piñon and juniper trees are found on a wide range of soil conditions.

Description

Old-growth piñon-juniper will be late successional in development with large, old trees older than 150 years, on low sites, and 200 years, on high sites. There may be a few standing and down dead trees, but dead branches/limbs and even parts of the stems of older piñon and juniper trees may help make up the dead material deficit. The piñon-juniper stands usually develop under all-aged conditions (early and mid successional stages) until the site becomes fully occupied with older trees (late successional stage).

As indicated by the large number of associations, old-growth piñon-juniper is variable in composition. The typical woodland piñon-juniper old-growth would be fairly open with the presence of an understory of grass, forbs, and often shrubs. Since existing piñon-juniper stands are developing with reduced herbaceous understory competition and without low-intensity ground fires, as occurred prior to the late 1800s, they typically have a larger number of stems and a denser canopy structure. The less shade tolerant herbaceous understory vegetation is reduced significantly when an overstory reaches around 30 percent.

Age Longevity

Swetnam and Brown (1992) recently reported that the mean age for piñon pine was 278 years, as represented from 43 sites and 719 old trees in Arizona and New Mexico. The oldest living piñon tree, at the time of sampling, was 666 years (Swetnam and Brown 1992).

Ponderosa Pine Forest Cover Type

The ponderosa pine (237) forest cover type in the Southwestern Region covers approximately 3.9 million acres outside of the wilderness areas and an undetermined amount within the reserved areas.

The dominant tree species in the ponderosa pine forest cover type is ponderosa pine. Minor tree species of piñon pine and juniper occur with ponderosa pine at lower elevations adjacent to the piñon-juniper forest cover type, although, Rocky Mountain and alligator juniper can occur any place within the ponderosa pine type. At higher elevations near the mixed-species group, Southwestern white pine and Gambel oak can be found in abundance, and frequently small amounts of Douglas-fir, white fir, and aspen are present.

Ponderosa pine has been referred to as blackjack and yellow pine in the past. The term blackjack indicated a younger ponderosa pine with dark gray to black bark color. The blackjack's bark is deeply furrowed with narrow ridges between the fissures. In contrast, the term yellow pine was used to indicate an older tree. The older yellow pine's bark is reddish brown to yellow, carrying the color well into the top of the tree; the plates are usually very wide, long, and smooth. The bark color transition begins sometime between 120 to 150 years of age, depending upon the geographic location. The older trees also have large

branches in the upper portion of the tree that tend to be perpendicular to the stem. In addition, the tree top is flatter than younger more vigorous trees.

Fire was key in shaping Southwestern ponderosa pine forests prior to pre-European settlement. Low-intensity ground fires typically burned through ponderosa pine forests at 3- to 15-year intervals, keeping forests open in appearance, and removing competing understory vegetation and down material. Frequent burning resulted in irregularly-shaped large patches with even-aged groups of trees varying in size, age, and density over the landscape.

Fire suppression, timber harvesting, livestock grazing, mining, and recreational uses have altered the pre-settlement conditions. Now the ponderosa pine forests are generally denser, with many small trees, have fewer large trees, have a greater accumulation of down material, and have sparse herbaceous understory.

Description

Old-growth ponderosa pine will be late successional in development with large trees older than 180 years of age; mature tree characteristics will be as described for yellow pine. The size and number of large trees will represent the productivity of the site, with fewer and smaller trees on the lower sites. Minimums are at least one large dead standing tree and two large-sized dead down trees per acre. More snags and down logs will not distract from the late successional old-growth characteristics. The structure may be either single-storied or multi-storied. Density will also vary with site productivity; with less basal area and canopy cover on the less productive land.

Age Longevity

Pearson (1950) states the oldest ponderosa pine recorded in the Southwest was 650 years. Trees over 400 years are found occasionally, but mature trees in general are not much over 300 years old and most are less than 200 years old (Pearson 1950).

White (1985) found that trees in the Gus Pearson Natural Area ranged in age up to 405 years, but the majority of the trees were less than 200 years; peak ages were between 145 and 165 years. Covington's and Moore's (1991) data appear to show a rapid decline in the number of large ponderosa pine trees at about 200 years of age when a dense understory exists. Daniel (1980) states that ponderosa pine remains physiologically young up to 200 years of age in its response to thinning.

Swetnam and Brown (1992) recently reported that the mean age for ponderosa pine was 279 years. Their data set represented 62 sites and 915 old trees in Arizona and New Mexico. The oldest living ponderosa pine tree, at the time of survey, was 742 years (Swetnam and Brown 1992).

Aspen Forest Cover Type

The aspen forest cover type (217) seldom, if ever, occurs as a pure stand of quaking aspen or as the climax species in the Southwest; it always appears in association with one or more other tree species as the seral species. Species that are associated with it are ponderosa pine, Douglas-fir, Engelmann spruce, limber pine, subalpine fir, white fir, and Southwestern white pine.

Aspen is one of the first species that regenerates after a wildfire or similar disturbance, if the clone is present. Aspen will quickly sucker from an existing live root system following a disturbance that kills the upper portion of the aspen tree (aspen does not normally regenerate from seed in the Southwest). Rapid growth occurs after suckering and during the early stand development years. With increasing stand age, conifer seedlings, from surrounding conifer seed trees, eventually become established and grow in the shade of the aspen, aspen acting like a nurse crop to the conifers. Since aspen is relatively short lived and conifers longer lived, the conifers eventually outgrow aspen, replacing the aspen, first as a mixed type and finally as a confer type.

Description

Aspen old-growth would be characterized as having a single canopy overstory layer of old aspen trees at least 100 years of age. There would be an understory of conifers; however, there could be instances where the understory conifers would be removed by cutting to keep an open appearance for a specific value. There would probably be few dead standing and down trees until the old aspen trees begin to degenerate from pathogenic causes, then down dead material would begin to accumulate. As the overstory aspen trees continue to die, the understory conifers would begin to dominate the stand as an early or mid successional stage, depending upon their size and development, and the old-growth stand will no longer exist. Aspen old-growth, at the best, is short term in duration.

Age Longevity

Aspen is a small- to medium-sized, fast-growing and short-lived tree. Aspen is susceptible to a large number of diseases and is host to a wide variety of insects. The insects, many of them defoliators, tend to reduce the tree's vigor, but are not the major cause of tree death. Diseases are the primary cause for the short life of aspen. A few vigorous trees attain a maximum age of about 200 years; the oldest recorded is 226. The pathological age of aspen in the West ranges from 80 to 120 years (Hunter 1989; Perala 1990).

No habitat type list was developed for aspen. Aspen does not occur as a habitat type in the Southwest. Aspen can occur as a forest cover type in any plant association where aspen is present; however, aspen would be considered a seral species (as early successional species).

Mixed-species Group Forest Cover Types

There is several forest cover types included in the mixed-species group. The mixed-species group includes the Douglas-fir (210), white fir (211), blue spruce (216), and limber pine (219) forest cover types. Most often the mixed-species stands have a rich diversity of vegetation, including three or four different tree species, sometimes more (Krauch 1956).

The major tree species found in this group are Douglas-fir and white fir. Often included in minor amounts are tree species such as subalpine fir, corkbark fir, Engelmann spruce, blue spruce, Southwestern white pine, ponderosa pine, aspen, and Gambel oak.

The mixed-species group is a productive forest component. This group occurs on the landscape at a middle elevation between the lower elevation ponderosa pine forest cover type and the higher elevation Engelmann spruce-subalpine fir forest cover type. The mean annual precipitation in the Douglas-fir zone averages a little more than 26 inches and the growing season is of adequate length for good growth response (Krauch 1956).

The various tree species all have different shade tolerance levels, regeneration requirements, and growth characteristics. Therefore, for trees, the tolerance of most practical importance is their ability to establish and grow satisfactorily in the shade of, and in competition with, other larger trees. Shade tolerant tree species express their presence and increase in number as a mixed-species stand grows older (mid and late succession stages) and/or becomes denser. There is a gradual change in species composition to the more shade tolerant species without natural or man-caused disturbance.

The tolerance of the associated species has been given as subalpine fir ≥ Englemann spruce ≥ corkbark fir ≥ white fir ≥ Douglas-fir ≥ blue spruce > Southwestern white pine ≥ limber pine > ponderosa pine > aspen ≥ Gambel oak (Daniel 1980). Limber pine and Gambel oak were added to Daniel's reference as observed in the Southwest.

Before European settlement of the Southwest, low-intensity ground fires in mixed-species forests occurred at lesser intervals than in ponderosa pine. Ground fires burned more frequent on dry, low

elevation sites and less frequent on moist, high elevation sites. The fires keep the forest open, allowing less shade tolerant tree species such as ponderosa pine, aspen, and Gambel oak to establish and grow.

Since fire suppression management was started in the early 1900s, mixed-species forest structure and composition has changed. The structural change has been to increased crown cover and basal area densities, more trees, especially smaller trees, forming a multi-storied condition. The compositional change has been to the more shade tolerant species such as white fir and Douglas-fir. Furthermore, the lack of fire and change in conditions have increased the susceptibility of the forest to insect and disease agents.

Description

Old-growth mixed species group forest cover types will be late successional in development with large trees older than 150 years. The size and number of large trees will represent the productivity of the site, with fewer and smaller trees on the lower sites. The forest should have a diverse composition of tree species; aspen may not be present in this stage. At least 3.5 large, dead-standing trees and four large, dead down pieces per acre of any species will be present. The forest structure can be either single storied or multi-storied. Basal area and canopy cover densities will vary depending upon the productive capability of the land.

Age Longevity

Douglas-fir – Coastal Douglas-fir is considered very long lived. Ages in excess of 500 years are not uncommon and some have exceeded 1,000 years; however, interior Douglas-fir rarely lives more than 400 years (Hermann and Lavender 1990). Hunter (1989) lists the maximum longevity age for Douglas-fir to be 1,000 years and the pathological longevity age of 150 years. Lynch (1990) reported sampling 13 live Douglas-fir trees on the Carson National Forest that were greater than 600 years of age; five of the trees were 700 to 779 years old.

Swetnam and Brown (1992) recently reported the mean age for Douglas-fir to be 278 years, as represented on 38 sites—526 old trees in Arizona and New Mexico. The oldest living Douglas-fir tree, at the time of the sampling, was 930 years.

White Fir – Coastal white fir does not often exceed 350 years, but 500-year-old trees have been reported; however, the maximum age in the interior may be close to 300 years (Markstrom and McElderry 1984). Hunter (1989) lists the maximum longevity age for white fir to be 360 years and the pathological longevity age of 150 years. The oldest known living white fir tree in Arizona and New Mexico, at the time of sampling, was 333 years (Swetnam and Brown 1992).

Subalpine Fir – The subalpine fir/corkbark fir trees often live for more than 250 years (Markstrom and McElderry 1984). Hunter (1989) lists the maximum longevity age for subalpine fir to be 250 years and the pathological longevity age of 130 years. Alexander (1987) recognized that the species suffers severely from heart rot; many trees either die or are complete culls at an early age.

Engelmann Spruce – Engelmann spruce matures at about 300 years, often dominant spruce are 250 to 450 years old, and trees 500 to 600 years are not uncommon (Alexander and Sheppard 1990).

Blue Spruce – Blue spruce is apparently a long-lived tree, often reaching up to 600 years or more in age (Fechner 1990).

Southwestern White Pine – Southwestern white pine has very little information concerning longevity; however, it is observed that Southwestern white pine could have the same longevity attributes as Eastern white pine. The maximum longevity is 450 years and the pathological longevity age is 160 to 170 years for Eastern white pine (Hunter 1989). The age of decline for Western white pine is 300 to 400 years and

the oldest age 500 years (Graham 1990). The oldest known living Southwestern white pine tree in Arizona and New Mexico, at the time of the sampling, was 538 years (Swetnam and Brown 1992).

Limber Pine – Preston (1961) indicates that limber pine reaches maturity in 200 to 300 years. One tree in southern California was found to be well over 1,000 years; another in central Idaho was 1,650 years old (Steele 1990). Lynch (1990) reported finding limber pine trees on the Carson National Forest that were hollow; the outer stem measured 1,500 to 1,700 years old. Lynch is confident that trees measuring 2,000 years old are located in this area. The oldest known living limber pine found in Arizona and New Mexico reported by Swetnam and Brown (1992), at the time of sampling, was 1,670 years.

Gambel Oak – Gambel Oak is considered a short-lived tree. A study in the Navajo National Monument, Arizona, indicated that oak stems rarely live longer than 80 years; 103 was the oldest stem found. In addition, 90 percent or more of the stems encountered in long-established clones were less than 10 years old (Brotherson et al. 1983). The oldest known living Gambel oak tree in Arizona and New Mexico, at the time of sampling, was 401 years (Swetnam and Brown 1992).

Engelmann Spruce-Subalpine Fir Forest Cover Type

The dominant tree species in the spruce-fir (206) forest cover type are Engelmann spruce and subalpine fir. Minor tree species of Douglas-fir, blue spruce, white fir, limber pine, aspen, and occasionally ponderosa pine associate at the lower elevations, and corkbark fir and bristlecone pine at the higher elevations. The bristlecone pine (209) forest cover type is included with the spruce-fir description.

Engelmann spruce and subalpine fir occur as codominants or in nearly pure stands of one or the other species. Engelmann spruce generally extends above subalpine fir and corkbark fir, forming nearly pure stands at timberline.

Spruce-fir forests have lower fire frequencies than the ponderosa pine and mixed-species. The frequencies are from 63 to 400 years and are usually stand replacement events.

Description

Old-growth spruce-fir will be late successional in development with large trees older than 140 years where Engelmann spruce is less than 50 percent composition and 170 years old where Engelmann spruce is 50 or more percent composition of the stand. The size and number of large trees will vary with site productivity, with fewer and smaller trees on the lower sites. There is usually over-abundance of standing dead and down trees. The structure will more than likely be two or more storied with natural regeneration appearing in gaps or small openings caused by the death of one or more of the large trees. Density will usually be high; but will be slightly less on the less productive sites.

Bristlecone pine is much less tolerant to shade than Engelmann spruce and subalpine fir and therefore would almost always be the pioneer species for spruce-fir stands. However, occasionally old-growth bristlecone pine may occur in small-sized patches on very harsh, exposed sites. Where it does occur, it would have small tree-sized characteristics.

Age Longevity

The pathological and maximum longevity ages for all species in the spruce-fir have been discussed in the mixed-species forest cover type except for bristlecone pine. The bristlecone pine grows very slow, reaches maturity in 200 to 250 years, obtaining ages of over 2,000 years, possibly the oldest living organism (Preston 1961).

Swetnam and Brown (1992) recently reported that the oldest known living bristlecone pine and Engelmann spruce trees in Arizona and New Mexico, at the time of sampling, was 1,438 and 295 years, respectively.

TABLE N-1
OLD-GROWTH DESCRIPTIONS

References	States	SAF Cover Types found on BLM with Old-growth Descriptions Available	Meets HFRA Requirement	SAF Cover Types Found on BLM without Old-Growth Descriptions
Forest Service Region 1				
Green et al. 1992	Northern Idaho, Montana, North Dakota	205 Mountain hemlock 206 Engelmann spruce-subalpine fir 208 Whitebark pine 210 Interior douglas fir 212 Western larch 213 Grand fir 215 Western white pine 218 Lodgepole pine 219 Limber pine 224 Western hemlock 228 Western red cedar 237 Interior ponderosa pine	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	217 Aspen* 220 Rocky Mountain juniper
Forest Service Region 2				
Mehl 1992	Colorado, Wyoming, South Dakota	206 Engelmann spruce-Subalpine Fir 210 Interior douglas fir 217 Aspen 218 Lodgepole pine 237 Interior ponderosa pine (Front Range) 237 Interior ponderosa pine (Black Hills) 237 Interior ponderosa pine (Southwest) 239 Piñon-juniper	Yes Yes Yes Yes Yes Yes Yes Yes	208 Whitebark pine* 219 Limber pine* 220 Rocky Mountain juniper
Forest Service Region 3				
USDA Forest Service, Southwestern Region 1992	Arizona, New Mexico	206 Engelmann spruce-subalpine fir 217 Aspen 237 Interior ponderosa pine 239 Piñon-juniper 210 Interior douglas fir 211 White fir 216 Blue spruce 219 Limber pine	Yes Yes Yes Yes Yes Yes Yes Yes	220 Rocky Mountain juniper
Forest Service Region 4				
Hamilton 1993	Southern Idaho, Nevada, Utah, Western Wyoming	206 Engelmann spruce-subalpine fir 208 Whitebark pine 209 Bristlecone pine 210 Interior douglas fir 216 Blue spruce 217 Aspen 218 Lodgepole pine 219 Limber pine 237 Interior ponderosa pine (Northern Plateau Race) 237 Interior ponderosa pine (Rocky Mountain Race) 239 Piñon-juniper	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	220 Rocky Mountain juniper 223 Jeffery pine* 235 Cottonwood-willow

TABLE N-1
OLD-GROWTH DESCRIPTIONS

References	States	SAF Cover Types found on BLM with Old-growth Descriptions Available	Meets HFRA Requirement	SAF Cover Types Found on BLM without Old-Growth Descriptions
Forest Service Region 5				
USDA Forest Service, Pacific Southwest Region 1992	California	207 Red Fir 211 White Fir 218 Lodgepole pine 229 Pacific douglas fir 232 Coast redwood 234 Douglas fir/tanoak/madrone 237 Interior ponderosa pine 243 Mixed conifer 245 Pacific ponderosa pine 247 Jeffery pine 256 California mixed subalpine forests	Yes No Yes No No No No No No No No	239 Piñon-juniper 233 Oregon white oak 238 Western juniper 246 California black oak 249 Canyon live Oak
Forest Service Region 6				
USDA Forest Service, Pacific Northwest Region 1993	Oregon, Washington	206 Engelmann spruce-subalpine fir 210 Interior douglas–fir 211 White fir 213 Grand fir 218 Lodgepole pine 224 Western hemlock 226 Coastal true fir-hemlock 229 Pacific douglas-fir 231 Port-orford-cedar 232 Redwood 234 Douglas fir–tanoak-pacific madrone 237 Interior ponderosa pine	Yes Yes No No Yes Yes No Yes No No No Yes	207 Red Fir 238 Western juniper, (see Waichler et al. 2001)
Forest Service Region 10				
Capp et al. 1992	Alaska	201 White spruce 204 Black spruce 205 Mountain hemlock 217 Aspen 223 Sitka spruce 224 Western hemlock	Yes Yes Yes Yes Yes Yes	

*A definition is available from one of the other regions.

TABLE N-2
OLD-GROWTH ATTRIBUTES BY FOREST COVER TYPE

	Piñon-Juniper		Interior Ponderosa Pine		Aspen	Mixed Species Group		Engelmann Spruce-Subalpine Fir	
Forest Cover Type, SAF Code	239		237		217	210, 211, 216, 219		206, 209	
Site Capability Potential Break Between Low and High Site			55 Minor			50 Douglas-Fir Edminster and Jump		50 Engelmann Spruce Alexander	
Live trees in main canopy	Low	High	Low	High	All	Low	High	Low	High
Trees/acre	12	30	20	20	20	12	16	20	30
DBH/DRC	9"	12"	14v	18"	14"	18"	20"	10"	14"
Age (Years)	150	200	180	180	100	150	150	140[3]/170[4]	
Variations in tree diameters (y/n)	No		No		No	No		No	
Dead trees standing	Low	High	Low	High	All	Low	High	Low	High
Trees/acre	0.5[1]	1	1	1	No	2.5	2.5	3	4
Size DBH/DRC	9"	10"	14"	14"	10"	14"	16"	12"	16"
Height (feet)	8'	10'	15'	25'	No	20'	25'	20'	30'
Dead trees down	Low	High	Low	High	All	Low	High	Low	High
Pieces/acre	2	2[2]	2	2	No	4	4	5	5
Size (diam.)	9"	10"	12"	12"	No	12"	12"	12"	12"
Length (feet)	8'	10'	15'	15'	No	16'	16'	16'	16'
Tree decadence	Low	High	Low	High	All	Low	High	Low	High
Trees/acre	No		No		No	No		No	
Number of tree canopies	SS/MS		SS/MS		SS	SS/MS		SS/MS	
Total BA, Square feet per acre	6	24	70	90	No	80	100	120	140
Total canopy cover (%)	20	35	40	50	50	50	60	60	70

NOTES: [1] Dead limbs help make up dead material deficit.
[2] Unless removed for firewood or fire-burning activities.
[3] In mixed corkbark fir and Engelmann spruce stands where Engelmann spruce is less than 50 percent compositions in the stand.
[4] In mixed corkbark fir and Engelmann spruce stands where Engelmann spruce is 50 or more percent composition in the stand.
No: not determined SS: single storied MS: multi storied L: Live (trees in main canopy)
DBH =
DRC =

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USDA Forest Service, Southwestern Region. 1992. Recommended Old-Growth Definitions and Descriptions and Old-Growth Allocation Procedure (Region 3).

USDA Forest Service, Pacific Southwest Region. 1992. Old Growth Definitions/Characteristics for Eleven Forest Cover Types. Pacific Southwest Region, San Francisco, California (Region 5).

USDA Forest Service, Pacific Northwest Region. 1993. Region 6 interim old growth definitions for the Douglas-fir series, grand fir/white fir series, interior Douglas-fir series, lodgepole pine series, Pacific silver fir series, ponderosa pine series, Port Orford cedar series, tanoak (redwood) series, western hemlock series. USDA Forest Service, Pacific Northwest Region, Portland, Oregon (Region 6).

Waichler, W.S., R.F. Miller, and P.S. Doescher. 2001. Community characteristics of old-growth western juniper woodlands. Journal of Range Management, 54:518-527.

Additional references are available for review at the Socorro Field Office.

Appendix O

Analytical Assumptions

APPENDIX O
ANALYTICAL ASSUMPTIONS

This appendix provides definitions of impacts, additional assumptions, or other information that may be useful in understanding the approach to the impact analysis for each resource or resource use.

AIR QUALITY

Impact Definitions

An impact on air quality would occur when an action would result in (1) an increase in air pollutants that would exceed New Mexico or Federal ambient air quality standards, or (2) increased air emissions that would exceed Prevention of Significant Deterioration standards for Federal Class I areas.

GEOLOGY, CAVES AND KARST RESOURCES

Impact Definitions

Impacts to geological resources, caves, or karst resources generally would occur as a result of damage to or destruction of resources, such as excavation or construction that damages or removes resources having unusual geological, mineralogical, or paleontological information or natural scenic value.

SOIL AND WATER RESOURCES

Impact Definitions

The impacts on water resources possible under the alternatives might include changes in water quantity or quality to the extent that those changes affect domestic water supplies, livestock and other agricultural uses, and wildlife/natural vegetation use of water.

Soil resources can be impacted by management decisions, either by the changing erosive actions of wind and water or by limiting the productivity of the soil. Soil resources also feed back into water resources when excessive erosion and sediment transport degrades water quality or habitat.

Watershed impacts are an accumulation of all of these impacts such as to limit or enhance the ecology of an entire drainage basin. Bureau of Land Management (BLM) policy recognizes that many planning decisions need to consider impacts that are minor in any specific place but can cause serious damage to the land on a watershed basis.

Additional Assumptions

Short-term effects to the watershed and water resources are those that cause parameters such as groundwater levels or stream flow to exceed natural variations in these values but do not result in a change in the availability or designated use of the resources beyond the planning period of the resource management plan. For example, a diversion of stream flow to limit soil erosion would affect surface water quantity on the short term but would presumably not cause a permanent loss of the resource. A long-term effect would extend beyond the planning period; for example, the loss of topsoil, which requires thousands of years to develop naturally, would be a long-term effect.

VEGETATION

Impact Definitions

An impact on vegetation generally would occur due to (1) removal or crushing of vegetation, (2) soil erosion or reduction of soil or water quality due, or (3) the introduction of noxious or invasive weeds.

Additional Assumptions

It is assumed that the vegetation program would be managed in the same general manner under all alternatives in accordance with laws, regulations, and policies with the goal of meeting current standards. Before a site-specific project is authorized, Federal and BLM interagency consultation protocol requires that site-specific inventory and evaluation be completed and mitigation measures be identified to minimize adverse effects. Overall impacts could be minimized with mitigation measures including impact avoidance where practicable. Finally, it is assumed that ground-disturbing activities would result in a direct loss of vegetation.

WILDLIFE (INCLUDING WILD HORSES) AND RIPARIAN HABITAT

Impact Definitions

An impact on wildlife generally would occur if: (1) impacts to vegetation occur that would degrade, eliminate, or improve wildlife habitat, (2) direct mortality of individual wildlife occurs, (3) a management action results in the fragmentation of habitat or disruption of wildlife movement corridors, or conversely, in the consolidation of habitat (such as through land acquisition), or (4) an increase in human disturbance or access occurs in habitat areas.

Additional Assumptions

The wildlife and riparian habitat management program would be managed in the same general manner under all alternatives in accordance with laws, regulations, and policies with the goal of meeting current standards. Before a site-specific project is authorized, Federal and BLM requirements of interagency consultation, site-specific inventory, and evaluation would be completed and mitigation measures would be identified to minimize adverse effects. Overall impacts could be minimized with mitigation measures including impact avoidance where practicable.

SPECIAL STATUS SPECIES

Impact Definitions

Impacts to special status plant and wildlife species would occur if impacts occur as defined for vegetation and wildlife (as discussed above).

WILDLAND FIRE ECOLOGY AND MANAGEMENT

Impact Definitions

Impacts on wildlife fire ecology and management generally would occur if management actions (1) affect hazardous fuels build-up or reduction, (2) affect conditions for use of prescribed fire, (3) influence priorities or conditions for fire suppression activities.

CULTURAL AND PALEONTOLOGICAL RESOURCES

Impact Definitions

Impacts on cultural and paleontological resources generally would occur due to (1) loss or degradation of a resource through surface-disturbing activities or natural processes (such as soil erosion), or (2) increased human access, which exposes the resources to discovery, loss, or vandalism.

Additional Assumptions

The impact analysis assumed that regardless of which alternative is selected, the cultural resource program would continue to be implemented in accordance with BLM policies, which implement numerous Federal laws and regulations. The analysis of alternatives also assumed that the cultural resource program would continue to evaluate and allocate cultural resources to one of five use categories: (1) scientific use, (2) conservation for future use, (3) traditional use, (4) public use, and (5) experimental use. The extent of impacts on cultural resources among the alternatives considered varies in regard to two primary factors: (1) the types and intensities of uses of public land, especially the extent of ground disturbing activities, and (2) the extent of area specially designated to protect cultural resources.

VISUAL RESOURCES

Impact Definitions

The impact analysis considers the type of change that a management action might have on a visual setting or scenic resource, and whether the change occurs in an area of high viewer sensitivity. Impacts to visual resources generally occur if (1) a change to scenic quality occurs; (2) the changes to the landscape that could occur within an area do not support the Visual Resource Management (VRM) class objectives applicable to that area; and (3) a change to the visual setting occurs in an area of high sensitivity. Areas of high viewer sensitivity are considered to be more likely to experience impacts from changes to the visual setting, and occur in population centers such as Socorro and sensitive or unique areas such as special designations. An evaluation of potential impacts in areas of high viewer sensitivity considers duration of view and the experience the viewer is seeking (e.g., solitude, naturalness, scenic landscapes). Areas of low viewer sensitivity are generally near existing industrial uses such as mining areas.

Additional Assumptions

Because existing scenic quality data are not available, it is assumed that the existing VRM classes generally represent the existing scenic quality within the Planning Area; therefore, it is assumed that areas of higher scenic value generally occur within special designations. It is assumed that VRM class objectives will be implemented and enforced as designated, and that site-specific visual resource evaluations would be completed for each proposed project requiring a land use authorization consistent with guidance in BLM Manual 8430.

WILDERNESS CHARACTERISTICS

Impact Definitions

Impacts to wilderness characteristics generally would occur if there is an impact to naturalness, opportunities for solitude, or opportunities for primitive, unconfined recreation. As such, impacts to wilderness characteristics are addressed indirectly through the analysis of recreation resources, visual

resources, and vegetation. The wilderness characteristics sections throughout Chapter 4 address potential impacts that are not characterized in other resource sections.

Additional Assumptions

As described in Chapter 3, wilderness characteristics within the Planning Area are found within wilderness study areas and sometimes in areas near or adjacent to wilderness study areas. Wilderness study areas would be managed under the Interim Management Plan and impacts would be controlled as a result.

LAND AND REALTY

Impact Definitions

The impact analysis considers impacts resulting from management on (1) land uses, and (2) BLM's ability to authorize uses (e.g., utilities). Impacts on land uses generally occur when management actions or prescriptions either (1) allow for the physical loss of land for a particular use or (2) preclude a change that might be warranted to meet National, State, or local needs (e.g., infrastructure). Impacts on mining/minerals management, recreation, wilderness characteristics, and grazing are discussed under those respective sections.

Additional Assumptions

It is assumed that applications for leases, permits, or easements for land authorizations would continue to be analyzed on a case-by-case basis.

FORESTRY AND WOODLAND MANAGEMENT

Impact Definitions

Impacts on forestry and woodland management generally would occur as a result of (1) changes to the fire management program, (2) changes to vegetation that affect the woodland species, or (3) surface disturbance or other management actions that cause erosion or alter forest vegetation types.

LIVESTOCK GRAZING AND RANGE MANAGEMENT

Impact Definitions

Impacts to livestock grazing and range management could occur if (1) livestock grazing is excluded from an area, (2) available animal unit months are affected, or (3) the ability to construct or maintain range improvements is affected.

MINERALS AND ENERGY

Impact Definitions

Impacts to minerals or renewable energy resources generally would occur as a result of (1) utilization of mineral resources in a manner that does not offer the highest value for the use of public land to the people of the United States, such as permitting the sale of crushed rock from an unusual type of granite outcrop that may bring higher value as quarried building stone, and (2) withdrawal or prohibition of the use of the land for the extraction of mineral resources, such as protection of other environmental resources by prohibiting leasing, exploration, and development of mineral resources.

Additional Assumptions

In general, it is acknowledged that impacts adverse to mineral resources are beneficial to other resources and that mineral withdrawals or lease stipulations that limit mineral resource uses are protective of other resources determined to have greater value in the withdrawn area. Beneficial impacts to mineral resources may include development and sales of mineral resources such as leasing, exploration and development of oil and gas resources that increase jobs and stimulate the local economy, provide lease sales dollars to the general fund, and provide domestic sources of mineral, mineral material, and energy resources.

RECREATION

Impact Definitions

Impacts on recreation resources generally occur due to (1) increases or reductions in public access, which could promote, discourage, or eliminate recreation uses in an area; (2) changes to or enhancement of the recreation setting or experience; or (3) closure to some or all types of recreation use, either directly through management decisions or indirectly through competition or incompatibility with other uses.

TRANSPORTATION AND TRAVEL MANAGEMENT

Impact Definitions

Impacts on transportation and travel management generally would occur when (1) areas are closed or limited to public access, or (2) new access is created or expanded.

SOCIAL AND ECONOMIC RESOURCES

Impact Definitions

The social and economic impact of the alternatives are assessed in terms of the current contribution of BLM's management of public land relative to the social and economic environment of the region. Key economic impact variables include employment, income, economic dependency, and market and non-market economic value of resources to users within the social and economic study area and at the regional and national levels. Key social impact variables include population change, community and institutional structures, political and social resources, community and family changes, and community resources.

Additional Assumptions

Since the alternatives are broad desired outcomes and land use allocations, modeling specific fiscal impacts is not possible. For example, identifying certain lands as available for coal leasing does not clarify whether actual economic activity would be proposed in the future, or what the size and type of operation might be. Therefore, this analysis largely focuses on qualitative impacts that BLM management decisions might have on businesses and communities. Site-specific analysis of the potential impacts of future proposed actions would occur in accordance with the National Environmental Policy Act and other mandates.