


**ALLOTMENT MANAGEMENT PLAN**  
**FOR THE**  
**LONG TOM ALLOTMENT**  
**BLACK MESA RANGER DISTRICT**  
**APACHE - SITGREAVES NATIONAL FORESTS**

PERMITTEE NAME 

DATE: 4/7/11  
4/6/09

DISTRICT RANGER Kathleen S. Klein

DATE: 4/7/2011  
4/6/09

## **I. INTRODUCTION**

The Long Tom Allotment is located within the Black Mesa Ranger District of the Apache-Sitgreaves National Forests. The Allotment is approximately 76,000 acres and is within portions of T11N, R13½E; T11N, R14E; T11N, R15E; T12N, R15E; T12N, R14E; T13N, R14E; T13N, R15E; T14N, R15E, Gila and Salt River Meridian (G&SRM), Arizona. The majority of the allotment is within Coconino County, with a small portion in Navajo County. Elevations range from 6,200 to 7,700 feet. Vegetation types range from ponderosa pine in the higher elevation to pinyon-juniper and grassland types in the lower elevation. The allotment is generally bounded by Wildcat Canyon on the East, Chevelon Canyon on the West, and the Mogollon Rim on the South. Chevelon and Wildcat Canyons join to the North which forms the northern allotment boundary.

This Allotment Management Plan (AMP) shall set forth the objectives, management requirements, improvements needed and monitoring and evaluation standards for the Long Tom Allotment as outlined in the Forest Plan and the Decision Notice signed by the District Ranger on November 27, 2007.

## **II. OBJECTIVES**

- On Full Capacity range, range conditions are in fair or better conditions (as site potential allows). Cool-season grasses and forbs make up at least 50% of the herbaceous ground cover (as site potential allows). Strive to achieve in two decades. Desirable grass species are healthy, vigorous, diverse, and achieve maximum production.
- Desired browse species are well distributed and healthy; age classes well distributed; and growth forms are not clubbed in appearance.
- Satisfactory soil conditions are maintained. Impaired soil condition is in an upward trend within one decade on all areas where the potential exists to restore soil productivity and hydrologic functions. Soils have the ability to accept, hold, and release water and nutrients. Soils have adequate effective ground cover to resist erosion and degradation.
- Water quality meets or exceeds Arizona Department of Environmental Quality requirements. Upland and riparian areas do not contribute to degraded water quality. Floodplain and channel characteristics are adequate to dissipate energy during high stream-flow events. Streambanks and channels are stable, with few headcuts. Watershed conditions on the fifth-code watershed are in satisfactory condition by 2020. Promote establishment and maintenance of ground cover along drainages and uplands.
- Riparian areas are in Proper Functioning Condition and meet Forest Plan guidelines. Multi-storied woody species composition is diverse with at least two deciduous, broadleaf species present in the plant community (as site conditions allow). Grasses and sedges exhibit high vigor, provide soil cover, composition is diverse and densities are adequate to withstand wind events, wave flow events and overland flows as site potential allows.

- Have 50% of the available forage on the allotment for wild ungulates. Strive to achieve within 5 years.
- Wild ungulate and permitted livestock use does not exceed the estimated grazing capacity.

**III. MANAGEMENT**

The Term Grazing Permit will be issued for 3,245 head of sheep with a season of use from June 1 through September 15, for a total of 2,270 animal unit months (AUMS) (a 0.2 conversion factor was used). A deferred grazing system will be used, dividing the allotment into a northern section and a southern section, with 2 bands of sheep. The southern band of sheep will contain approximately 1,655 sheep and will be divided into 8 units. The northern band containing approximately 1,590 head of sheep is divided into 6 units. See attached maps with the different units. The estimated days per unit are shown in the following chart:

Northern Units	Estimated Days	Southern Units	Estimated Days
North 1	15 Days	South 1	10 Days
North 2	21 Days	South 2	10 Days
North 3	18 Days	South 3	9 Days
North 4	16 Days	South 4	11 Days
North 5	18 Days	South 5	19 Days
North 6	19 Days	South 6	22 Days
Total	107 Days	South 7	19 Days
		South 8	7 Days
		Total	107 Days

As with any grazing rotation, these days are estimated and may need to be adjusted accordingly.

The Decision Notice allows for a range of permitted numbers and season of use. The range of permitted numbers are from 2,600 to 3,900 head of sheep and the range of the season of use ranges from May 15 to October 15 (AUM range of 1,820 to 2,730). Shifts in numbers and season of use, are defined in the monitoring section.

The area burned within the Rodeo-Chediski fire will not be grazed until the conditions are met for grazing this area (see monitoring section). Once the conditions are met, grazing will resume in this area and adjustments to the days per unit and/or numbers of sheep may be needed.

Sheep shall not graze or bed in riparian areas and lakes, including Long Tom Canyon, Willow Springs Canyon, Lake 1, Lake 2, Lake 3, Horse Trap, Jacob Lake, Pinto Lake, and P51.

The following tables display a tentative grazing schedule for the allotment, which serves as a planning guide. Annual adjustments to the days per unit, unit rotation, and/or numbers of sheep may be necessary, based on monitoring results, environmental

conditions, or other management activities, etc. These adjustments will be made during the Annual Operating Instructions with permittee involvement. If numbers need to be adjusted upward, a permit modification will be developed specifying the changes in numbers, management, etc.

**Band Rotations**

**South Band**

Year 1 and 6	Year 2 and 7	Year 3 and 8	Year 4 and 9	Year 5 and 10
S1*	S6	S4	S5	S2
S2	S7	S3	S6	S3
S3	S8	S2	S7	S4
S4	S1	S1	S8	S1
S5	S2	S5	S1	S8
S6	S3	S6	S2	S7
S7	S4	S7	S3	S6
S8	S5	S8	S4	S5

\* codes represent grazing units displayed on map within the grazing permit labeled "Long Tom Allotment- Band/Band units"

**North Band**

Year 1 and 6	Year 2 and 7	Year 3 and 8	Year 4 and 9	Year 5 and 10
N1	N5	N2	N6	N5
N2	N6	N1	N5	N2
N3	N1	N6	N4	N3
N4	N2	N5	N3	N4
N5	N3	N4	N2	N6
N6	N4	N3	N1	N1

The desired utilization levels will be as follows: 30% on herbaceous forage species (see monitoring section for more details).

Sheep shall not enter the allotment until the scheduled date identified on the Annual Operating Instructions (AOI) or Term Grazing Permit. The Permittee shall provide at least 5 days advance notice of entering the allotment, the location of entry, and the means by which the livestock will be placed on the allotment. All livestock, including strays shall be removed from the allotment by the last day shown on the AOI.

A request for an extension of the grazing season must be received in writing at least 30 days before the end of the season, which shall state the reason for extension. Excess forage is not automatic grounds for approving extensions. Approval will be determined on resource needs (soil protection, seed crop for next year, etc.) and not based on permittee convenience. Approval applies to only current year and previous years' approval does not constitute automatic approval for succeeding years. Any extensions will be paid for at the current grazing fee rate. A request for non-use must be received in writing at least 45 days prior to the grazing season.

Sheep must be moved from unit to unit as planned in the AOI. The permittee must notify the District Ranger if there is a need to deviate from planned rotation dates. Sheep will be managed to avoid concentrated use in any one area. Herders need to move the bands to new areas and prevent concentrations in preferred areas. Water hauling may be necessary to achieve proper use.

Prior established bedgrounds shall not be used. Bedgrounds shall be coordinated with the Forest Service and located on the uplands. Bedground use shall be limited to two consecutive nights and not be used in consecutive years.

The permittee is encouraged to have off-Forest range to use in the event drought, excess forage utilization or other unforeseen events necessitates early sheep removal. When these conditions occur, the District Ranger, with input from the permittee, will make the determination if livestock removal is required for resource protection. Drought situations may alter grazing sequence or length of grazing period. The season or numbers may be adjusted in proportion to the amount of moisture that has been received to date.

Numbers of sheep and/or season of use may be adjusted if the forage use standards or other management objectives are not being met.

#### **IV. Improvements**

The range improvements proposed for the allotment displayed on a map within the Permit labeled "Long Tom Allotment – Proposed Improvements" and include:

Bentonite will be put into Hancock, Wagon Draw, and Paradise Tanks. Smith, St. Joe, Dog, and Mare Tanks will be cleaned and bentonited. The permittee will be responsible for completion of these.

Bentonite will be placed in Standard, Flat, Telephone, and Crooked Tanks. Tire tank will be cleaned and bentonited. The Arizona Game and Fish Department will be responsible for completion of these tanks, as their funding and priorities permit.

A pipeline will be constructed, which will run northerly from Durfee Well. This pipeline will be approximately 7 ½ miles in length and will have six locations where drinkers will be installed. The pipeline will either be laid on top of the ground or buried. This will be the permittee's responsibility.

Three 20,000 gallon Trick Tanks will be constructed near the following locations: 1) T12N, R14E, sec 13; 2) T11N, R14E, sec 1 or T12, R14E, sec 36; and 3) T12N, R14E, sec 15. The Arizona Game and Fish Department will be responsible for the construction of these Trick Tanks, as their funding and priorities permit.

An elk enclosure will be constructed north of Long Tom (Ryan) Ranch and south of the existing elk enclosure. The enclosure will exclude all grazing animals from

approximately 2.5 acres of riparian area. The Forest Service will be responsible for the construction of this enclosure.

A corral will be built in an upland area along Forest Roads 237, 170, or 99 (in the vicinity of Ryan Ranch). The permittee will be responsible to construct the corral.

Three livestock enclosures will be constructed, with one on the north side of the existing elk enclosure in Long Tom Canyon, one around Jacob Lake, and one around P51. The Arizona Game and Fish Department will be responsible for the construction of these enclosures.

Bedgrounds in use prior to 2007, will be rehabilitated as watershed improvement projects. Rehabilitation methods may include mechanical methods such as a harrow, disk, or similar implement to scarify the soil, the seeded with native seed. A goal of five bedgrounds per year will be scheduled for rehabilitation, but may vary depending on funding, site conditions, and success. The rehabilitated bedgrounds will rested from grazing for a minimum of two years after completion. The Forest Service will be responsible for rehabilitation of these bedgrounds. The following is a list of the bedgrounds (datum 83):

Name	Easting	Northing	Comments
above the corral	517564	3804428	
alto	518678	3817560	
burnt car	519415	3819323	
burro	519441	3805589	
camp	509803	3798066	
canyon point	515656	3797810	
corral	517419	3811432	
durfee	518440	3819427	
durfee point	517455	3822361	
fence	513595	3792335	
grapevine	522867	3821749	
hancock	523666	3823237	
hidden	516386	3798616	
horn	514220	3805558	
horse	518627	3813490	
horse trap lake	513743	3798139	
house	517496	3801001	
indian well	524532	3823621	
jacob well	514775	3798155	
lake 1	510285	3795516	
lake 2	513271	3796402	
lake 3	510181	3796677	
larson	514930	3802002	
little spring	520104	3811961	
lower larson	515423	3803137	
lower paradise	524879	3829614	

lower smith	522017	3807072	
lower wilbur	521188	381007	
middle border	518544	3810862	
middle wilbur	520877	3808389	
mill	520768	3818099	
mule	519000	3798150	
oak	518984	3810193	
old pugh	521079	3826068	
paradise	524267	3827068	
pino real	518995	3808591	
pinto	514650	3800218	
point of laron	513395	3807227	
powerline	522650	3828494	
pueblo	521105	3824611	
punto largo	515943	3806763	
punto largo #2	515127	3807704	
rose lake	508450	3796527	
ryan	523349	3828458	
sheep corral	516564	3803879	
smith	520576	3803002	
spool	518170	3803007	
st joe	518108	3800498	
telephone	516781	3810774	
tire	516853	3807679	
trap	519487	3815989	
weimer	516299	3811774	

Grazing is not contingent upon the completion of any bedground rehabilitation, tank cleaning- bentonite, pipelines, trick tank, or enclosure construction.

No fence or water development construction will occur within ½ mile of any active peregrine falcon eyrie between February 1 and August 15.

#### Range Improvement Standards

All assigned range improvements will be maintained by the permittee. When the annual grazing application is approved, in whole or in part, livestock will not be placed on an allotment or moved into unit if permit requirements concerning range improvement maintenance are not met. Proper maintenance of the range improvements will insure that the condition of the improvements are adequate. Forest officers periodically will inspect assigned improvements for compliance with maintenance standards prior to entry or movement dates. All range improvements are the property of the U.S. Government.

A permit modification will be prepared for approved projects each year. Permittees will sign a permit modification form for the project and will sign for materials furnished by the Forest. Ground disturbing activities will not be initiated by the permittee until

necessary clearances have been obtained, and the Forest Service has approved the project to proceed.

**Water.** Issuance of this grazing permit and the permittee's acceptance of the permit does not convey ownership of a water right to the permittee(s) but allows the use of a portion of it within the terms of the appropriation. The Forest has filed for water rights on these waters with the State of Arizona. Grazing domestic livestock may not be possible without these water rights. The Forest will retain ownership of the water rights as appropriated to the United States Forest Service (USFS) for current and future grazing permittees as well as for wildlife and recreation consumptive needs. Ownership of the water rights belonging to the USFS will assure that the use of the water will be appurtenant to the land and will be available for both current and future grazing permittees.

Stock water is important for proper animal distribution. If natural water is not available, the permittee may haul water to obtain proper distribution. The following will be done:

1. Trick Tanks.

- a. Fences around water sources and equipment shall be maintained annually to FS standards.
- b. Collection boxes, inlet pipes, and water troughs will be clean of sediment and debris before the improvement is used and during the grazing season as needed.
- c. Broken pipe will be repaired or replaced. Material not usable will be removed from the Forest and disposed of properly.
- d. Troughs that leak will be repaired. Troughs should be level. Overflow pipes should be placed to avoid creating a boggy area at the trough. Rusted out troughs need to be replaced through a permit modification.
- e. Float valves will be cleaned and set to prevent overflow. They shall be checked regularly when pasture is in use and shall contain a protective cover to prevent damage from livestock.
- f. Troughs shall have escape ramps for small mammals and birds. Escape ramps shall also be maintained.
- g. Trick tank support structure and tin shall be inspected annually to insure that the improvement is sound. All damages need to be repaired.

2. Stock Tanks.

- a. Check stock tanks for seepage.
- b. As a general rule, spillways need to be free of debris and obstructions. Eroded portions need to be repaired when they exist.
- c. Tanks need to be cleaned to their original capacity whenever drought or other circumstances occur that result in the tanks being dry. Special care will be taken during cleaning to prevent future water loss. The work will be coordinated with the District Ranger prior to initiating repairs.

**V. Monitoring and Evaluation**

It should be recognized that monitoring is not an in depth analysis but a measure of indicators that may trigger further detailed analysis of a particular resource. Either monitoring or detailed analysis may trigger an action on the allotment on a seasonal basis or as a change in the AMP and permit.

Permittees are encouraged to participate in monitoring activities. Records of livestock numbers, movement dates, and shipping records should be kept by the permittees and provided to the District Range Staff annually.

**IMPLEMENTATION MONITORING - UTILIZATION**

Forage utilization will be measured as an end of the season measurement on key species in key areas. Methodologies of data collection will be consistent with Utilization Studies and Residual Measurements (Interagency Technical Reference 1996a). Although it is desirable to monitor the same key areas and key species repeatedly over time, movement of these areas/species may change over time, due to changes in resource conditions or management which may result in changes in livestock use patterns. If these patterns change, new key areas may be established and existing key areas may be modified or abandoned in cooperation with the permittee.

Grazing utilization monitoring would occur in the fall, typically after sheep have left the allotment. The desired utilization for the allotment is 30%, but normally the utilization levels will not be exactly 30%, therefore a range is a more appropriate management standard. The acceptable upper level of utilization for this allotment will be 35% annually on key species in key areas. If utilization exceeds 35% in a majority of key areas, the number of days in units or the number of animals would need adjusting. If utilization in less than a majority of key area exceeds 35%, some different type of management action might be appropriate in following years (i.e. faster movement through the area, different herding areas, etc.). Utilization monitoring would occur in every unit after the growing season (typically after mid-late September). Gross differences between actual utilization and desired utilization may lead to either adjustments in the unit stocking or allotment stocking (either increase or decrease). The goal is 30% utilization over a given period of time (5-10 years) and not to permanently adjust based on yearly results.

The key species for each key area, by unit and band are listed below (refer to Key Area Maps within the Permit):

**NORTH BAND**

Unit	Key Area	Key species
1	N1a	Fear, Bltr, Mumo
	N1b	Bogr, Mumo
2	N2a	Fear, Mumo, Bogr
	N2b	Fear, Mumo, Bogr
3	N3a	Bogr

	N3b	Bogr, Lyph
4	N4a	Bogr, Spcr
	N4b	Bogr
5	N5a	Bogr, Mumo
	N5b	Bogr, Mumo, Bltr
6	N6a	Mumo, Fear
	N6b	Mumo

**SOUTH BAND**

Unit	Key Area	Key Species
1	S1a	Fear, Mumo
	S1b	Fear, Bltr
2	S2a	Mumo, Bltr
	S2b	Mumo, Bltr
3	S3a	Mumo, Bltr
	S3b	Fear, Mumo
4	S4a	Mumo, Bltr
	S4b	Mumo, Bltr
	S4c	Mumo, Bltr
5	S5a	Mumo, Bltr
	S5b	Mumo, Fear
6	S6a	Fear, Mumo
	S6b	Fear, Bltr
	S6c	Fear, Mumo, Bltr
7	S7a	Bltr, Mumo
8	S8a	Mumo, Bltr
9	S9a	Mumo, Bltr
	S9b	Mumo, Bltr
	S9c	Bltr, Fear

Fear (Arizona Fescue); Mumo (Mountain Muhly); Bltr (Pine Dropseed); Bogr (Blue Grama); Spcr (Sand Dropseed); Lyph (Wolftail)

Key areas and key species may need adjusting, based on better information, additional improvements, etc.

**EFFECTIVENESS MONITORING – Long Term Trend Monitoring**

Effectiveness monitoring includes measurements to track conditions and trend of vegetation, soil, and watersheds. Long term monitoring will consist of Parker transects, ecological condition, or other methods consistent with measuring plant communities as

described in Sampling Vegetation Attributes (Interagency Technical Reference 1996b), Rangeland Analysis and Management Training Guide (Southwestern Region), or other recognized repeatable methodology. This data will be interpreted to determine whether management is achieving desired resource conditions, if changes in resource conditions are related to management, and to determine any necessary modifications in management.

Five new permanent range transects will be established on the allotment; one will be installed within the Rodeo-Chediski burn portion of the allotment, two will be placed in a southern portions of the allotment and two will be placed within the northern units of the allotment. Cover, frequency, composition and/or vigor data will be collected on the permanent transects. Existing Parker Transects may also be re-read, if appropriate. Long Term Monitoring will occur in approximately 5 years from the decision date. Adjustments based on trend monitoring, in addition to utilization levels, actual stocking, weather, etc., would occur, if needed, after the trend monitoring in five years.

#### **Changes in numbers or season of use**

##### **Changes in numbers**

- 1) Gross differences in utilization levels could lead to a change in numbers after 1-year (either increase or decrease), which would usually be handled in the annual planning. Utilization above 35% in a majority of the key areas/key species may also lead to a reduction in numbers for the next year. If utilization is less than 30% in a majority of key areas, numbers or days per unit may be adjusted to try to balance the usage.
- 2) Numbers may be less than permitted based on conditions of the allotment for a given year or for personal convenience reasons.
- 3) After analyzing the 5-year long-term monitoring in combination with the utilization data, weather, actual stocking, etc., permitted numbers may be adjusted, if needed based on the interpretation of the data.
- 4) An increase in numbers may occur, as a result in monitoring of the Rodeo-Chediski areas. A permit modification will be issued that will address these additional numbers.

##### **Changes in season of use:**

- 1) After the long-term trend monitoring has been completed, and an increase in cool-season species is detected (or the areas meet their site potential), the season of use may be moved to an earlier entry date (up to May 15<sup>th</sup>). If a decrease in cool-season species is detected the season of use may be moved to a later entry date, up to June 15/July 1. If no movement is detected in cool season grasses and it is determined that greater potential exists, and sheep grazing is preventing this increase in cool season grasses, then a later entry date may be considered.
- 2) The length of season will typically be 3½ months, but may be lengthened (to October 15), if AUM calculations don't exceed permitted.
- 3) Later entry dates (i.e. July) may be required or granted yearly, based on conditions (water-forage).

### Monitoring within the R-C Fire area

Sheep will not graze the area within the R-C fire area until cover, production and condition standards have been met. The cover standard includes a minimum of 55% effective ground cover as measured on paced transects or 75% or more of the natural herbaceous vegetation canopy cover as described within TES map unit descriptions. The production standard is a minimum production of 100 lbs or more of palatable forage. The condition standard includes a range condition of fair, good, or excellent as measured by paced transects or 50% community similarity compared to potential vegetation community.

The burn severities of the R-C fire were not uniform and the high and moderate burn severity areas were not great in size (all but one was less than 100 acres), but all were in close proximity to each other. Therefore, the high and the moderate areas which were in close proximity of each other were combined to make a manageable unit. When these were combined, there were 5 high/mod severity burn units. Likewise the under burned and low severity units were combined into 7 burn units.

To allow grazing within the R-C burned area, within the Long Tom Allotment, four of the high and moderate severity units and four of the underburned and low severity units will need to meet the cover, production and condition standards mentioned above. Sheep grazing may be allowed within the low/underburned areas if they meet standards, while avoiding high/moderate areas if they don't meet standards.

Once monitoring has determined that the cover, production, and condition standards have been met, then sheep will be allowed to graze the recovered areas. Sheep numbers will be figured by the following methodology:

- Step 1: production will be calculated by unit or stand.
- Step 2: production will be multiplied by an allowable use level of 30%, which calculates an available forage production.
- Step 3: available forage production will be divided in half which gives an available forage production available for domestic grazing ungulates/wild ungulates.
- Step 4: The total available forage for domestic grazing ungulates will be divided by the forage consumption rates of the grazing animal (currently 2.7 lbs per day for sheep).

Once these figures are calculated and sheep numbers for this area are determined, a permit modification will be issued to address the additional capacity/range of numbers to the Term Grazing Permit. Adjustments to the routes and bedground locations will be determined annually during the Annual Operating Instructions.

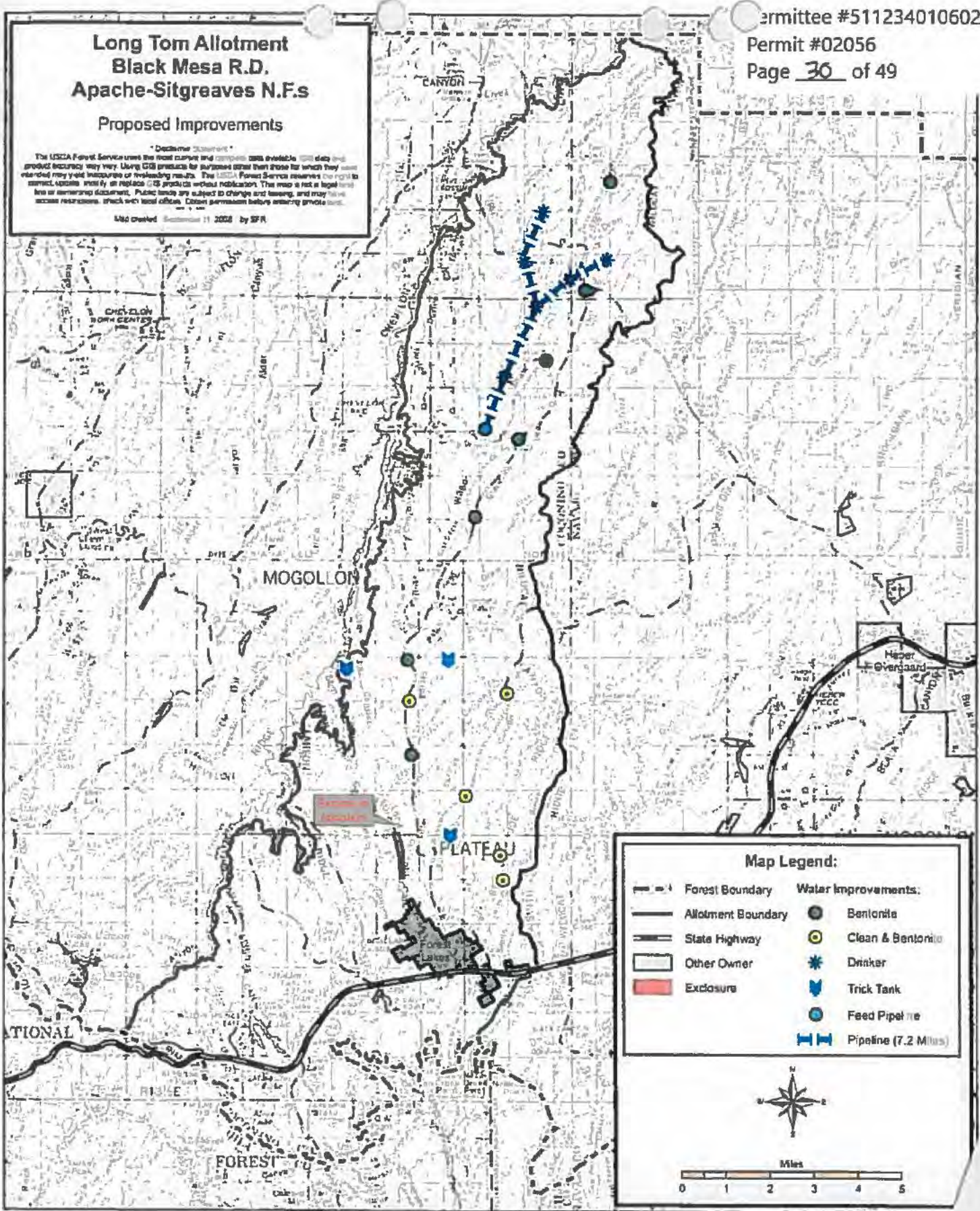
Monitoring of the R-C burned area will occur within two years after the decision is signed. The Forest Service will conduct the monitoring, in coordination with the permittee. Written justifications may be necessary, if standards need adjustments.

# Long Tom Allotment Black Mesa R.D. Apache-Sitgreaves N.F.s

## Proposed Improvements

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Map created September 11, 2008 by SFR



**Map Legend:**

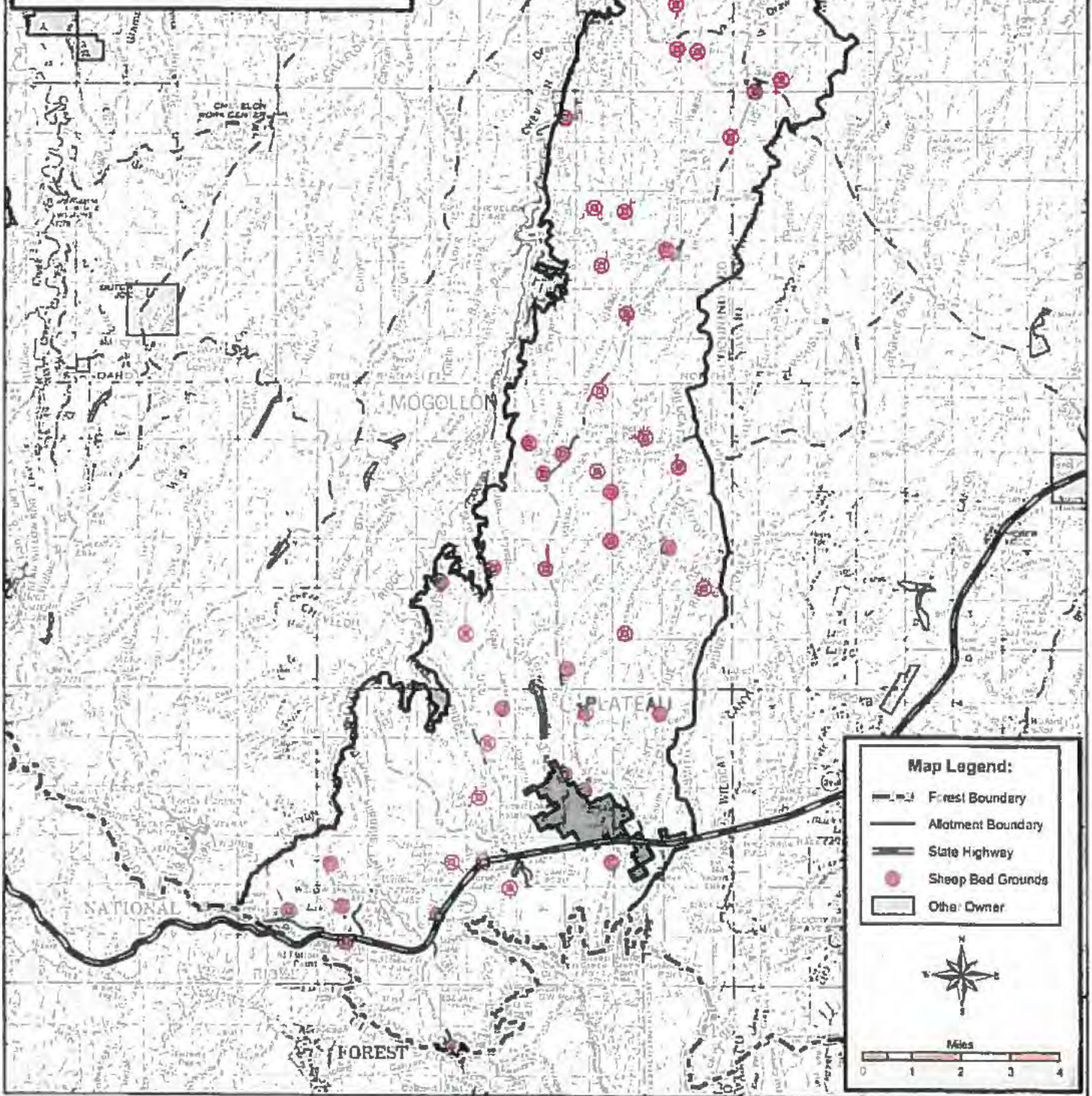
Forest Boundary	Water Improvements:
Allotment Boundary	Bentonite
State Highway	Clean & Bentonite
Other Owner	Drinker
Exclosure	Trick Tank
	Feed Pipeline
	Pipeline (7.2 Miles)



**Long Tom Allotment  
Black Mesa R.D.  
Apache-Sitgreaves N.F.s  
Sheep Bed Ground Locations**

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Map created September 11, 2003 by BFF



**Map Legend:**

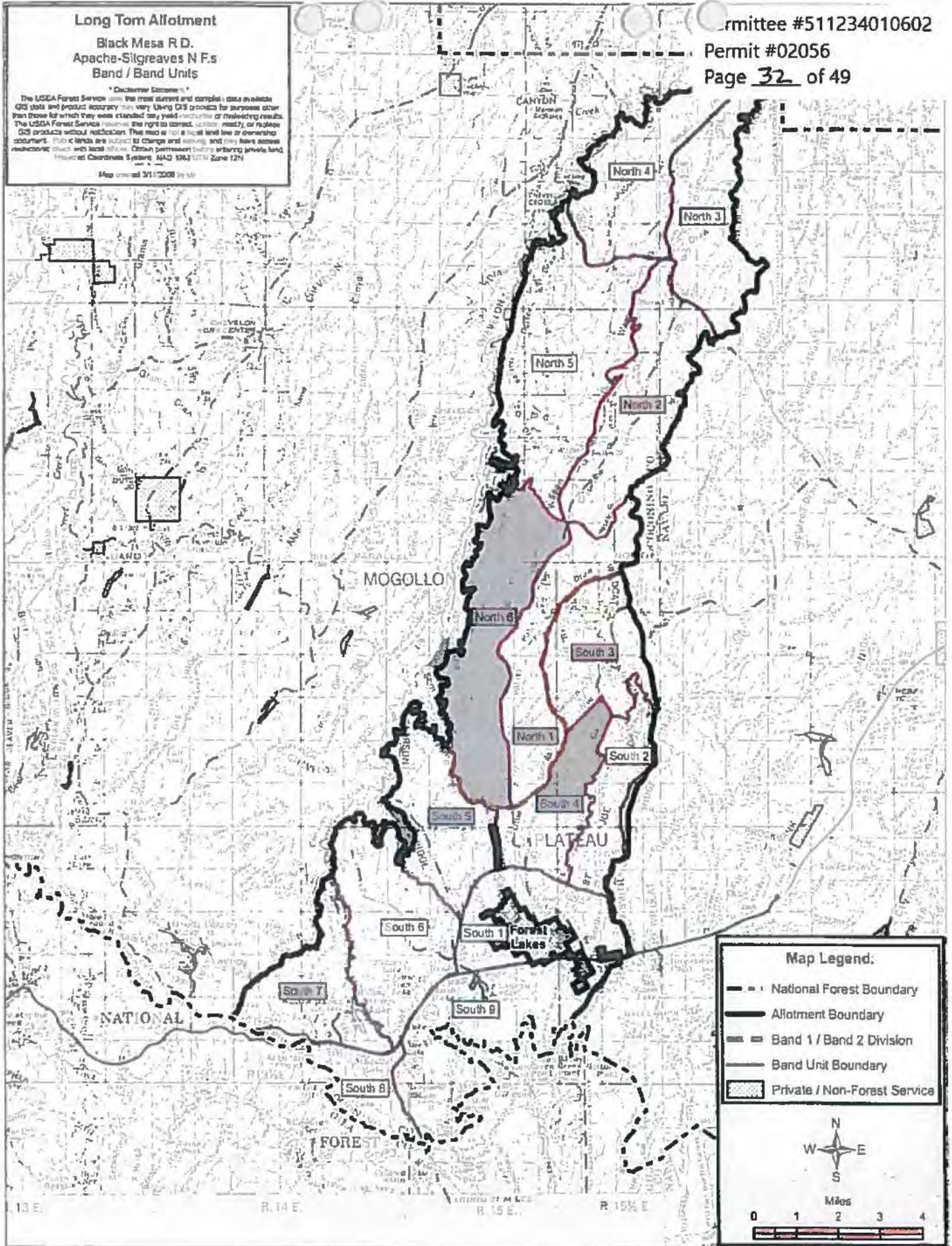
- Forest Boundary
- Allotment Boundary
- State Highway
- Sheep Bed Grounds
- Other Owner

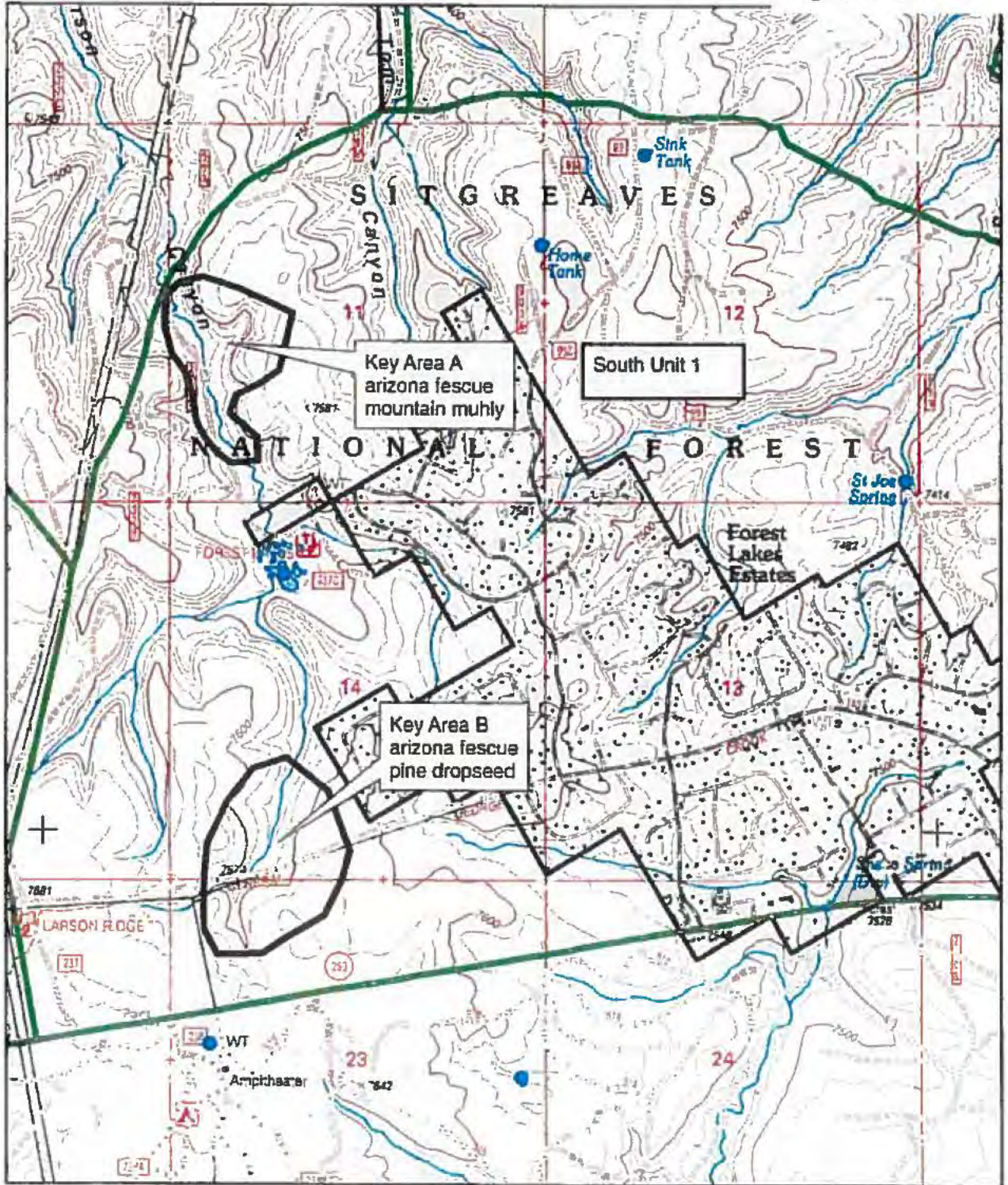


**Long Tom Allotment**  
**Black Mesa R.D.**  
**Apache-Sitgreaves N.F.s**  
**Band / Band Units**



\*Disclaimer Statement\*  
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 than those for which they were intended may yield inaccurate or misleading results.  
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 document. Public lands are subject to change and users should have a current  
 electronic check with local office. Obtain permission before entering private land.  
 Projected Coordinate System: NAD 1983 UTM Zone 12N  
 Map updated 3/11/2008 by jsh

Committee #511234010602  
 Permit #02056  
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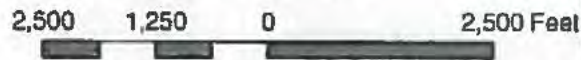




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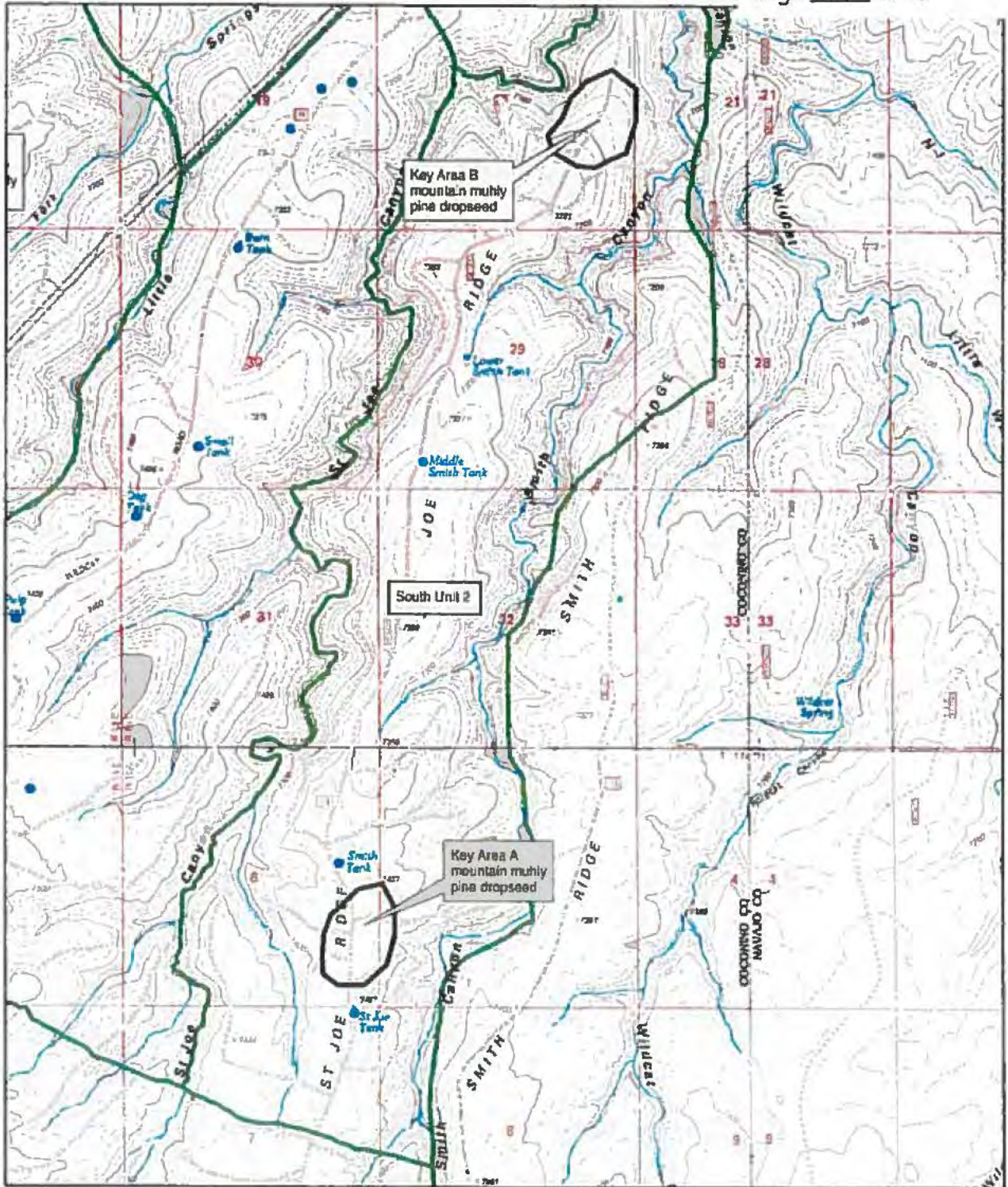
-  FS roads
-  band unit boundary

**South Unit 1**  
**Key Areas**





Scale 1:24000  
 10/2008

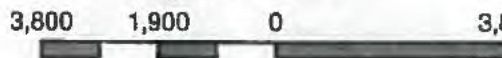




**Legend**

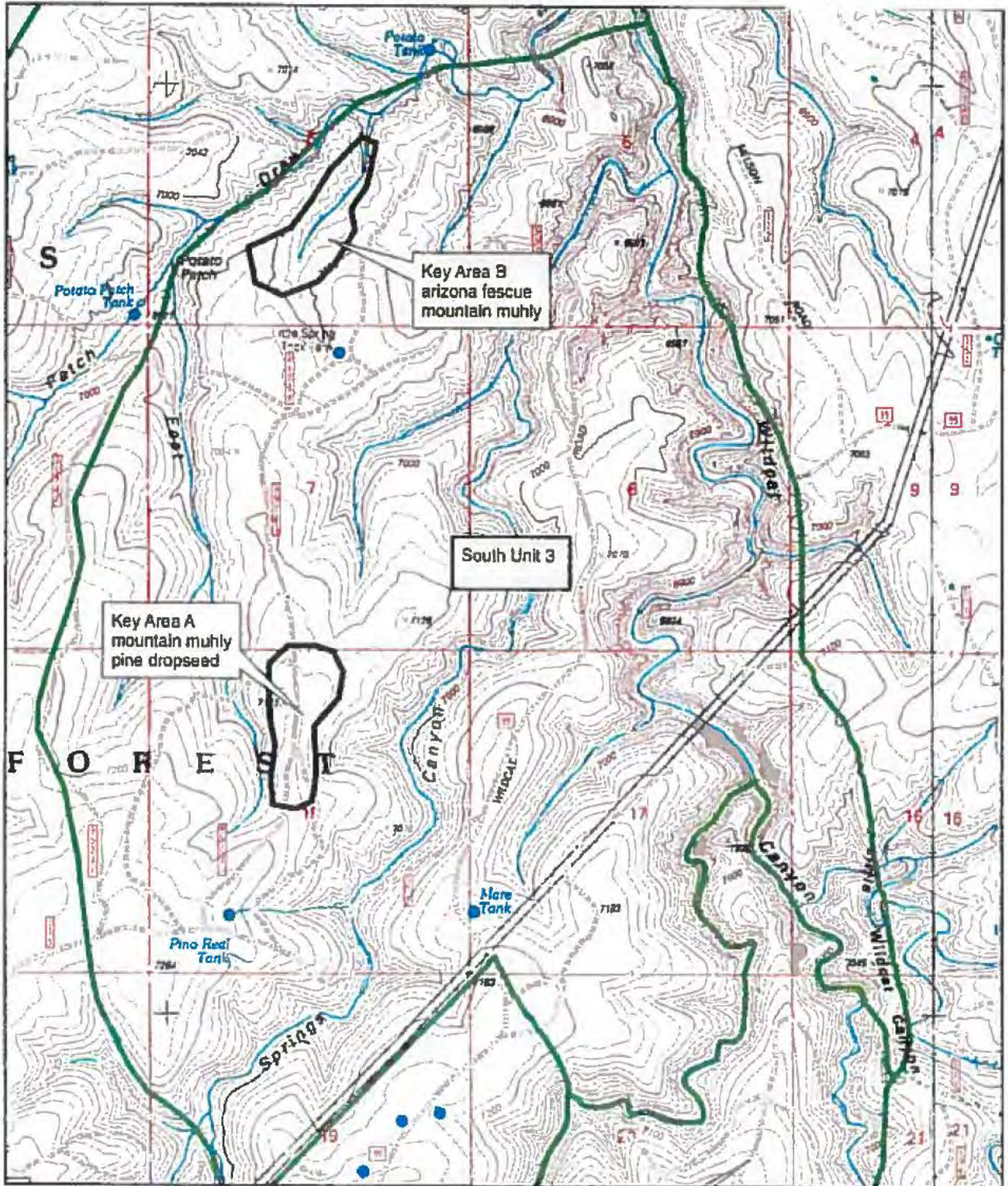
-  FS roads
-  band unit boundary

**South Unit 2  
Key Areas**



Scale 1:35000  
10/2008

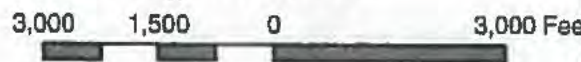




**Legend**

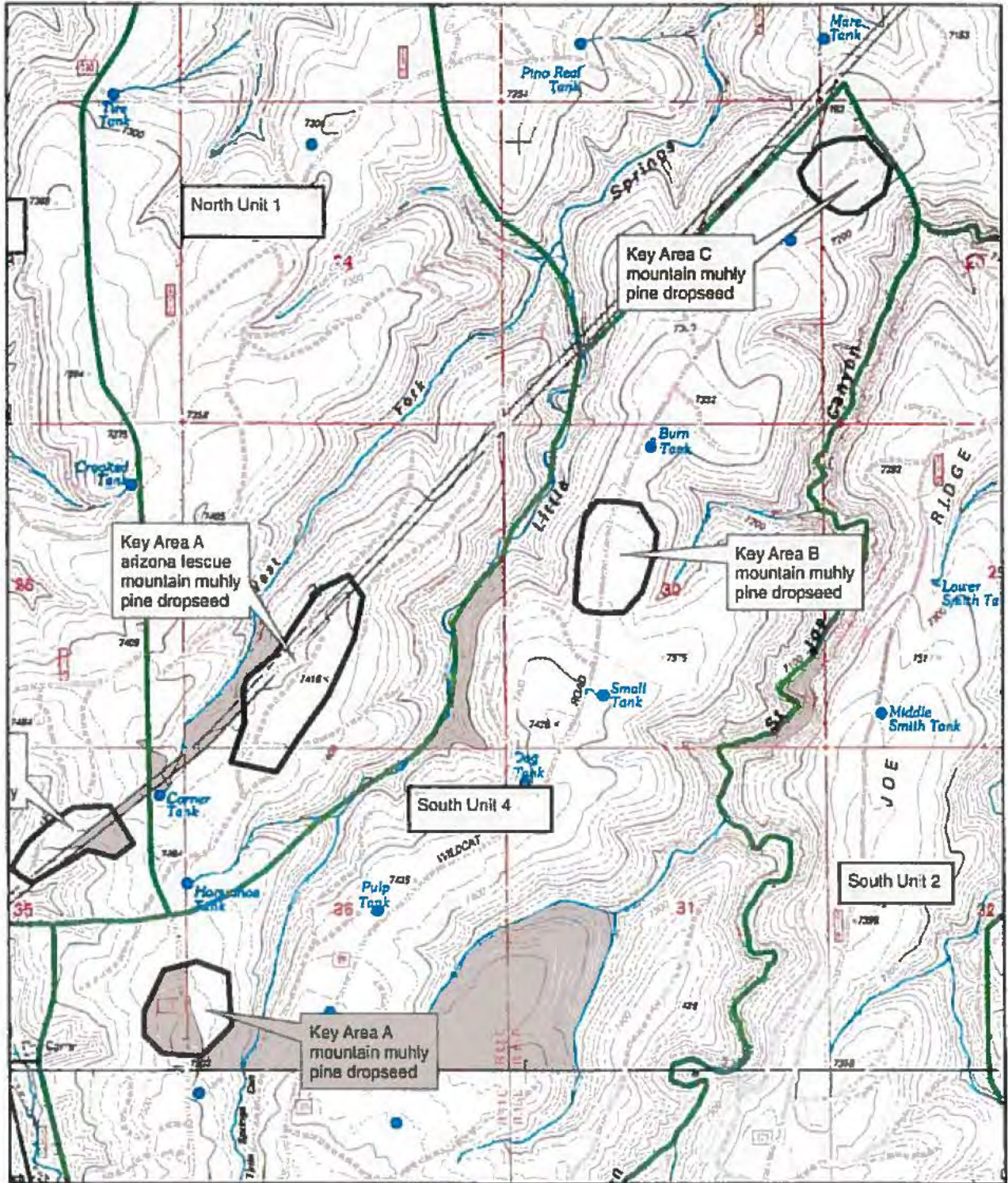
- FS roads
- band unit boundary

**South Unit 3  
Key Areas**



Scale 1:28000  
10/2008

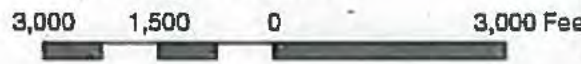




**Legend**

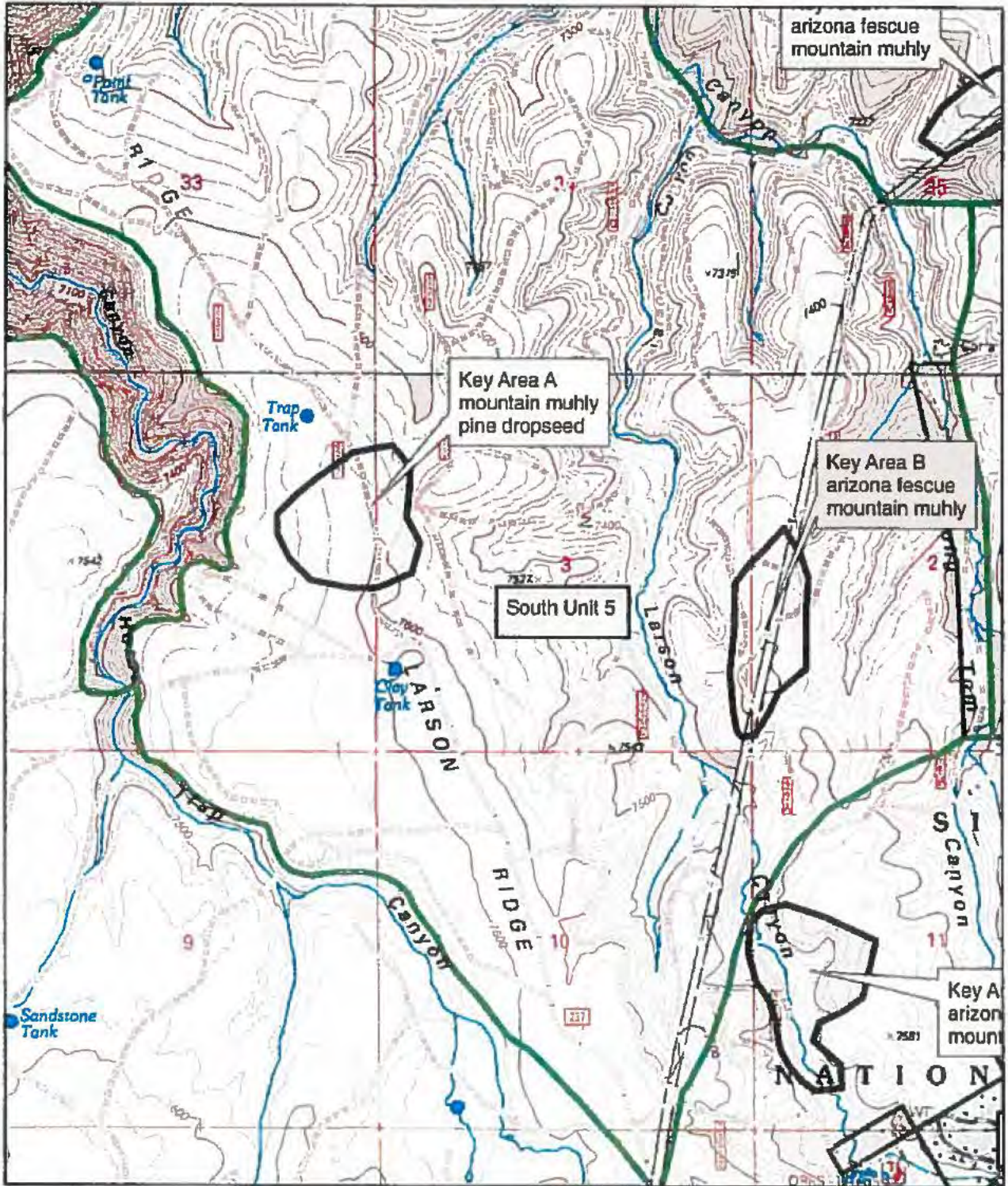
- FS roads
- band unit boundary

**South Unit 4  
Key Areas**



Scale 1:28000  
10/2008

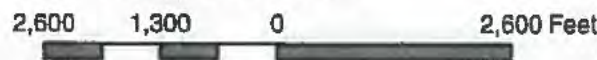




**Legend**

- FS roads
- band unit boundary

**South Unit 5  
Key Areas**

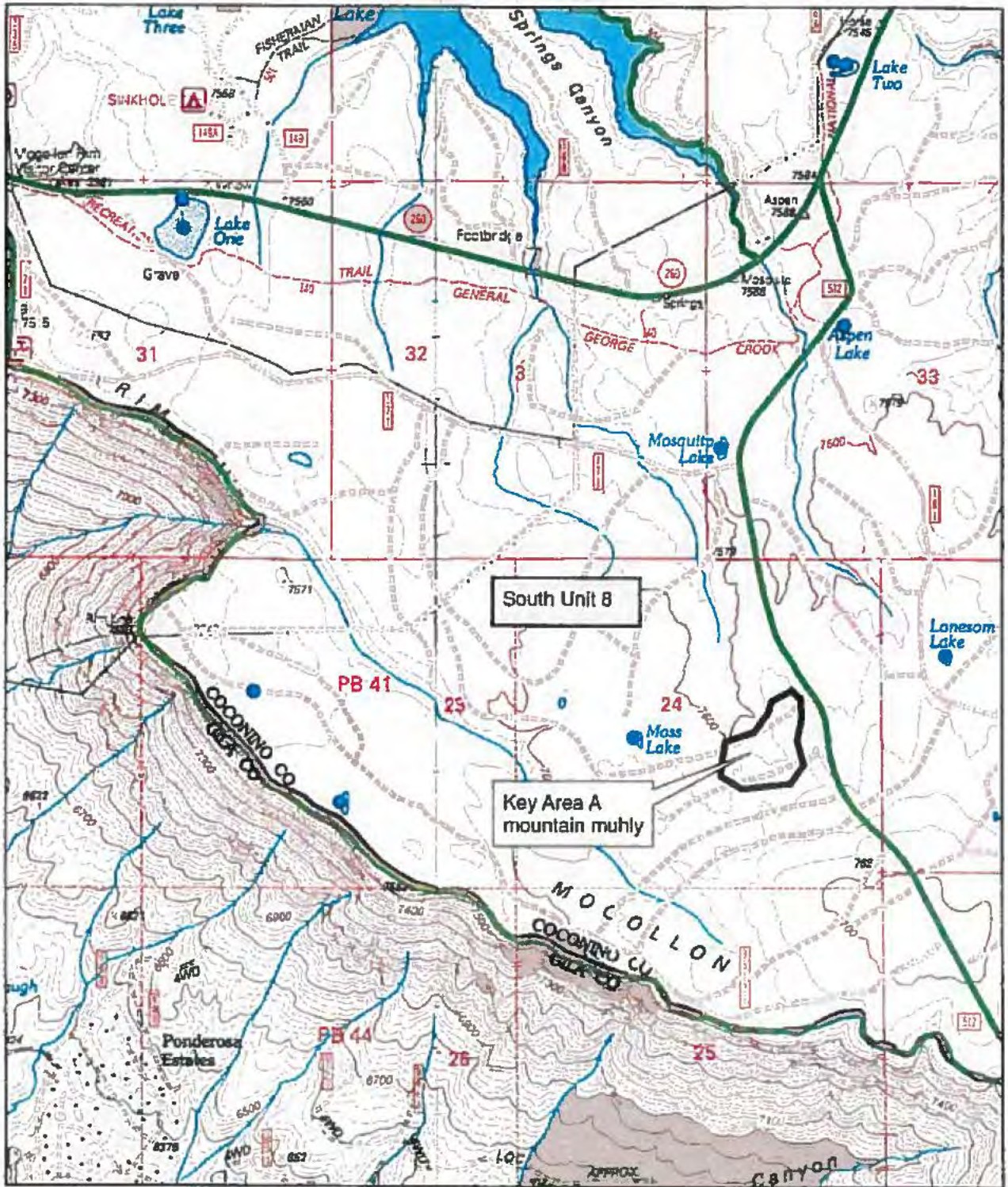


Scale 1:24000  
10/2008









**Legend**

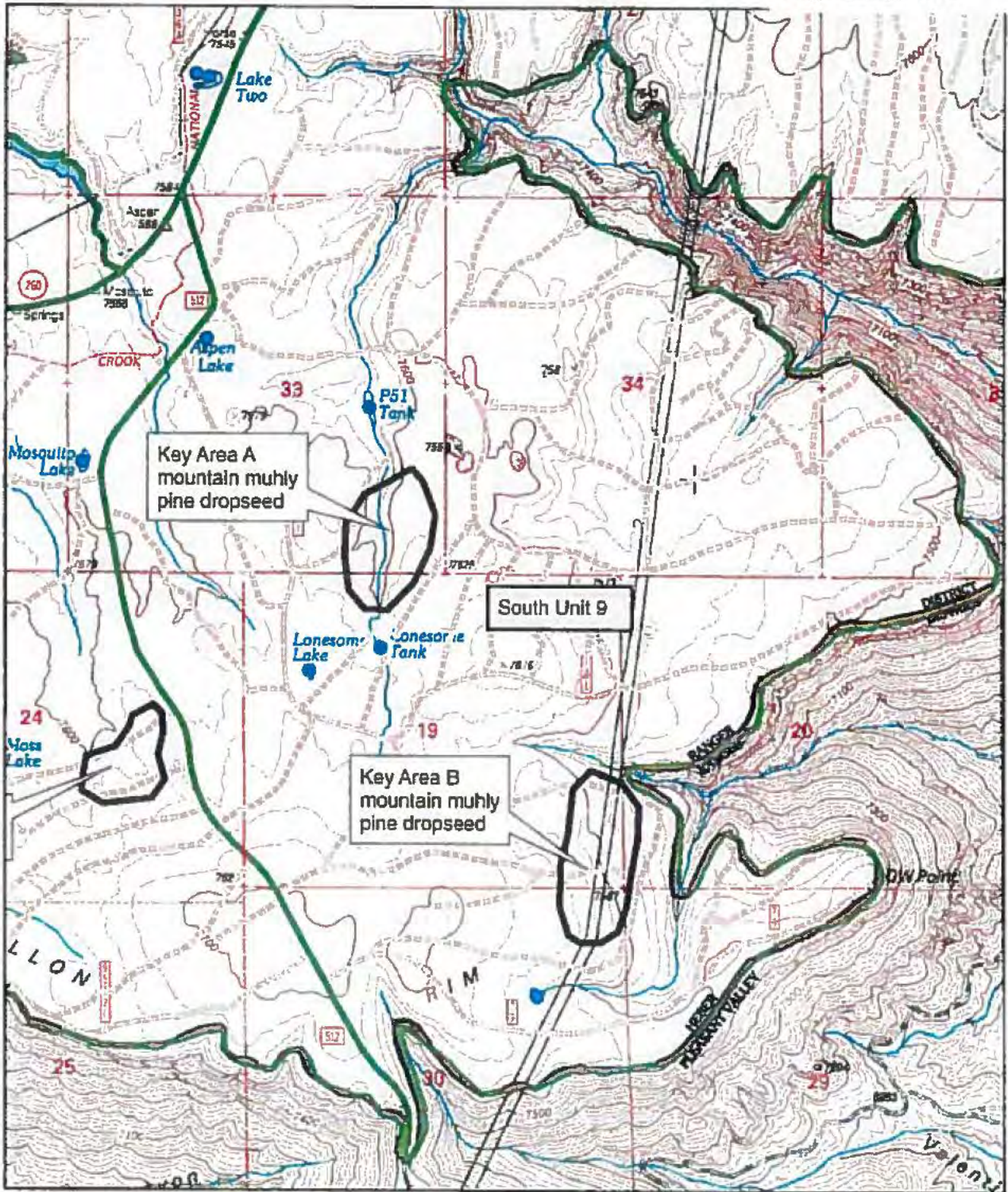
- FS roads
- band unit boundary

**South Unit 8  
Key Areas**

2,600 1,300 0 2,600 Feet

Scale 1:24000  
10/2008





Key Area A  
mountain muhly  
pine dropseed

South Unit 9

Key Area B  
mountain muhly  
pine dropseed

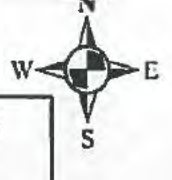
**Legend**

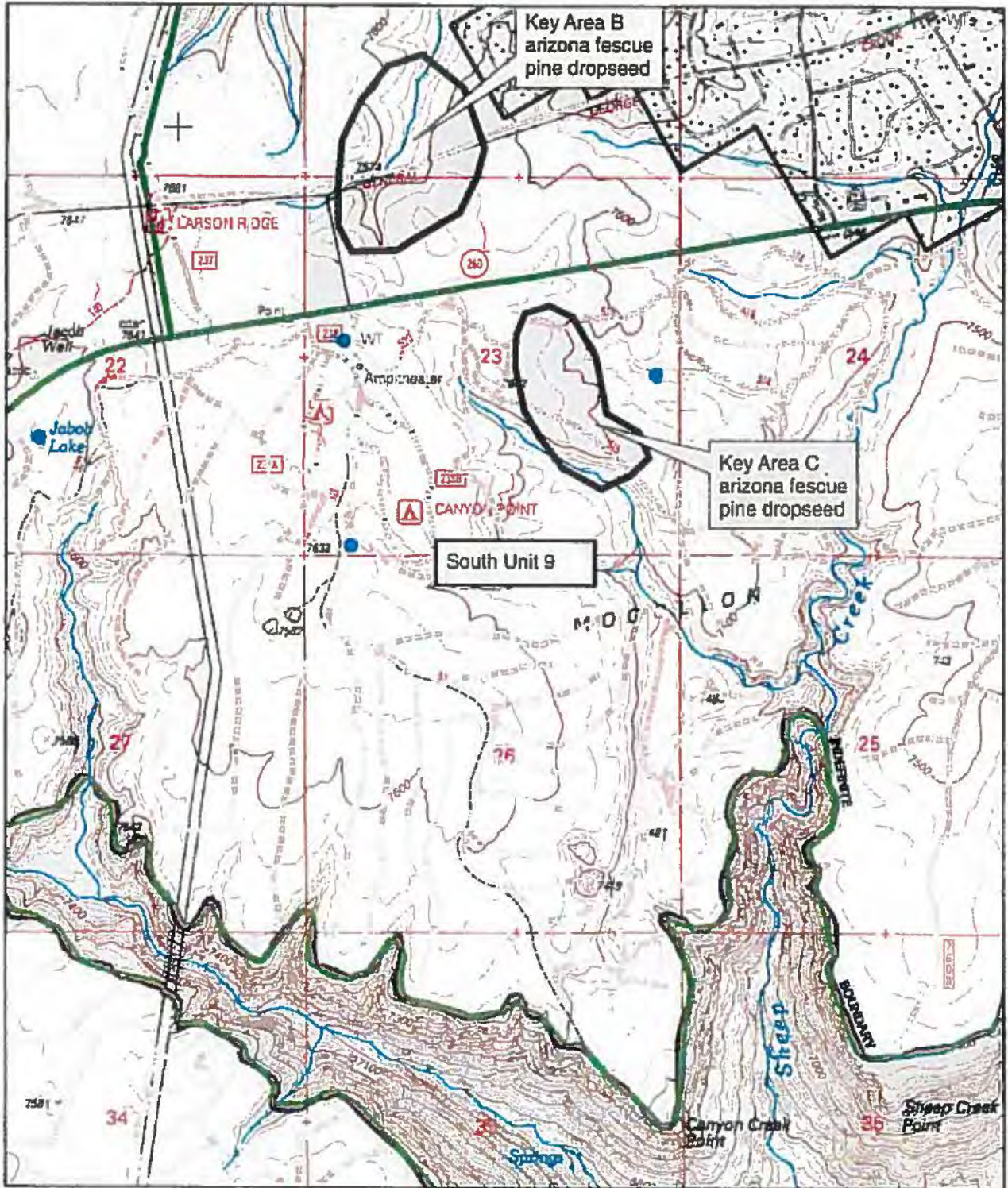
- FS roads
- band unit boundary

**South Unit 9  
Key Areas**



Scale 1:24000  
10/2008

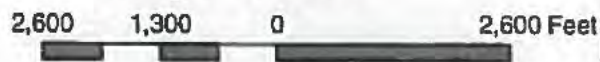




**Legend**

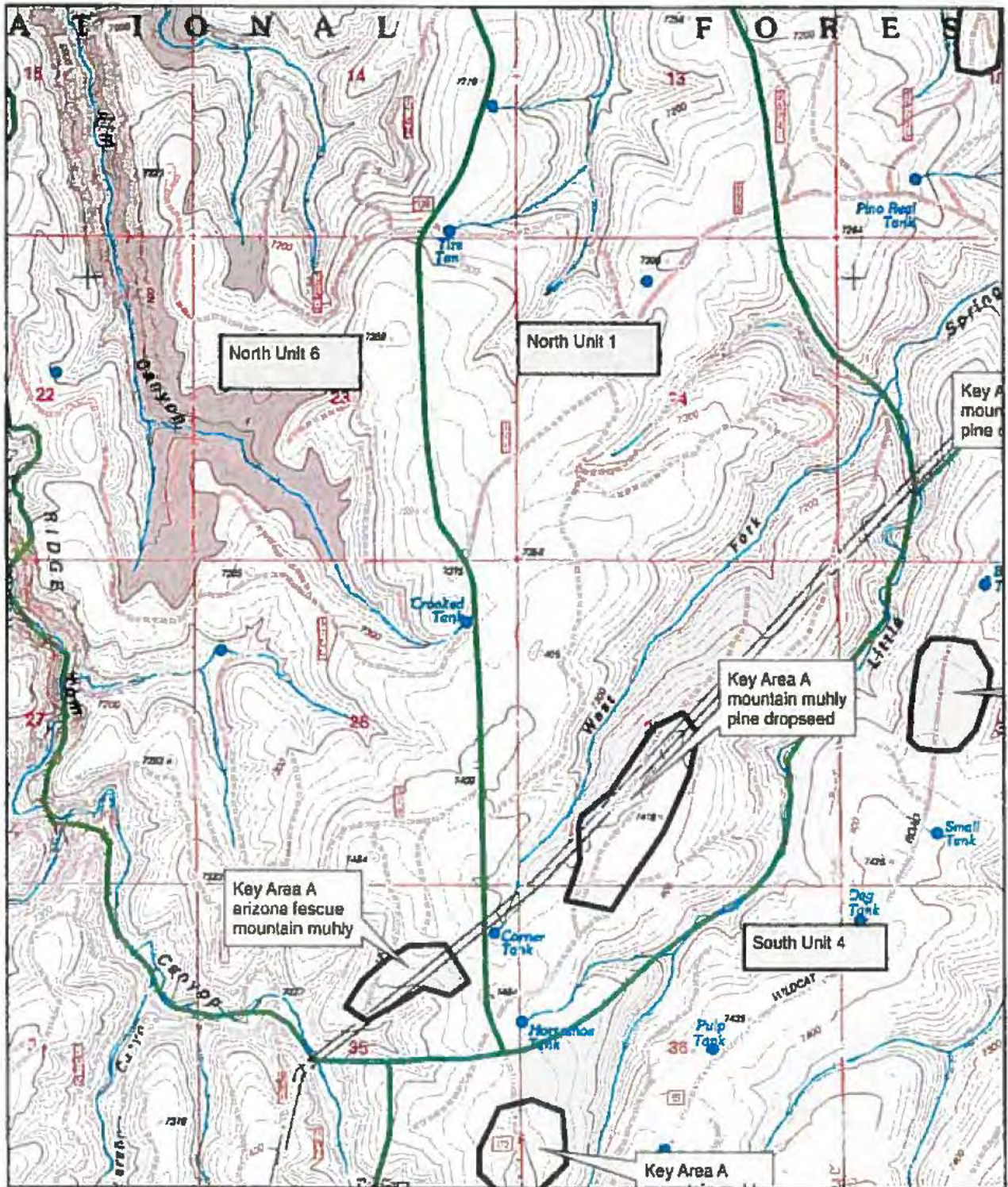
- FS roads
- band unit boundary

**South Unit 9  
Key Areas**



Scale 1:24000  
10/2008

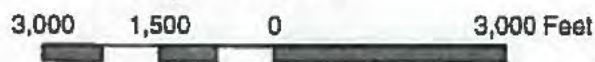




**Legend**

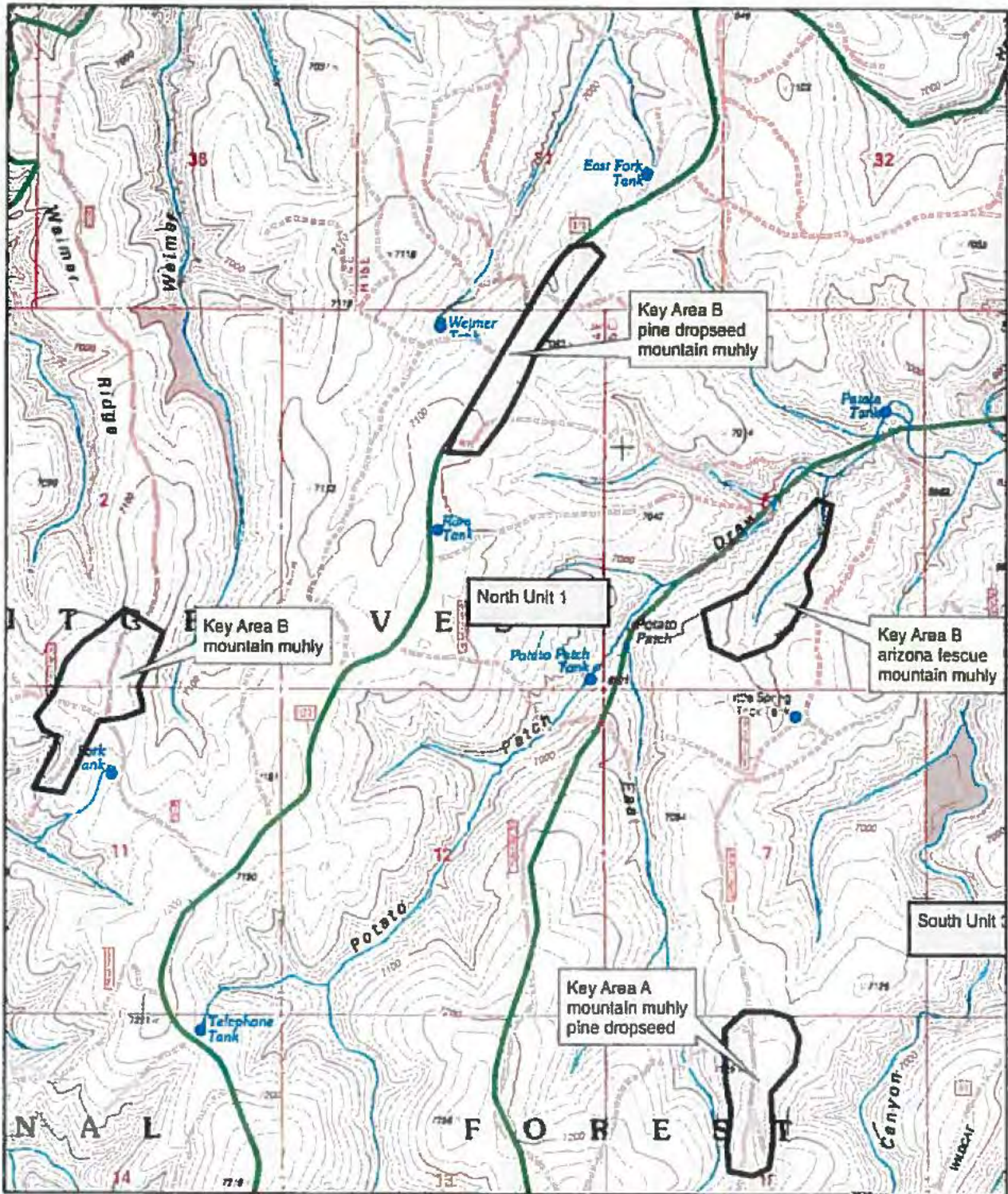
- FS roads
- band unit boundary

**North Unit 1  
Key Areas**



Scale 1:28000  
10/2008





**Legend**

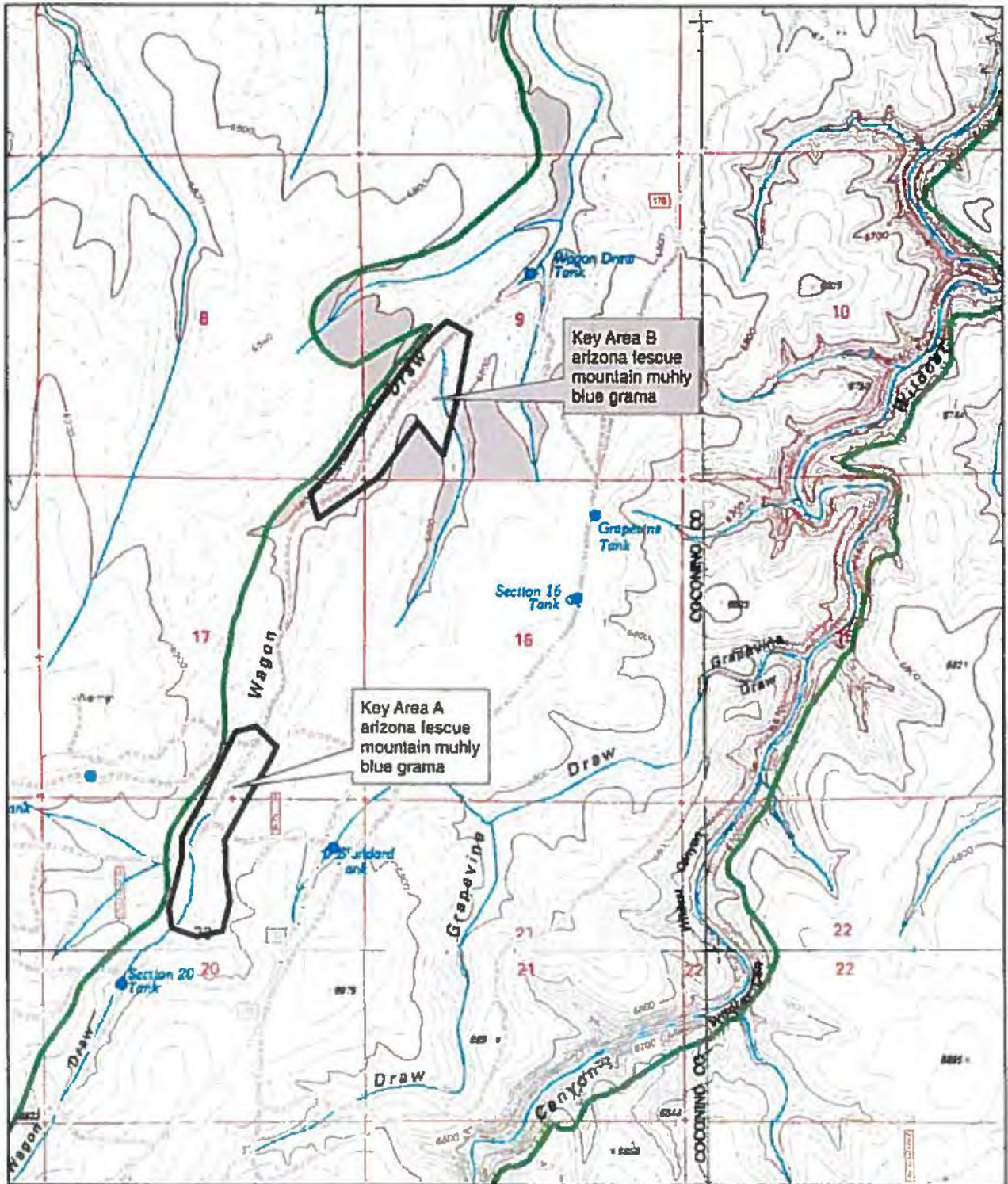
- FS roads
- band unit boundary

**North Unit 1  
Key Areas**



Scale 1:28000  
10/2008





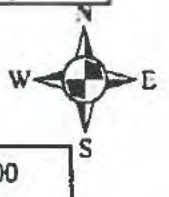
### Legend

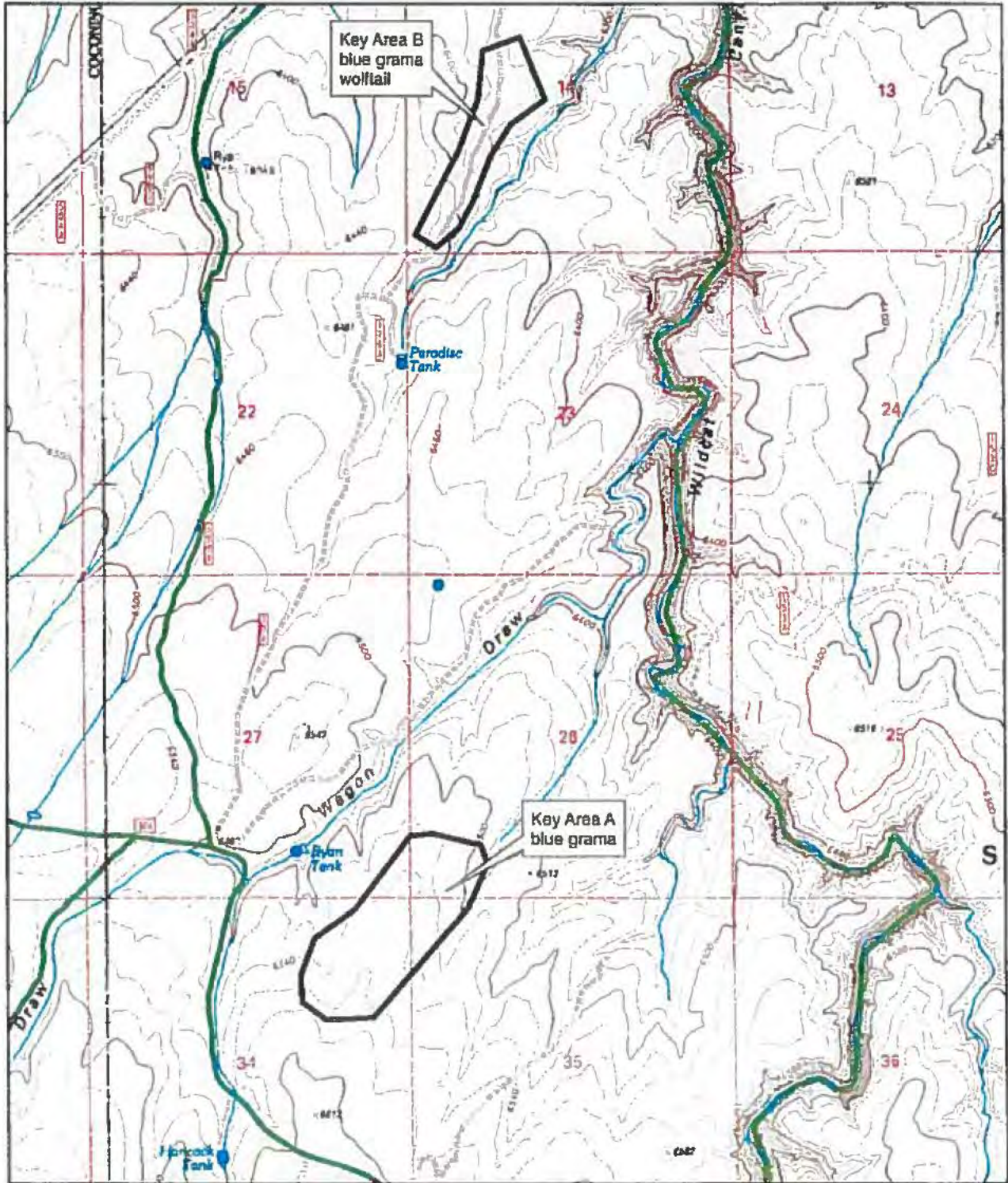
- FS roads
- band unit boundary

## North Unit 2 Key Areas

2,900 1,450 0 2,900 Feet

Scale 1:28000





### North Unit 3 Key Areas

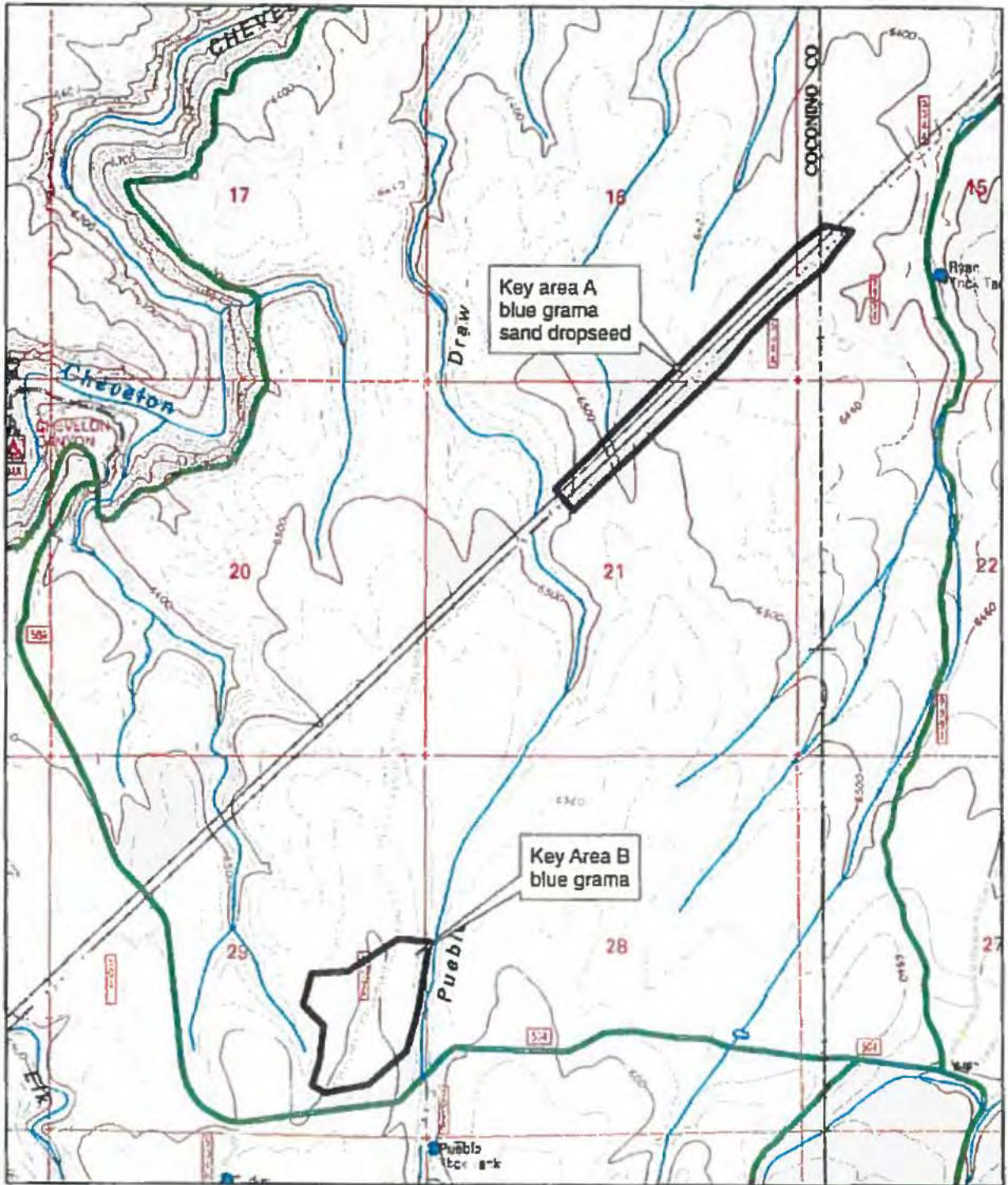
#### Legend

- FS roads
- band unit boundary



2,900 1,450 0 2,900 Feet

Scale 1:28000

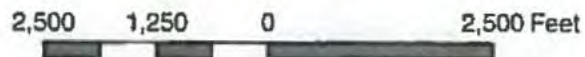




**Legend**

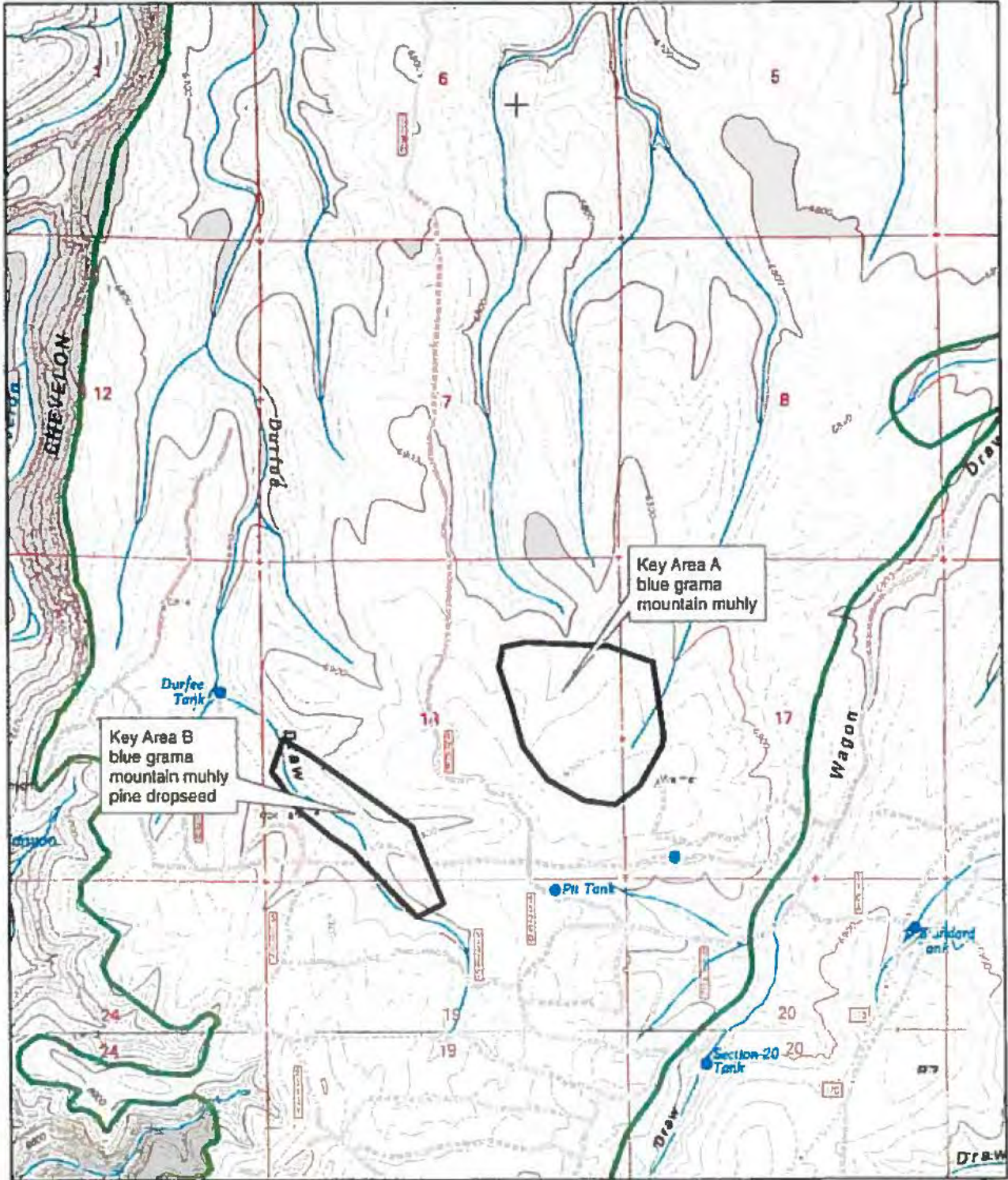
-  band unit boundary
-  FS roads

**North Unit 4  
Key Areas**



Scale 1:24000





# North Unit 5 Key Areas

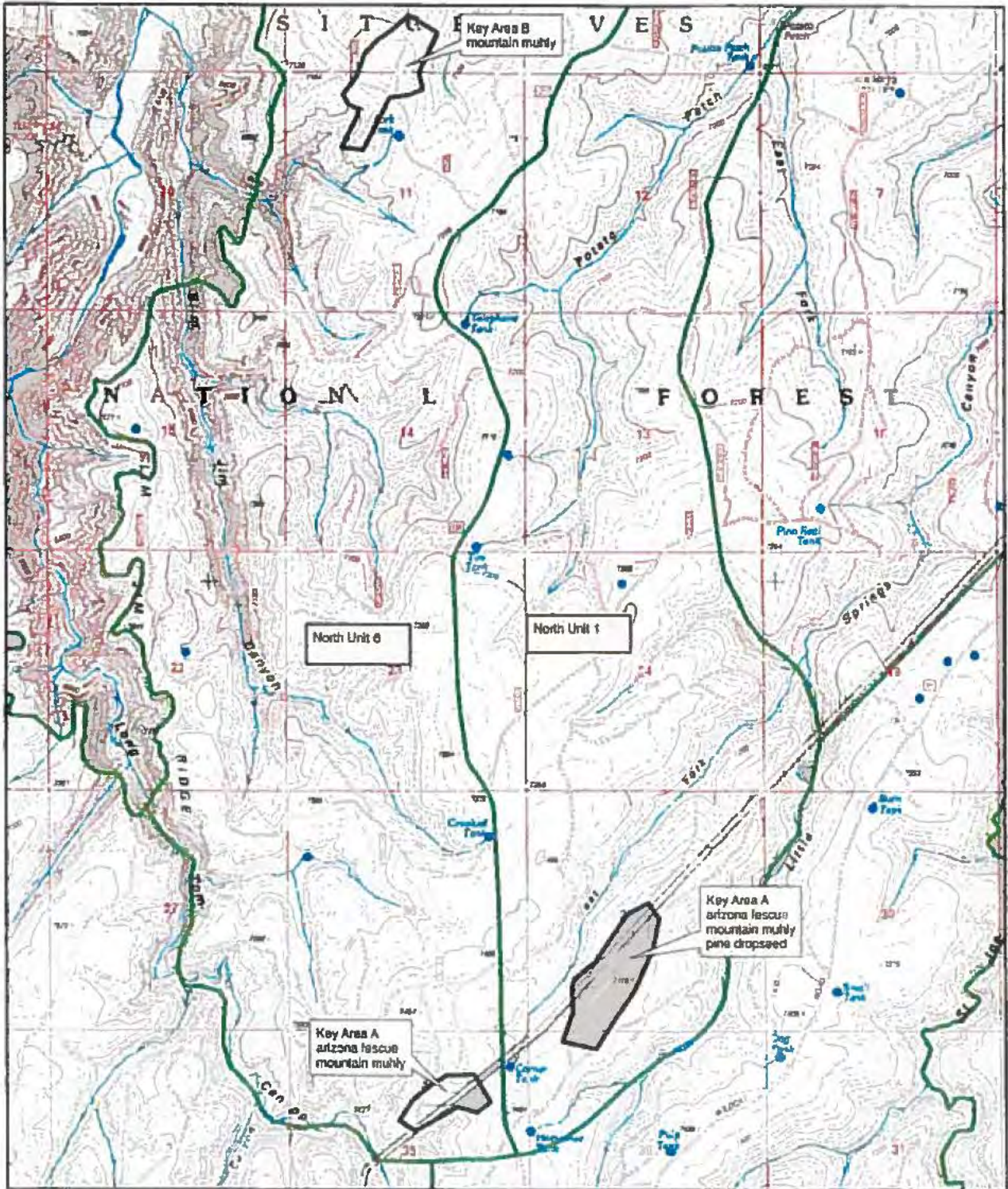
## Legend

- FS roads
- band unit boundary

2,900 1,450 0 2,900 Feet

Scale 1:28000





**Legend**

- FS roads
- band unit boundary

4,000 2,000 0 4,000 Feet

Scale 1:38000

