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Forest Service
Southwestern Region

Gray Wolf Land Exchange
Final Environmental Assessment

Prescott National Forest

August 28, 2006

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Gray Wolf Land Exchange
Final Environmental Assessment

CHAPTER 1.0 INTRODUCTION

1.1 INTRODUCTION

In the late 1980s and early 1990s, the Verde Valley Landfill was nearing capacity and Yavapai County (County) was investigating several alternatives for solid waste disposal. In 1990, Waste Management of Arizona (WMA) presented a proposal to the County to develop the Gray Wolf Landfill on a 166-acre, privately owned inholding within the Prescott National Forest (PNF). This land parcel is located approximately 0.2-mile south of State Route 169, between Interstate 17 and State Route 69, in Dewey, Arizona (Figure 1.1). In October 1990, after public hearings, WMA gained approval for the landfill from the County Planning and Zoning Commission and Board of Supervisors and committed to providing sufficient landfill capacity for the solid waste disposal needs of Yavapai County for a 20-year period beginning in 1993.

WMA then began the permitting process with the Arizona Department of Environmental Quality (ADEQ), who has oversight responsibilities for municipal solid waste landfills. This process involved completion of a Solid Waste Facility Plan and a public comment period. In order to access the 166-acre inholding, WMA obtained a special use permit from the PNF for an approximately 0.2-mile road easement across Forest Service land from State Route 169 to the landfill site. This road provides the primary access to the Gray Wolf Landfill.

WMA is proposing to expand the landfill and exchange land with the U.S. Forest Service (Forest Service) for the expansion. The proposed land exchange includes the land north of WMA's inholding, which is crossed by the access road as well as surrounding lands to the east and south of WMA's property (Figure 1.1). In exchange for the 255 acres of adjacent PNF lands, the Forest Service would acquire approximately 872 acres of private (non-federal) lands on seven parcels throughout Arizona (Figure 1.2; Table 1.1). Approval of the land exchange would negate the need for WMA's existing easement administered under a special use permit and could allow for the expansion of the landfill. The Gray Wolf Landfill is the only municipal landfill in the County, and it is anticipated to reach capacity by 2009 if not expanded.

In late 2001, the PNF Forest Supervisor signed an Agreement to initiate authorizing both the PNF and WMA to evaluate the potential impacts of the proposed Gray Wolf Land Exchange on the human environment in compliance with the National Environmental Policy Act (NEPA). Should the PNF authorize the land exchange, the expansion of the Gray Wolf Landfill would require permitting and approvals by the U.S. Environmental Protection Agency (EPA) and ADEQ. Regardless of land ownership, these agencies would continue to maintain oversight of the operation for the life of the landfill and after closure. The oversight would include the requirement that WMA satisfy all environmental compliance elements outlined in ADEQ's Municipal Solid Waste Landfill Facility Plan (MSWLF) checklist (project record [PR] #039, see below).

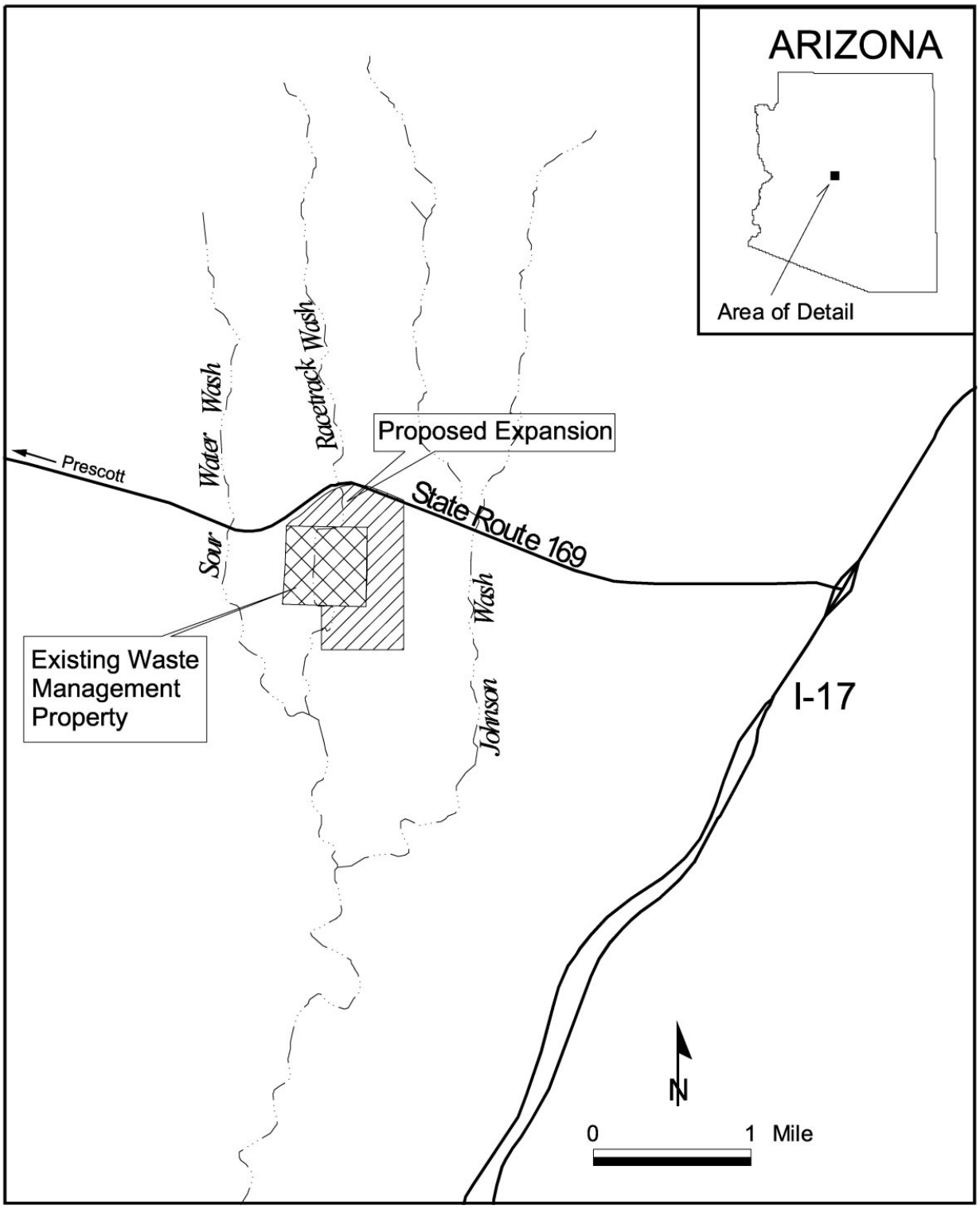

Figure 1.1. Existing Gray Wolf Landfill and proposed expansion.

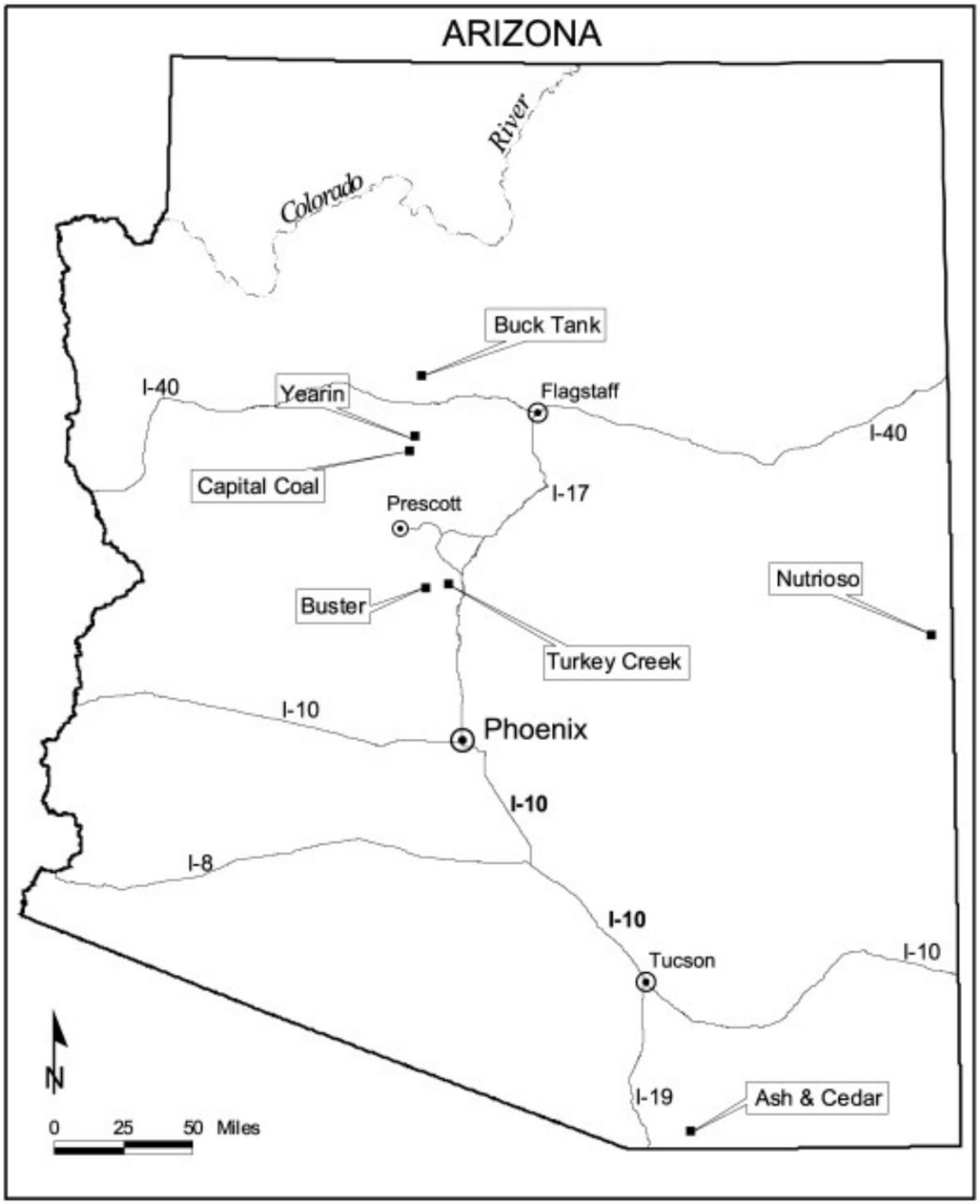

Figure 1.2. Non-federal parcels proposed to be acquired.

Completing the proposed land exchange is a discretionary action; therefore, this proposal does not establish precedence for future land exchanges between the federal government and private interests. The proposed exchange is being considered under the authority of the following legislation:

- General Exchange Act of March 20, 1922 (42 Stat. 465, as amended, 16 United States Code [USC] 485, 486);
- Federal Land Policy and Management Act (FLPMA) of 1976, as amended (43 USC 1701); and
- Federal Land Exchange Facilitation Act (FLEFA) of 1988 (43 USC 1701).

The project record for this analysis includes all reports, other documents, and significant letters related to the proposal. This project record is incorporated by reference in its entirety into this analysis document. A copy of the record is available at:

Prescott National Forest Supervisor's Office
ATTN: Ken Simeral
344 South Cortez
Prescott, Arizona 86303
(928) 567-1170

1.2 PURPOSE AND NEED

According to the PNF (Forest Plan p. 45), lands considered for exchange must meet one or more of the following criteria:

1. To meet the needs of expanding communities;
2. To more efficiently manage isolated tracts or scattered parcels;
3. To consolidate public lands;
4. To improve management, benefit a specific resource, or increase management efficiency;
5. To meet overriding public needs.

The purpose of the proposed land exchange is as follows:

- To facilitate the consolidation of federal land ownership and reduce inholdings within land administered by the Forest Service;
- To enable the Forest Service to convey publicly administered lands to WMA for the purpose of expanding the existing Gray Wolf Landfill;
- To eliminate the need for the Forest Service to continue to administer a special use permit for the existing access road to the Gray Wolf Landfill;
- To acquire lands that include valuable wildlife habitat and riparian attributes and that maintain scenic integrity (as in the case of the Nutrioso Parcel); and

- The exchange would improve management, benefit specific resources, or increase management efficiency.

The federal lands are being considered for exchange by the Forest Service because they are adjacent to the existing Gray Wolf Landfill. Expansion of a single, existing landfill, rather than development of a new landfill in the region, may represent better regional planning and reduce overall environmental impacts. By acquiring the federal lands, WMA could expand the existing landfill, thereby eliminating the need to site, permit, and develop a new municipal solid waste landfill in the County. The exchange would also eliminate the existing need for a special use permit from PNF for the access road and expansion of the landfill would occur on land owned by WMA, thereby eliminating the need for any future special use permits. WMA could then continue to operate the Gray Wolf Landfill, the County's only municipal solid waste facility, for an additional 12 to 15 years. Under the land exchange, oversight for municipal landfill facilities and operations would remain under ADEQ and EPA jurisdiction.

The proposed land exchange would affect approximately 0.75-mile of trail in the middle of the historic General Crook Trail. Approximately 0.5-mile of the trail is on land currently owned by WMA, and 0.25-mile of the trail is on the federal land to be conveyed. There is a need to maintain connectivity of the existing trail and allow continued access to public lands.

1.3 PROPOSED ACTION

The PNF is considering WMA's proposal to acquire approximately 255 acres of National Forest land (federal lands) on the PNF in Yavapai County, Arizona. In exchange, the Forest Service would receive title to seven parcels of private land (non-federal lands), totaling approximately 872 acres (Table 1.1; Figure 1.2; Appendix A). These parcels are located within the boundaries of four National Forests in Arizona: PNF, Apache-Sitgreaves National Forest (ASNF), Kaibab National Forest (KNF), and Coronado National Forest (CNF). The lands are located in Yavapai, Apache, Coconino, and Santa Cruz Counties, respectively. The land exchange would be based on trading federal lands for non-federal lands of equal appraised value. If necessary, unequal land values up to 25 percent of the total value of the federal land would be offset by cash payment by either party per the FLPMA. If the difference in appraised values between the federal and non-federal land exceeds 25 percent, some land parcels may be eliminated from the exchange. The deletion order for the non-federal parcels would be: 1) Buster, 2) Capital Coal, 3) Buck Tank, and 4) Ash and Cedar. The non-federal third party is First American Title of Arizona, Inc., acting as a trustee under Trust No. 8210K. All legal title work would be completed prior to finalizing the proposed exchange.

The locations of the federal lands and non-federal lands are described in Table 1.1 and depicted in Figures 1.1 and 1.2 (in addition see Appendix A for location maps of each parcel; full legal descriptions are in the project record, PR #048).

Additionally, the PNF would relocate approximately 0.75-mile of the General Crook Trail that is currently within the federal lands. This relocation would entail routing a portion of the General Crook

Table 1.1. Summary of the Federal and Non-Federal Lands Locations and Acreages for the Gray Wolf Land Exchange

Parcel	Acres	Ownership	Location
Gray Wolf, Prescott NF, Verde Valley Ranger District (RD)	265.00	Federal	Approximately 11 miles east of Dewey south of State Route (SR) 169, Yavapai Co., AZ. T13N, R03E, Sec. 08 (Lots 13, 18, 19, and 21) and Sec. 17 (Lots 2, 4, and 5) Gila and Salt River Baseline and Meridian (GSRBM).
TOTAL ACREAGE OF FEDERAL LAND SELECTED FOR DISPOSAL: 265.00			
Buck Tank, Kaibab NF, Williams RD	40.00	Private	Approximately 8 miles northeast of Ash Fork, Coconino Co., AZ. T23N, R01W, Sec. 22 (SW¼ of the SE¼), GSRBM.
Ash & Cedar, Coronado NF, Sierra Vista RD	29.53	Private	Approximately 9 miles southeast of Ash Fork. Santa Cruz Co., AZ. T23S, R16E, Sec. 22, unsurveyed, GSRBM. That portion of Mineral Survey No. 2193 described as the Ash and Cedar Patented Mining Claims.
Nutrioso, Apache-Sitgreaves NF, Alpine RD	14.40	Private	Approximately 4 miles north of Nutrioso, Apache Co., AZ. The west 478.30 feet of the SW1/4, NE1/4 of Section 09, T07N, R30E, GSRBM, Apache Co., AZ.
Turkey Creek, Prescott NF, Bradshaw RD	41.83	Private	Approximately 7 miles south of Mayer, Yavapai Co., AZ. The parcel is HES355 in Sections 14 and 23, T11N, R01E, GSRBM, patent of which is recorded in book 131 of deeds, pages 428/429 records of Yavapai Co., AZ.
Buster, Prescott NF, Bradshaw RD	62.00	Private	Approximately 9 miles southwest of Mayer, Yavapai Co., AZ. T11N, R01W, Sec. 28 and Sec. 33, GSRBM. That portion of Mineral Survey No. 1430 described as the Buster, Mary Jane, and Pictou patented Mining Claims.
Yearin, Prescott NF, Chino Valley RD	560.00	Private	Approximately 16 miles north of Chino Valley east of SR 89, Yavapai Co., AZ. T19N, R02W, Sec.13 (N½, SW¼, and N½ of SE¼), GSRBM.
Capital Coal, Prescott NF, Chino Valley RD	124.00	Private	Approximately 12 miles north of Chino Valley east of SR 89, Yavapai Co., AZ. T18N, R02W, Sec. 03 (Lots 3 and 4 in SW¼), GSRBM.
TOTAL ACREAGE OF NON-FEDERAL LAND OFFERED FOR FEDERAL ACQUISITION: 871.76			

Trail south of the federal lands where no trail currently exists around the southern boundary of the landfill. The proposed reroute would include the construction of a new trail (Figure 1.3). This trail would be approximately 4 feet wide and approximately 2 miles long. Although no trees would be removed, vegetation such as grasses and forbs would be cleared along the trail. An interpretive sign would be constructed near the west end of the rerouted section of trail to explain the historic significance of the General Crook Trail.

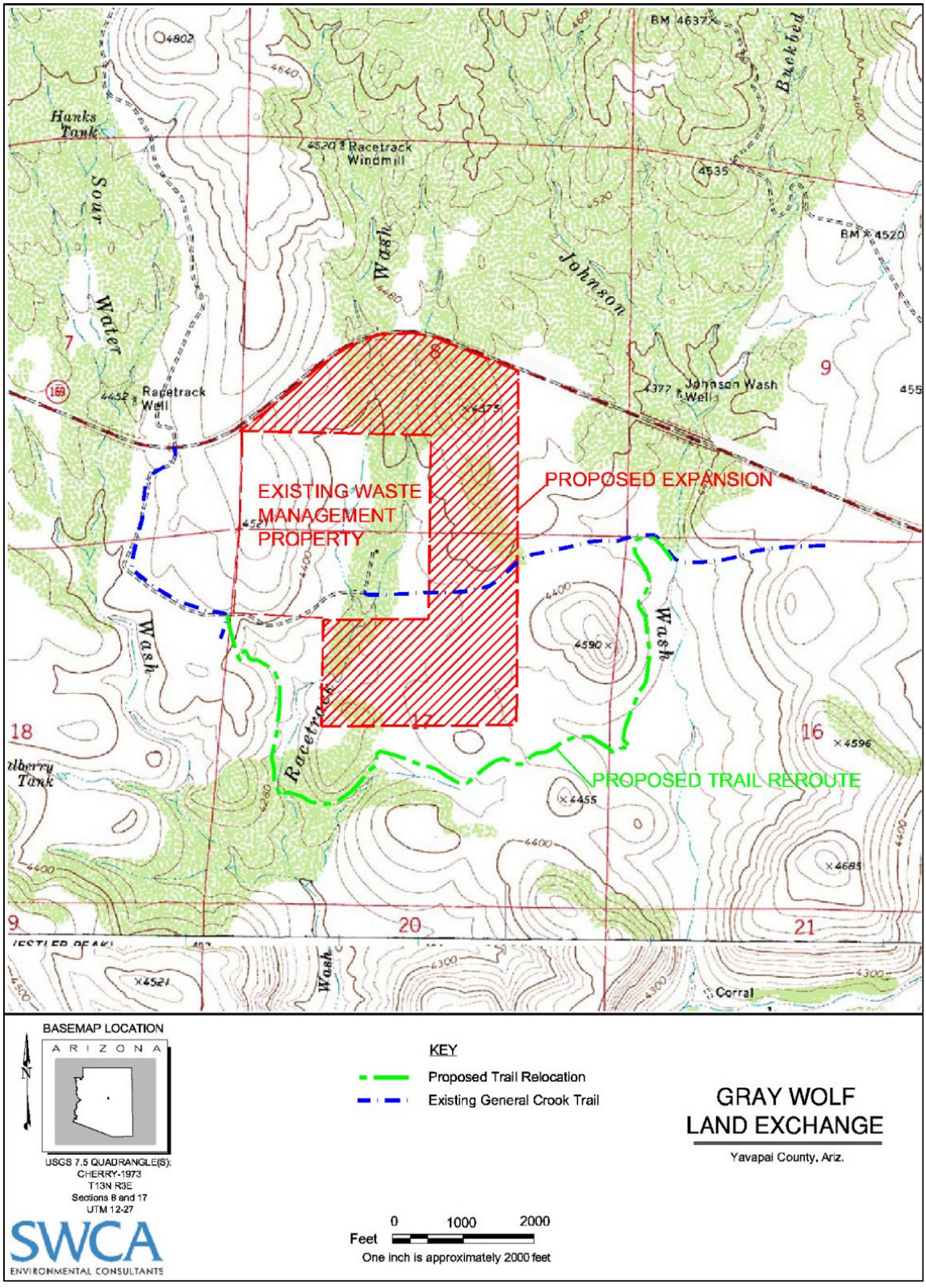

Figure 1.3. Location of General Crook Trail and proposed reroute.

1.4 DECISION TO BE MADE

By agreement of all Forests involved, the PNF has been designated as the lead agency for this exchange proposal. The Forest Supervisor will decide whether to retain the federal lands under Forest Service jurisdiction or to authorize the land exchange as proposed or with modifications. The Forest Supervisor will also decide if an Environmental Impact Statement (EIS) is needed.

The decision process for the land exchange considers, among other things, whether the non-federal lands:

- Provide vital threatened and endangered species habitat or other vital wildlife habitat;
- Contain wetlands and riparian areas;
- Contain unique natural or cultural values;
- Demonstrate characteristics that allow improvement of public land management, meet specific administrative needs, or benefit other National Forest programs;
- Provide needed access, protection from fire or trespass, or prevention of damage to forest land resources;
- Consolidate public land ownership; or
- Meet research needs (Forest Service 1986).

The Forest Supervisor will also decide if the proposed Gray Wolf Land Exchange is consistent with FLPMA and the appropriate Forest Plans in that the conveyance of the federal lands for expansion of the landfill would meet both the needs of expanding communities and overriding public needs (for solid waste disposal).

1.5 PUBLIC INVOLVEMENT

1.5.1 Scoping Comment Solicitation and Public Involvement

A scoping letter was mailed on January 18, 2002 to 251 agencies, organizations, and interested individuals (PR #015, #016). The letter described the Proposed Action and solicited public comments regarding the proposed land exchange. In addition to this letter, a legal notice requesting comments on the project was published in the Prescott Daily Courier, Arizona Daily Star, Arizona Daily Sun, and the White Mountain Independent on February 15, 2002 (PR #036). The scoping period ended March 16, 2002. The PNF has also listed the proposed land exchange since June 2002 in its Schedule of Proposed Actions (SOPA), which is published quarterly (PR #040).

1.5.2 Comments Received, Public Issues, and Evaluation Measures

Ten comment letters were received during the scoping period in 2002 (PR #014). Each comment was analyzed to determine if it constituted an issue. An "issue" is defined as "a point of discussion, debate, or dispute with a Proposed Action based on some anticipated effect" (USDA 1993). The identified issues were then evaluated for their significance to this analysis. An issue was considered "non-significant" if it met any of the criteria listed below.

- The issue is outside the scope of the Proposed Action;
- The issue is already decided by law, regulation, Forest Plan, or other higher-level decision;
- The issue is irrelevant to the decision to be made; or
- The issue is conjectural and not supported by scientific (or factual) evidence.

The Interdisciplinary (ID) Team initially identified 26 public comments. Twenty of these comments did not fit the definition of "issue" above, but, rather, were comments on the analysis process and what should be considered or were supportive comments. Five of the 26 comments were considered to be significant issues based on the above criteria, and one comment was considered a non-significant issue. The significant issues are detailed in Table 1.2, which shows the issues identified, issue statement, and units of measure.

Table 1.2. Significant Public Issues and Units of Measure

Issue	Issue Statement	Units of Measure
Groundwater Hydrology and Quality	The expanded landfill would go deeper into the water table, which would result in the potential for groundwater contamination.	ADEQ, EPA, and Arizona Department of Water Resources (ADWR) regulations regarding landfill design and construction.
Surface Water Contamination	Landfill dust and debris falling from garbage trucks during transportation would result in water pollution.	ADEQ, EPA, and ADWR regulations regarding transport of solid waste by commercial entities.
Non-Point Source Pollution	Roadway runoff from the transportation of landfill material would result in air and water pollution.	ADEQ, EPA, and ADWR regulations regarding transport of solid waste by commercial entities.
Soils and Erosion	Land clearing around the landfill may lead to downcutting of banks in the 500-year floodplain of Racetrack Wash downstream of the landfill, which would result in increased stormwater runoff and erosion.	Forest Specialists will assess compliance with ADEQ, EPA, and ADWR regulations regarding erosion control and stormwater management.
Scenic Integrity	Litter from garbage trucks scattering across the landscape and blowing onto adjacent lands would alter the viewshed of federal lands.	Qualitative evaluation of the federal lands' visual quality and whether the foreseeable uses are consistent with established visual quality objectives of surrounding forest lands; ADEQ, EPA, and ADWR regulations regarding transport of solid waste by commercial entities.

1.5.3 Non-Significant Public Issues

One of the public comments was considered to be a non-significant issue according to the above criteria and was eliminated from further analysis in this EA. This issue was determined to be settled by federal law and the decision to adopt the relevant Forest Plans: "The proposed action may adversely affect cultural resources of the federal lands and allow federal protection of those located on non-federal lands." Any impacts to heritage resources must be mitigated under Section 106 of the National Historic Preservation Act and under Forest Plan direction.

1.5.4 Notice and Comment Period under 36 CFR 215

On May 28, 2004, PNF mailed a letter and draft Environmental Assessment Chapters 1 and 2 for public review to 27 agencies, organizations, and interested individuals (PR #034, #033, #032). The public notice appeared in the Prescott Daily Courier on June 7, 2004. Two comment letters were received during the 30-day comment period following the notice. Robert Grossman of Prescott, Arizona, wrote the first comment letter (PR #035) and Director Janine Blaeloch of the Western Lands Exchange Project wrote the second comment letter (PR #031). The comments from these letters are summarized in Table 1.3.

Table 1.3. Additional Public Comments and Units of Measure

Issue	Issue Statement	Units of Measure
Cienega allotment description	The Cienega allotment is not defined or shown on any of the included maps, which leads to confusion.	Grazing specialist record
Grazing acreage reduction and desired animal unit month (AUM) reduction	A reduction of 255 acres of grazing within the Cienega allotment should result in some corresponding reduction in AUMs.	Grazing specialist assessment
Map clarification	The EA map for the Capital Coal parcel shows three other diagonally connected private inholdings but the Errata Sheet does not show these parcels, which leads to confusion.	Property maps
Parcel selection	Only 2 of 7 parcels would create large contiguous areas of federal ownership, which conflicts with the stated purpose of the exchange.	Purpose and need statement
Riparian protection from grazing	The lack of solid assurance to the public that wetland and riparian habitat will be protected from grazing may result in not satisfying one purpose of the exchange (acquisition of lands with valuable wildlife habitat and riparian attributes).	Corresponding Forest Plan
Executive Order 11988 Section 3(d) compliance regarding floodplain	The loss of 11 acres of floodplain means that the exchange must comply with Executive Order 11988 Section 3(d).	Executive Order 11988 Section 3(d)

CHAPTER 2.0 ALTERNATIVES

2.1 DEVELOPMENT OF ALTERNATIVES

Land exchanges typically have limited alternatives because the exchange proponent desires specific federal lands administered by the federal agency and the federal agency may use its discretion to not process a proposed exchange that it finds undesirable or not in the public interest. This assessment analyzes two reasonable alternatives: the No Action alternative, as required under the National Environmental Protection Act (NEPA), and the Proposed Action alternative.

2.2 ALTERNATIVES CONSIDERED IN DETAIL

2.2.1 No Action

Under this alternative, the proposed land exchange would not occur. WMA would need to find land elsewhere within the County to develop a new landfill to meet future demand. The federal lands would remain part of the PNF and would be subject to multiple-use management for sustained yield of goods and services. The non-federal lands would remain private inholdings within the four National Forests and subject to the rights, privileges, and obligations of private land ownership. At present, WMA has no anticipated plans for the future use of the non-federal parcels, although they could sell one or more of the parcels. Any development plans for the non-federal lands under this alternative are considered too speculative to analyze in this EA. Under this alternative, the special use permit previously issued to WMA for the access road would remain in effect until December 31, 2015.

2.2.2 Proposed Action (Gray Wolf Land Exchange)

Under this alternative, WMA would exchange 871.76 acres of privately owned lands for 265.00 acres of National Forest land. The exchange assumes that the difference in appraised values does not exceed 25 percent, as explained in Section 1.3. Non-federal lands consist of seven private inholdings controlled by WMA within the PNF, ASNF, KNF, and CNF boundaries (Appendix A). All mineral and water rights associated with the non-federal lands would be conveyed with the title upon finalization of the exchange. The federal lands consist of land that abuts the existing WMA Gray Wolf Landfill Property and State Route 169. Mineral and water rights associated with the federal lands would be conveyed by the PNF.

None of the Forest Plans for the PNF, ASNF, KNF, and CNF specifically provides for the acquisition of these non-federal lands; therefore, the Forest Service has not developed any specific management prescriptions for the seven inholdings. Under this alternative, the inholdings would be managed in a manner consistent with the Forest Plan direction applicable to the land surrounding the acquired lands. Table 2.1 lists the non-federal lands and references the applicable Forest Plan management direction under which each would be managed (for the actual management direction, see Appendix B).

Under this alternative, WMA would fence the perimeter of the Gray Wolf parcel to prevent unauthorized access. By fencing the property, a portion of an historic trail, the General Crook Trail[1], would no longer

[1] Recent research indicates that the General Crook Trail designation, as depicted on USGS maps, may be incorrect at this location (PR #017). The trail present on the Gray Wolf parcel is most likely a slightly older trail known as the

be accessible to the public. Therefore, WMA has committed to reimburse PNF for all costs associated with the relocation of the trail around the southern edge of the Gray Wolf parcel.

The PNF would construct a new segment of trail that would be routed further south of the existing landfill (Figure 1.3). This trail would be similar to that of the existing trail and would be constructed from natural materials from the area. The trail would be routed around any trees or prominent vegetation and be covered with dirt and cinders. Appropriate directional signage would be placed at the beginning and end of the new segment. Water bars, if necessary, would be constructed of rock or wood and be placed to minimize erosion.

Table 2.1. Location of Forest Plan Direction Applicable to the Non-Federal Lands That May Be Acquired

Buck Tank	Kaibab National Forest Plan (1988) pages 37-41, 61
Ash & Cedar	Coronado National Forest Plan (1986, as amended in 1988 and 1992) pages 27-46, 62
Nutrioso	Apache-Sitgreaves National Forest Plan (1987) pages 40-44, 119
Turkey Creek	Prescott National Forest Plan (1986, as amended in 2004) pages 7-8, 44-46, 64
Buster Mine	Prescott National Forest Plan (1986, as amended in 2004) pages 7-8, 44-46, 58, 61
Yearin	Prescott National Forest Plan (1986, as amended in 2004) pages 7-8, 44-46, 55
Capital Coal	Prescott National Forest Plan (1986, as amended in 2004) pages 7-8, 44-46, 55

Mitigation Measures

Monitoring and compliance with the following mitigation measures (included as part of the Proposed Action) will be the responsibility of the applicable state and federal agencies:

1. WMA would be required to maintain a spill prevention and mitigation plan for materials, such as diesel, gasoline, and hydraulic fuels per ADEQ standards;
2. Compliance with all EPA regulations;
3. Compliance with ADWR regulations;
4. Compliance with ADEQ regulations;
5. Permitting approvals by EPA and ADEQ;
6. Compliance with the ADEQ's MSWLF checklist;
7. Aquifer protection permits;

Stoneman Trail. Both trails are considered historic; therefore, any impacts would be mitigated pursuant to Section 106 of the National Historic Preservation Act.

8. National Pollutant Discharge Elimination System (NPDES) permit and Best Management Practices (BMPs);
9. The Solid Waste Plan Review Unit of ADEQ, prior to the issuance of a MSWLF, would review all engineering to ensure potential impacts are minimized;
10. Under the Arizona Pollutant Discharge Elimination System (AZPDES) Permit Program, all facilities that discharge pollutants from any point source into waters of the United States (navigable waters or their tributaries) are required to first obtain an AZPDES permit;
11. Forest Service specialists would review all of the non-federal and federal lands prior to approval of the land exchange to ensure the Phase I Environmental Site Assessments are valid before the transfer of title is completed; and
12. Complete Data Recovery per State Historical Preservation Office recommendations for all heritage resources on the federal parcel.

2.3 ALTERNATIVES ELIMINATED FROM DETAILED STUDY

The exchange process itself limits the range of alternatives. For an alternative to be considered, it must meet the purpose and need while not violating any minimum environmental standards. A balanced (i.e., of equal value) exchange package is determined through a series of proposals and counterproposals until both parties mutually accept a mix of parcels. In determining an acceptable package of lands, one of the seven original parcels, the Verde Valley parcel, was withdrawn from the proposal and replaced with the Ash and Cedar parcel. The Verde Valley parcel was withdrawn because much of its boundary is adjacent to residential areas and its acquisition would likely create management problems typical of National Forest system lands bordering urban areas (e.g., cutting of boundary fences, illegal dumping of refuse, unauthorized off-road vehicle use, etc.). Therefore, at the request of the PNF, WMA substituted the Ash and Cedar parcel for the Verde Valley parcel as part of their non-federal lands package.

Purchase adjacent private land. An alternative in which WMA would directly purchase adjacent private land to expand the Gray Wolf Landfill was considered. However, because no private land is adjacent to the federal lands, this alternative is not available.

Retain ownership of federal lands. An alternative considered but eliminated from further study was the Forest Service retention of ownership of the federal lands and issuance of a special use permit for the expansion of the landfill onto the PNF. This alternative was eliminated because the proposed use of the Gray Wolf parcel would violate federal regulations regarding lands under the administration of the Forest Service. Title 36 Code of Federal Regulations (CFR) 251.54 (e)(iv) states that a special use permit must not create "an exclusive use or perpetual right or use." The proposed expansion of the existing landfill would create perpetual use of the area because the landfill is considered permanent. Furthermore, the proposed expansion would result in the disposal of solid waste on lands administered by the Forest Service, which is prohibited under 36 CFR 251.54 (e)(ix).

By acquiring the Gray Wolf parcel, WMA, as the landowner, would become the responsible party for any potential environmental liabilities in the future. The federal government (EPA) and the State of Arizona

(ADEQ and ADWR) would retain regulatory oversight under current federal and state regulations (Resource Conservation and Recovery Act and 40 CFR 258, respectively). These regulations are beyond any that would be required under a special use permit from the Forest Service.

Purchase non-Federal lands. Other means of acquiring the non-federal lands were considered but eliminated from further study. The Land and Water Conservation Fund (LWCF) is the funding mechanism used by the Forest Service to purchase parcels of land. Funding for the purchase of non-federal lands is limited by Congressional appropriation. Funding is almost always limited to acquiring only a few of the highest national priorities. The majority of deserving projects go without funding. Although the sale of non-federal lands to the United States is an alternative to a land exchange, the possibility of purchasing the non-federal parcels through the LWCF is extremely remote. WMA proposed a land exchange because they wish to receive lands of equivalent value near the current landfill site in exchange for those they are willing to convey to the Forest Service. The federal government can only purchase land from willing sellers. In addition, as stated above, funds to purchase these privately owned parcels are not available. It is likely that appropriated LWCF funds for land purchases will continue to be limited in the foreseeable future as funding is now in a downward trend.

Application of deed restrictions. The application of deed restrictions to direct and control future development on the federal land once it is conveyed into private ownership was considered. Through the environmental analysis process the PNF reviewed the need for deed restriction on the federal lands. The resource values associated with the federal lands indicated that no restrictive deed or covenant was warranted to comply with legal, regulatory requirements, executive orders, policy, or to meet Forest Plan management objectives. State and federal rules and regulations will protect the adjacent federal lands from the expansion of the landfill in a manner similar to the present situation.

A deed restriction would not fulfill the purpose and need for action. The Forest Service has long taken the position that zoning and regulation of uses on private land are within the responsibility of state and local governments. Forest Service Manual 5403.3 reads *"Except as authorized by law, order, or regulation, Forest Service policies, practices, and procedures shall avoid regulating private property use."* A principal objective of discretionary land exchanges is to reduce administrative costs and requirements, not to increase them.

2.4 COMPARISON OF ALTERNATIVES

The alternatives are compared in Table 2.2 with respect to their response to the issues, Forest Plan direction, the project's purpose and need, and preliminary key environmental effects. Rationale explaining impacts are included under each issue in Chapter 3.0 Affected Environment and Environmental Consequences.

Table 2.2. Comparison of Alternatives

Response to Public Issues	No Action	Proposed Action
Groundwater Hydrology and Quality	Non-Federal Lands No anticipated impacts to groundwater.	Non-Federal Lands No anticipated impacts to groundwater.
	Federal Lands No anticipated impacts to groundwater.	Federal Lands No anticipated impacts to groundwater.
Surface Water Contamination	Non-Federal Lands Potential but minor impacts to perennial waters in Nutrioso Creek if development and livestock grazing occurs there. No substantial impacts to surface water quality on the remaining non-federal lands.	Non-Federal Lands Consolidation of the non-federal lands would allow for the Forest Service to monitor and regulate surface water resources according to the appropriate Forest Plan.
	Federal Lands No impacts to surface water quality on or near the Federal lands.	Federal Lands No impacts to surface water quality on or near the federal lands.
Surface Water Non-Point Source Pollution	Non-Federal Lands No adverse impacts to surface water quality are anticipated on the non-federal parcels.	Non-Federal Lands No adverse impacts to surface water quality are anticipated on the non-federal parcels.
	Federal Lands There would be no change in the status of existing land uses that have potential to affect surface water quality, thus surface water quality is not anticipated to change.	Federal Lands The proposed land exchange would not impact surface water quality on the federal parcel. Although the land exchange would facilitate the potential landfill expansion, WMA would still have to demonstrate compliance with all applicable federal, state, and local environmental regulations before expansion of the existing facility would be permitted.
Soils and Erosion	Non-Federal Lands Erosion conditions would likely remain the same on the non-federal parcels.	Non-Federal Lands Erosion conditions would remain the same on the non-federal parcels. No additional grazing would be permitted and the Forest Service would administer the lands according to the appropriate Forest Plan.

Table 2.2. Comparison of Alternatives, continued

Response to Public Issues	No Action	Proposed Action
Soils and Erosion, continued	Federal Lands Continued downcutting and erosion of Racetrack Wash south of the Gray Wolf Landfill would continue as a result of the continued operation of the landfill. The effect of this is an unnatural modification of the watershed.	Federal Lands No engineering for the expansion of the Gray Wolf Landfill has been completed at the time of the publication of this document. However, WMA would be required to submit any future plans to ADEQ for review. WMA would address downcutting in Racetrack Wash at that time.
Scenic Integrity	Non-Federal Lands Potential loss or modification of 2 miles of scenic roads along U.S. 180/191 the Coronado Trail National Forest Scenic Byway and 3 miles of Forest Service 259 through possible construction of private residences on the inholding.	Non-Federal Lands Visual quality of scenic roads along U.S. 180/191 the Coronado Trail National Forest Scenic Byway and 3 miles of Forest Service 259 would be managed per Forest visual quality objectives for those areas.
	Federal Lands Visual impact of the existing landfill would remain along approx. 1-mile viewshed of SR 169.	Federal Lands Visual impact of the existing landfill would remain along approx. 1-mile viewshed of SR 169. The area of visual impact would increase.
Forest Plan Direction (Refer to Appendix B for forest-wide and management area standards and guidelines for affected parcels within the four National Forests.)	Non-Federal Lands The Forest Plans would not apply to the non-federal land.	Non-Federal Lands FLPMA criteria regarding land exchange in the respective Forest Plans would be met. This management direction validates and encourages the proposed land exchange. Acquired lands would be managed in accordance with this direction.
	Federal Lands The Forest Service objective of eliminating the need for a Special Use permit for the access road would not be met.	Federal Lands The Forest Service would consolidate land and eliminate the need for a Special Use permit for the access road, thereby meeting Forest Plan direction.

Table 2.2. Comparison of Alternatives, continued

Other Preliminary Key Environmental Effects	No Action	Proposed Action
Biological Resources	Non-Federal Lands Potential modification of 872 acres of wildlife habitat through development by private landowners.	Non-Federal Lands Acquisition of 872 acres of wildlife habitat by the Forest Service to be managed in accordance with applicable Forest Plans, resulting in consistent management in the vicinity of the parcel.
	Federal Lands Retention of approximately 255 acres of wildlife habitat by the Forest Service, allowing for current management to persist in the future.	Federal Lands Approximately 255 acres of wildlife habitat would be fenced and use by wildlife reduced or lost. The effect on wildlife would be minimal because the area is relatively small compared to the surrounding available habitat.
Special Interest Species	Non-Federal Lands No federal acquisition of potential habitat for the five federally listed threatened and endangered species. Potential habitat for 39 Forest Service Sensitive species would not be acquired. There would be no federal oversight of the management of these species, Management Indicator Species, or migratory birds.	Non-Federal Lands Federal acquisition of potential habitat for the five federally listed threatened and endangered species. Potential habitat for 39 Forest Service Sensitive species would be acquired including habitat for MIS and an undetermined number of migratory bird species. This would allow for federal oversight so that population viability can be maintained.
	Federal Lands No impact to federally listed threatened and endangered species. PNF would retain 255 acres of "low quality" habitat for mule deer and pronghorn. No Forest Service Sensitive Species would be impacted; therefore, no effect to these species would occur.	Federal Lands No federally listed threatened and endangered species, or critical habitat would be impacted. 255 acres of "low quality" habitat for mule deer and pronghorn would be impacted. Individuals of one Forest Sensitive species, Arizona toad, may be impacted. However, impacts would not result in a trend toward listing or loss of population viability. No impacts to MIS or migratory birds would occur as a result of this alternative.
Riparian and Wetland Habitat	Non-Federal Lands Potential impacts to approximately 38 acres of riparian and wetland habitat as a result of land use by private landowners, which could include removal or degradation of the habitats.	Non-Federal Lands 38 acres of riparian and wetland habitat would be acquired by the Forest Service and subject to Forest Plan management direction.
	Federal Lands No impacts to floodplain and wetland habitat.	Federal Lands Loss of 11 floodplain acres that could be modified to manage stormwater flows associated with runoff from the landfill.

Table 2.2. Comparison of Alternatives, continued

Other Preliminary Key Environmental Effects	No Action	Proposed Action
Livestock Management	Non-Federal Lands Continued private grazing of 872 acres.	Non-Federal Lands Federal acquisition of up to 872 acres of potential rangeland of currently unassessed carrying capacity. Consolidation of the non-federal lands would allow for improved livestock management.
	Federal Lands 255 acres of federal land remains within the Cienega allotment.	Federal Lands Reduction of 255 acres of grazing within the Cienega allotment but no corresponding net reduction in AUMs because of the small number of acres affected when compared to the overall size of the allotment.
Socioeconomics	Non-Federal Lands There would be no effect on nearby residents because private landowners would continue to pay property taxes.	Non-Federal Lands Because of the small amount of taxes paid, there would be little effect on returns to Yavapai, Coconino, Apache, and Pima counties or the Federal Treasury.
	Federal Lands There would be no effect. No property or other taxes are paid on the federal lands because there are no income-generating activities occurring on this land.	Federal Lands Because of the small amount of taxes paid, there would be little effect on returns to Yavapai, Coconino, Apache, and Pima counties or the Federal Treasury.
Air Quality	Non-Federal Lands No impacts to air quality on the non-federal lands.	Non-Federal Lands No impacts to air quality on the non-federal lands would occur because land uses would not change.
	Federal Lands Occasional local degradation of air quality may occur on federal lands resulting from landfill grading and volatile organic compound out-gassing, but is not to exceed air quality standards.	Federal Lands Occasional local degradation of air quality may occur on federal lands resulting from landfill grading and volatile organic compound out-gassing, but is not to exceed air quality standards.

Table 2.2. Comparison of Alternatives, continued

Other Preliminary Key Environmental Effects	No Action	Proposed Action
Hazardous Materials	Non-Federal Lands No hazardous materials would be produced.	Non-Federal Lands No hazardous materials would be produced. The Forest Service would administer these lands such that any permitted activities would be subject to review under federal regulations thereby minimizing impacts.
	Federal Lands No hazardous materials are known to exist.	Federal Lands No hazardous materials would be accepted at the landfill. WMA would meet all federal and state requirements for use and storage of hazardous materials.
Recreation	Non-Federal Lands Access to 872 acres of land provided at the discretion of private landowners.	Non-Federal Lands Acquisition of 872 acres of land by the Forest Service to be managed in accordance with applicable Forest Plans. This would allow the Forest Service to ensure access to, and across these parcels.
	Federal Lands Retention of access to 255 acres of land.	Federal Lands Approximately 255 acres of land would be fenced and use by the public lost. Approximately 0.75 miles of the General Crook Trail would be fenced from public use.

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CHAPTER 3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter summarizes the existing environment of all parcels involved in the Proposed Action and evaluates the environmental consequences of the two alternatives. The discussion of resources on the non-federal parcels is primarily based on reconnaissance-level field evaluations and correspondence with agency resource specialists. The affected environments of the non-federal parcels are described cumulatively as a group if there is no substantial distinction between the parcels; otherwise, parcel-specific information is given.

Significant public issues (see Chapter 1) define the scope of analysis for this land exchange. The environmental effects (changes from present baseline conditions) described in this chapter reflect the anticipated consequences of the Proposed Action and No Action alternatives for identified significant issues. Some of the environmental effects are confined to the project area. Others may be cumulative, reflecting the environmental effects from other past, current and foreseeable future actions and may reach beyond the project area. Cumulative effects are discussed for each resource.

As required by the Council on Environmental Quality (CEQ), the anticipated effects of reasonably foreseeable uses of the federal land, if it is conveyed into private ownership, are also disclosed (40 CFR 1500-1508). For the purposes of this environmental assessment, it is assumed that the future use of lands conveyed out of federal ownership would be subject to all laws, regulations, and zoning authorities of federal, state, and local governing bodies.

Information was collected on foreseeable projects, federal and non-federal, whose effects in combination with those resulting from the Gray Wolf Land Exchange provide the "baseline" for cumulative effects analysis for each of the resources. Foreseeable projects include:

- The Yavapai Ranch Land Exchange currently under evaluation for the exchange of almost 56,000 acres of land in Arizona.
- The Ellison Creek Land Exchanges by the Tonto National Forest. Under the Ellison Creek exchange, the Tonto National Forest has disposed of land under their administration in exchange for four parcels located throughout Arizona. Of the four acquired parcels, only the 41-acre Hundelt-Verde River parcel has been acquired by the PNF.
- The Tonto Apache Land Exchange.
- Alterations of the landscape due to commercial and residential development, mining, construction of roads and utility lines, farming, etc.
- Land management practices such as wildland fire suppression and grazing.

3.1 RESPONSIVENESS OF ALTERNATIVES TO PUBLIC ISSUES

The following sections provide a description of existing conditions for each resource associated with the public issues identified in Chapter 1.0 and a discussion of impacts associated with each alternative to address the issues.

3.1.1 Groundwater Hydrology and Quality

The ADWR, which was established by the Groundwater Management Act of 1980, created four Active Management Areas (AMAs) within the State of Arizona. The AMAs were organized to manage groundwater resources that were previously and continue to be subject to excessive withdrawals.

Non-Federal Lands

None of the non-federal parcels are located within an AMA. Information regarding the presence or absence of wells is based on information obtained from the ADWR Wells Database. Groundwater quality has not been determined on each of the non-federal lands listed below.

Ash and Cedar. No water wells are registered to this property. The depth to groundwater in several water wells in the vicinity of the parcel is between approximately 2 to 10 feet and 310 to 325 feet below ground surface (bgs). Static water level elevations in the deeper wells range from 120 to 270 feet bgs. Groundwater flow is indeterminate and, in fact, may be absent, other than in the thin alluvial aquifers associated with the larger streams and the Santa Cruz River.

Buck Tank. No water wells are registered to this property. The depth to groundwater in the vicinity of the parcel is unknown. However, regional groundwater is typically encountered at greater than 1,500 feet bgs. Groundwater flow is indeterminate on the parcel.

Buster Mine. No groundwater wells are registered to this property. According to ADWR, depth to groundwater within an approximately 1-mile radius is about 150 feet bgs. Regional groundwater flow is toward the west to the Hassayampa River. WMA has conducted additional investigations on the Buster Mine parcel and has determined that no impacts to groundwater exist as a result of previous mining activities (PR #029).

Capital Coal. No groundwater wells are registered to this property. Depth to groundwater is estimated at approximately 100 to 295 feet bgs. According to Owen-Joyce and Bell (1983), groundwater flows to the southeast in the regional aquifer comprised of the hydrologically connected Redwall Limestone and Martin Formation.

Nutrioso. No groundwater wells are registered to this property. Several wells are located near the property, and the reported depth to groundwater is approximately 15 to 60 feet bgs. Regional groundwater flow most likely is to the northwest towards Nutrioso Creek.

Turkey Creek. Three wells are located on the property with depths to groundwater at 90, 105, and 205 feet bgs. The average depth to groundwater in the region is 104 feet bgs. The general direction of flow in the area is toward the southeast.

Yearin. No groundwater wells are registered to this property. Depth to groundwater is estimated at approximately 360 feet bgs. According to Owen-Joyce and Bell (1983), groundwater flows to the southeast in the regional aquifer comprised of the Supai Formation and Coconino Sandstone.

Federal Lands

Gray Wolf Parcel. The proposed lands for exchange, as well as the existing landfill, are situated in a north-south trending valley. The existing landfill is located at the center of the valley in the former course of Racetrack Wash, which is currently diverted around the western edge of the landfill for stormwater management and water quality purposes. The valley is flanked on the east and west by low volcanic hills whose topographic divides also trend generally north-south. Groundwater flow within the vicinity of Racetrack Wash is to the south. Shallow groundwater flow in adjacent areas follows the general land-surface topography and flows toward the wash. The groundwater hydrology of the study site is characterized by a shallow aquifer with three primary water-bearing units. The upper two units of the aquifer are unconfined and are comprised of alluvium associated with Racetrack Wash, which overlies a deeper deposit of valley fill colluvium. The third and deepest unit is a semiconfined aquifer of weathered diorite and basalt bedrock. The alluvium and valley fill units occur primarily in the center of the valley and thin out along the valley margins where the lower bedrock unit is often exposed at the ground surface.

The upper alluvial unit is the principal conveyor of groundwater under the study site and is an effective conduit for transmitting direct precipitation. It has measured hydraulic conductivities from 10-2 to 10-4 cm/sec, an estimated effective porosity of 0.3, and a maximum flow velocity of 0.28 to 28 feet per day (102 to 10,200 feet per year). This upper alluvial unit is generally no greater than 15 feet thick in the vicinity of Racetrack Wash and thins to the east and west. The alluvium is generally unconsolidated sand, gravel, and cobble, with significant quantities of boulder-sized particles. Groundwater elevations below Racetrack Wash are typically very shallow, with the average depth to groundwater being only 10 feet (PR #004). Underneath the upper alluvial unit, the deeper layer of valley fill is less permeable and consists primarily of locally derived colluvium. This unit is generally no more than 35 feet thick, with hydraulic conductivities ranging from 10-5 to 10-6 cm/day and estimated flow velocities of 0.03 feet per day (less than 11 feet per year) (PR #005). Flow in the valley fill unit is also generally to the south.

A large portion of the proposed federal land is located to the east of Racetrack Wash where valley fill is substantially thinner or absent and weathered bedrock of the lower aquifer occurs at or near the surface. Hydrologic characteristics of the valley fill colluvium and the weathered bedrock units are very similar, and the estimated flow velocity is the same (less than 11 feet per year). Two piezometers installed in the area immediately east of the current landfill location encountered groundwater in fractured basalt and diorite. The groundwater condition near both piezometers appears to be in a semi-confined state. Water rose 15 to 20 feet from the initial encounter depth inside the well casings to a static depth of 35 to 45 feet below surface grade. Both piezometers recharged slowly after development and purged at a rate of less than 1 gallon per minute (gpm) indicating either an extremely limited aquifer or a low-flow aquifer condition (PR #004).

On a broader scale, the federal land is located within the Black Hills subarea of the Aqua Fria groundwater basin, approximately 6 miles east of the of the southern boundary of the Prescott AMA. The study area is located along the approximate northern boundary of the major aquifer within the Black Hills subarea. This aquifer extends from just south of the study area southward to near Cordes Junction

(Wilson 1988). Direction of groundwater flow in the aquifer is generally to the south and concentrates in a region several miles east of Cordes Junction (Wilson 1988). Although the federal lands are relatively close to the Prescott AMA, the regions are not hydrologically connected. The parcel is located in an area where abundant groundwater is not expected to exist, and potential well yields for the area are generally less than 10 gpm (Wilson 1988).

Ambient groundwater quality was established at monitoring wells immediately up- and downgradient of the existing landfill, as well as at two piezometers located east of the landfill on the adjacent federal land. Groundwater samples were analyzed using protocols prescribed by EPA. The samples were analyzed for volatile and halogenated organic compounds, pesticides, and polychlorinated biphenyls. None of these compounds were detected in any samples. Priority pollutant metals were not detected at the up- or downgradient monitoring wells nearest to the landfill, but several metals were detected in the two piezometers on the federal lands. Arsenic, chromium, copper, nickel, and zinc were measured at concentrations below drinking water standards. These wells are hydraulically upgradient from the landfill, and metals detected in these locations are associated with the weathering volcanic bedrock and appear to be occurring at natural background levels.

Proposed Action: No impacts to groundwater on the federal parcel are expected under this alternative. Potential impacts to groundwater and hydrogeology under the Gray Wolf Landfill would be minimized by engineering linings for landfill "cells" to prevent percolation of water through the landfill to groundwater. The Solid Waste Plan Review Unit of ADEQ, prior to the issuance of a MSWLF, would review all engineering to ensure potential impacts are minimized. Aquifer protection permits would also be required for any new discharging areas or facilities beyond an approved MSWLF cell, such as leachate collection ponds.

No impacts to groundwater and hydrogeology would occur on the non-federal parcels as a result of the exchange because the parcels would be administered by the Forest Service and subject to federal regulations protecting groundwater. Future actions would also be subject to review under NEPA to analyze impacts.

No Action: Current groundwater and hydrology conditions would not change on the federal or non-federal parcels. Non-federal actions would not be subject to NEPA; however, other federal and local regulations would apply to groundwater.

Cumulative Effects- Proposed Action: Because there would be no direct and/or indirect effects from this project, this project would not contribute to cumulative effects on ground water hydrology and quality.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on hydrology on the federal or non-federal parcels.

3.1.2 Surface Water Contamination and Non-Point Source Pollution

ADEQ is responsible for storm water discharge and all facilities that discharge pollutants from a point source into navigable waters and their tributaries (waters of the United States). Arizona Revised Statutes in Chapter 2, under Title 49, authorize a state NPDES under Section 402 of the Clean Water Act. This legislation established ADEQ's authority to adopt administrative rules for an AZPDES program that is consistent with, but no more stringent than, the NPDES program.

Regionally, the majority of non-point source pollution on land administered by the Forest Service is a result of disturbances to soil as a result of the use of machinery associated with timber harvesting and stormwater runoff after wildfires (ADEQ 2003). Off-road vehicle use, grazing, and mining may also degrade surface water quality. All of the non-federal parcels have evidence of some or all of these uses; however, surface water quality is not considered to be substantially impacted because the intensity and scale of the impacts are minimal in the context of surrounding lands.

The air quality aspect of this issue is discussed later in this Chapter.

Non-Federal Lands

Ash and Cedar. An ephemeral wash known as Commission Creek crosses the parcel along a northeast to southwest path. Precipitation from surrounding lands collects and flows within this ephemeral wash.

Buck Tank. A "water tank," consisting of a constructed earthen depression measuring approximately 900 feet square, currently collects water that may be used by wildlife and cattle on the Buck Tank parcel. Surface water drainage patterns within and adjacent to the property flow toward this depression, which is located in the center of the property.

Buster Mine. According to the Forest Service (PR #024), no regular surface water is present within this parcel. Small ephemeral drainages are present on the parcel, but they are not characterized by delineable floodplains and are vegetated with upland plants.

A Phase II Environmental Site Assessment study, dated February 24, 2004 (PR #029), was conducted for the Buster Mine site. A total of 38 samples of material were collected from areas on the site, including waste rock, spoils piles, adits, Towers Creek, vertical and horizontal shafts, stamp mill, and background. Of the constituents sampled, five (barium, lead, arsenic, mercury, and chromium) were detected above laboratory detection limits in various samples. Barium, lead, and chromium were not detected above ADEQ Soil Remediation Levels (SRLs); however, arsenic was detected above the ADEQ Residential (10 mg/Kg) and Non-Residential (10 mg/Kg) SRL in 12 soil samples, and mercury was detected above the Residential SRL (6.7 mg/Kg) but below the Non-Residential SRL (180 mg/Kg) in one soil sample. The additional investigations on the Buster Mine parcel determined that no impacts to groundwater exist as a result of previous mining activities (PR #029).

Capital Coal. According to the Forest Service (PR #024), no regular surface water is present within this parcel. Headwaters of first order ephemeral drainages are present within the property, but they are not characterized by delineable floodplains and are vegetated with upland plants.

Nutrioso. No surface water or defined drainage channels are present on the Nutrioso parcel. The natural landscape features appear to retain stormwater on site on a seasonal basis.

Turkey Creek. Seasonal pools of water were present during the site visit; however, site characteristics do not meet the criteria necessary to be classified as a wetland (*ibid.*).

Yearin. The National Wetlands Inventory Map for the area identifies a riverine system known as Hells Canyon with the parcel. Seasonal pools of water were present during the site visit; however, site characteristics do not meet the criteria necessary to be classified as a wetland (*ibid.*).

Federal Lands

Gray Wolf Parcel. The Gray Wolf parcel is dissected by Racetrack Wash, an intermittent, north-to-south flowing drainage located west of the entrance road to the landfill. Within the Gray Wolf parcel, Racetrack Wash is ephemeral, conveying water only in response to precipitation events. Racetrack Wash originates north of SR 169, extends under the highway via a culvert, and extends south to the northern edge of the existing landfill. When the landfill was originally constructed, Racetrack Wash was rerouted just west of the planned landfill cells via an excavated channel. At the southern end of the landfill, a culvert conveys flow from this channel into Racetrack Wash where it resumes its natural path. WMA obtained a NPDES permit and implemented BMPs prior to, and during, the construction of the landfill so that surface water quality was maintained at acceptable standards.

Proposed Action: The proposed land exchange would not impact surface water quality on the federal parcel because all federal, state, and local laws and regulations would be met by WMA. Furthermore, no non-point source pollution would be created as a result of runoff from roadways, for the reasons discussed below.

Under the AZPDES Permit Program, all facilities that discharge pollutants from any point source into waters of the United States (navigable waters or their tributaries) are required to first obtain an AZPDES permit. Pollutants can enter waters of the United States from a variety of pathways including those associated with erosion and runoff. The AZPDES permit would require implementation of BMPs that would control dissemination of both non-point and point source pollutants. These BMPs and the amended MSWLF permit would ensure that measures to control water-borne and air-borne particles and blowing trash are implemented. Also, federal criteria for transport of waste associated with municipal solid waste landfill facilities have been adopted by Arizona Revised Statutes (40 CFR 258 or "RCRA Subtitle D"). All transported garbage would be contained within closed trucks or covered with tarps per local regulations. This would prevent garbage from blowing into the watershed during transportation.

No adverse impacts to surface water quality are anticipated on the non-federal parcels because there would be no changes to the current land uses. Future water quality standards would be subject to Forest Service standards and not be allowed to degrade.

No Action: Under this alternative, the existing conditions on each of the parcels would remain, and surface water quality would be similar to current conditions.

Cumulative Effects- Proposed Action: Because there would be no direct and/or indirect effects from this project, this project would not contribute to cumulative effects on surface water contamination and non-point source pollution.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on surface water contamination and non-point source pollution on the federal or non-federal parcels.

3.1.3 Soils and Erosion

The State of Arizona is divided into three physiographic provinces known as the Basin and Range, Transition Zone, and Colorado Plateau. The Basin and Range, occupying the south, southwestern, and northwestern portions of the state, is characterized by low, rugged mountain ranges and broad, flat, sediment-filled basins. The Colorado Plateau, which covers the north and northeast portions of the state, is characterized by high elevation sedimentary rock eroded into plateaus and crossed by deep canyons. The Transition Zone is located between these two primary provinces and is characterized by canyons and large structural troughs (Hendricks 1985).

Erosion and sedimentation are natural geologic processes; however, many land uses affect erosion rates by either reducing or increasing runoff or redirecting flows, which can affect erosion rates. Soils vary in their erosion resistance, and erosion is generally worse in areas with moderate to steep slopes.

Non-Federal Lands

Ash and Cedar. This parcel is located in the Basin and Range province. The Basin and Range fill typically consists of unconsolidated to moderately consolidated alluvial sediments, volcanic rocks and evaporite minerals. The bordering mountains, hills, and mesas are primarily composed of metamorphic and igneous rocks.

The Ash and Cedar parcel consists of grasses, oak, and juniper vegetation. The land is currently used for cattle grazing, which has potential to increase erosion due to a decrease in soil-stabilizing vegetation. However, no erosion of topsoil was observed during site visits.

Buck Tank. This parcel is located within the Colorado Plateau province. According to the Arizona Geological Survey (2000) and Roadside Geology of Arizona (1993), the property is underlain by dark, flat, mesa-forming basalt. The Pliocene to Middle Miocene basaltic deposits are frequently interrupted by lighter colored volcanic rocks: dacite, andesite, and rhyolite. The “cinder cones,” actual volcanoes that

were produced from the micro-eruptions of "frothy-foamy" gas rich magma, are the source of the widely spread cinder rock used in railroad beds, roads, and concrete blocks.

The Buck Tank parcel is vegetated by grasses, pinyon pine, and juniper. Soils on the parcel consist of basaltic deposits and a variety of cinder types. The land contains an earthen water tank that is apparently used by native wildlife and cattle. Cattle grazing has the potential to increase erosion due to a decrease in soil-stabilizing vegetation. However, no erosion of topsoil was observed during site visits.

Buster Mine. This property is located in the geologically complex Transition Zone. Highly deformed and faulted rocks spanning the Precambrian, Paleozoic, and Tertiary geologic eras are typical in this Zone. Down-faulted basins are typically filled with middle to young alluvium. Interbedded in these alluviums are thin to massive volcanic flows.

The Buster Mine property is located on moderately steep to steep slopes with grasses, oaks, juniper, and ponderosa pine vegetation. An old mine shaft, waste rock or tailing piles, a corral, and a pack trail are present on the property. Mining activities can result in increased erosion potential; however, there is no active mining taking place on the site, and formerly disturbed areas have largely stabilized due to establishment of vegetation in these areas. The land is currently used for cattle grazing, which has potential to increase erosion due to a decrease in soil-stabilizing vegetation. However, no erosion of topsoil was observed during site visits.

Capital Coal. This parcel is located in the Transition Zone. The surface geology is characterized by a thin, clay-rich colluvium that has formed by chemical weathering of the uppermost layer of the Martin Formation. Underlying formations consist of a thick limestone bedrock unit.

The Capital Coal parcel is located on steep slopes with pinyon pine and several species of juniper. The land is currently used for cattle grazing, timber harvest, and recreation including off-road vehicle use, all of which have potential to increase erosion due to a decrease in soil-stabilizing vegetation and physical disturbance of the topsoil. However, no erosion of topsoil was observed during site visits.

Nutrioso. This property is located in the border area between the Colorado Plateau and the Transition Zone. According to Arizona Geological Survey (2000), the parcel is underlain by Oligocene sediments and conglomerates. These formations are also known as "rim gravels" because they were formed due to intense faulting and now rest near the resulting rims, mainly the Mogollon Rim. Earlier Middle Miocene fine-grained volcanic rocks, such as lava tuff, andesites, and rhyolites are frequently encountered in areas where erosion has weakened the sediments.

The Nutrioso parcel is located on gently sloping, high desert lands with vegetation including grasses, snakeweed, and sagebrush. The parcel is fenced so that livestock do not eat soil-stabilizing vegetation present in the area.

Turkey Creek. This parcel is located in the Transition Zone. The Turkey Creek parcel is located on gently sloping lands. The land was recently used to raise livestock and supports a house, windmill, corral, and stock tank. The land is currently used for cattle grazing, which has potential to increase erosion due to a decrease in soil-stabilizing vegetation. However, no erosion of topsoil was observed during site visits.

The Turkey Creek parcel includes a variety of vegetation, including bottomland cottonwoods and mesquites to upland oaks and junipers. Soils do not appear to have been impacted by historical mining in the area. A Phase I Environmental Site Assessment of the property indicated no evidence to suggest the potential presence of significant quantities of petroleum or hazardous substances, nor did a review of an extensive regulatory database find any sites of environmental concern on the property (PR #001).

Yearin. This parcel is located within the Transition Zone and is underlain by Permian and Pennsylvanian age sedimentary rocks. These include siltstones, mudstones, and sandstones.

The Yearin parcel is located on steep terrain with vegetation including grasses, pinyon pine, and juniper. The land is currently used for cattle grazing and timber harvest, both of which have potential to increase erosion due to a decrease in soil-stabilizing vegetation and/or physical disturbance of the topsoil. However, no erosion of topsoil was observed during site visits.

Federal Lands

Gray Wolf Parcel. This parcel is located in the Transition Zone along the southern flank of the Black Hills. Geology on the parcel consists of deeply eroded pre-Cambrian diorites and granodiorites that are exposed between Tertiary basalt, ash, tuff flows, and intrusives. Just west of the landfill is what appears to be a small fissure cinder cone with repeated ash and basalt flows.

The terrain in the general area of the federal parcel consists of gently rolling hills and valleys. Vegetation includes grasses, mixed scrub, and chaparral. The existing landfill is located at the center of a small valley that surrounds the former course of Racetrack Wash. The valley is flanked on the east and west by low volcanic hills whose topographic divides also trend generally north to south. Alluvium and valley fill soils occur primarily in the center of the valley and thin out along the valley margins where the lower bedrock is often exposed at the ground surface. The land is currently used for cattle grazing, which can increase erosion due to a decrease in soil-stabilizing vegetation; however, no erosion of the parcel has been documented as a result of grazing.

Flows in Racetrack Wash are diverted around the landfill and concentrated in a narrow channel at the downstream end. This appears to contribute to increased erosion processes in the downstream portion of Racetrack Wash on the lands comprising the proposed expansion of the site.

Proposed Action: On the federal parcel, landfill expansion would entail cut-and-fill operations and excavation of materials and stockpiling for daily, intermediate, and final cover. No engineering for the expansion of the Gray Wolf Landfill has been completed at the time of the publication of this EA.

However, WMA estimates that they would expand the existing landfill by approximately 120 acres. Additionally, development would include the installation of access roads, surface water management facilities, and landfill entrance facilities that would require excavation and earthfill on approximately 20 additional acres. Therefore, there would be an impact to soils of approximately 140 acres. This impact would include excavation and stockpiling of soils to be used for landfill operations (e.g. daily cover, drainage control, etc.).

WMA would design the landfill expansion and outlet to Racetrack Wash so that downcutting of banks within the 500-year floodplain of the wash are minimized. The outlet would be designed to minimize downstream erosion and control the flow of stormwater runoff from the expansion site. Appropriate BMPs would be implemented, and applicable permits would be obtained prior to construction activities that would affect the wash. Construction activities would not substantially increase erosion along the banks of Racetrack Wash, and substantial impacts to soils are not expected in Racetrack Wash area.

Soil and erosion conditions would remain the same on the non-federal parcels. No additional grazing would be permitted, and the Forest Service would administer the lands according to the appropriate Forest Plan; therefore, it is possible that grazing areas could be subject to a management plan that would improve conditions.

No Action: Soil and erosion conditions would likely remain the same as current conditions on the non-federal parcels.

Cumulative Effects- Proposed Action: Past federal actions on lands administered by the Forest Service that would be exchanged have generally, but minimally, affected soils and caused erosion. These include the construction of roads, creation of firebreaks, erosion control features, and improvements for livestock. Reasonably foreseeable activities on lands involved in the exchanges include maintenance and construction of roads and creating firebreaks during emergencies. An undetermined number of sites have been impacted from these activities. However, impacts have typically been mitigated through approved management practices. A total of approximately140 acres would be disturbed for the construction and use of the landfill expansion. This impact, along with uses of Forest Service land for recreational and other foreseeable activities identified above, would contribute a small amount to cumulative effects of soil disturbance and soil erosion, but this would be largely mitigated through Forest Service management practices on their lands and conformance to state and federal regulations related to municipal solid waste landfills.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on soils and erosion on the federal or non-federal parcels.

3.1.4 Scenic Integrity

Scenic integrity (SI) is defined by the Forest Service as the extent a landscape is visually perceived to be complete and is used to describe existing situations, standards for management, or desired future conditions. Scenic Integrity Objectives (SIO) discussed within this document were formulated using

criteria outlined in Forest Service Handbook 701 that describes procedures implemented for the Scenery Management System used to manage all National Forest lands.

A High SIO provides for management activities that are not visually conspicuous to the casual forest visitor. Under High SIO, activities may only repeat form, line, color, and texture that are commonly found in the landscape character. High SIO levels apply to the most visually intact landscapes, including those with the slightest degree of variance from the character valued by constituents for its aesthetic appeal.

A Moderate SIO provides for management activities that may be conspicuous, but must remain visually subordinate to the landscape character. Evidence of activity should be reduced to meet this SIO within one year following site disturbance.

A Low SIO provides for management activities that may visually dominate the original landscape character. However, activities must borrow from naturally established form, line, color, or texture completely and at such a scale that its visual characteristics are those of natural occurrence within the surrounding area. Reduction in contrast created by the activity should be accomplished within 1 year following the activity.

Finally, landscape character is discussed in terms of Distance Zones, including immediate foreground, foreground, middle ground, and background. The following distances apply to these categories:

Immediate foreground:	0 - 300 feet
Foreground:	0 - ½ mile
Middleground:	½ - 4 miles
Background:	4 miles – horizon

Non-Federal Lands

The non-federal lands provide a wide assortment of natural views and landscapes. The following ecosystem inventory and qualitative evaluation was completed to characterize existing SIO of the parcels (PR #019).

Ash and Cedar. The existing SIO of the Ash and Cedar parcel is moderate and is important for viewing the scenery from nearby roads. The foreground and middleground views are dominant, with dense stands of pine and oak trees contrasting with open areas dominated by grasses. The scenic attractiveness rating for this parcel is distinctive. Land surrounding the parcel has been disturbed by past mining activities; these uses and their remnants are historic and have cultural significance that improves the SIO.

Buck Tank. The existing SIO of the Buck Tank parcel is moderate. Although the parcel has been grazed, the presence of a perennial pond surrounded by basalt outcrops improves the SIO. The Buck Tank parcel is of moderate importance for viewing the scenery from nearby viewing Forest system roads.

Buster Mine. The existing SIO of the Buster Mine parcel is moderate. Although the parcel has been disturbed by past mining activities, these uses and their remnants are historic and have cultural significance that improves the SIO. Scenic integrity of the foreground of this parcel is complex and results from the moderate contrast of abundant natural vegetation, canyon topography, and the old Buster Mine Pack Trail. The middleground view has three-dimensional mass, including numerous distinct, sharp valley and foothill lines that contrast sharply with the panoramic view of the Castle Creek Wilderness to the east and south. The background view includes distant mountains in contrast to the large open valley. The Buster Mine parcel is of moderate importance for viewing the scenery from nearby viewing locations, such as communities, recreation areas, roads, and trails.

Capital Coal. The existing SIO of the Capital Coal parcel is moderate to high. There is evidence of some selective timber harvesting and livestock grazing. The SI looking into Capital Coal is moderate to high and SI looking out of the parcel is high because there are unobstructed landscape views. The foreground is characterized by dense vegetation. The middleground is moderately complex, with a sharp distinction between the green hills and the more dominant grassland valley to the south-southwest. The background view is complex. Views are expansive from the western end of the property looking east, and the San Francisco Peaks and red rock of the Sedona area are visible to the northeast and east-southeast, respectively. Existing landscape character includes both steep and subtle topography related to Black Mesa. The Capital Coal parcel is of high importance for viewing the scenery from nearby viewing locations such as communities, recreation areas, roads, and trails.

Nutrioso. The existing SIO of the Nutrioso parcel is high. The undeveloped parcel provides clear views of distant hills and mountains looking east from US 180/191. The Nutrioso parcel is of high importance for viewing the scenery from nearby viewing while traveling along US 180/191, which has been designated as part of the Coronado Trail National Forest Scenic Byway. Scenic integrity of the foreground is simple and, with the exception of barbed wire fencing, is open to sweeping views.

Turkey Creek. The existing SIO of the Turkey Creek parcel is moderate. The Turkey Creek parcel includes the xeroriparian drainage, Turkey Creek, and associated dense vegetation, livestock disturbance, and abandoned residential and livestock structures. Nearby hills are brownish in lower areas and contrast with juniper trees in the upper hills. No scenic roads or high-use recreation areas exist within the viewshed of this parcel.

Yearin. The existing SIO of the Yearin parcel is high. While there are some roads and an abandoned corral, disturbance of the parcel from human activities is minimal. Thus, the SI looking both into and out of Yearin is high as there is no visible disturbance or landscape modification in the viewshed. This large parcel contains several xeroriparian washes, rugged topography, and expansive vistas. The foreground view is characterized by the xeroriparian washes and adjacent vegetation. The middleground viewshed is simple and is characterized by moderate contrast. The background view contrasts greatly with medium-density vegetation and coloration. The Yearin parcel contains three long, flat ridges with chert outcrops. Existing landscape character includes both steep and subtle topography around a branching wash.

The Yearin parcel is of high importance for viewing the scenery from nearby viewing locations, such as communities, recreation areas, roads, and trails. The parcel is near and may be visible from SR 89.

Federal Lands

Gray Wolf Parcel. The existing SIO of the Gray Wolf parcel is medium to high. The area designated as high is located on the hill and current road area. The area rated as medium is the land on the south, west, and east side of the existing Gray Wolf Landfill. Approximately 1 mile of SR 169 bounds the northern frontage of the federal lands. The viewshed associated with this highway is characterized by subtle to moderate topography. In the context of viewing the PNF while traveling in a car along SR 169, the existing landfill and the Gray Wolf parcel are minor components of the landscape. The existing landfill and the Gray Wolf parcel are visible from the highway for approximately 20-30 seconds while traveling in a car at the speed limit. The parcel is not visible from any other sensitive viewing areas within the PNF (PR #008).

Dominant perennial plant species include scrub oak and juniper. There are no adjoining structures observed in the viewshed. Immediate foreground and some middleground views from within the parcel include views of the existing landfill. Background views include those of rolling hills. The existing SI is moderate for roughly 90 percent of the property, which has an important viewshed based on the proximity to nearby scenic routes, high-use recreation areas, and common vegetation. SI is high for the remaining 10 percent of the property, which includes the upper portion of Racetrack Wash. This area has an important viewshed based on the proximity to nearby scenic routes, high-use recreation areas, and more important vegetation.

It is important to note the scenic integrity of the Gray Wolf parcel was assessed by the PNF prior to construction of the existing Gray Wolf Landfill. However, there is no need to reclassify the parcel because the current upland and riparian characteristics relative to nearby scenic roadways and high-use recreation areas are consistent with the earlier analysis (PR #043).

Proposed Action: Under this alternative, the Forest Service would acquire seven inholdings. There would be no effect on the scenic integrity associated with these parcels. The Forest Service would be able to maintain the existing moderate to high levels of scenic integrity within areas of the National Forest that were formerly private in-holdings. This includes maintaining highly sensitive areas, including scenic views from the Cleator area near the Turkey Creek parcel and from SR 89 near both the Capital Coal and Yearin parcels (PR #019). The Apache-Sitgreaves National Forest would maintain the scenic views associated with the Nutrioso parcel along the Coronado Trail National Scenic Byway.

The Forest Service would dispose of the Gray Wolf parcel and no longer retain management of scenic resources. The proposed land exchange itself would not affect the scenic integrity of the area. However, the foreseeable uses of the exchanged federal land would allow for the expansion of Gray Wolf Landfill. This would allow for additional land to be disturbed, but the impact would be limited to the 20-30 seconds the landfill is visible from a car traveling along SR 169 (PR #008). As discussed under the

surface water impact analysis, all transported garbage would be contained within closed trucks or covered with tarps per local regulations to prevent garbage from blowing onto the site or adjacent areas during transportation. This measure would ensure that visual impacts from trash and other waste are minimized.

WMA would not expand the landfill onto the area rated as high because of its location on a hill. Therefore, this area would retain the SI of high. WMA would expand to the east and south of the existing landfill. This would continue to alter the form, line, color and textures common to the surrounding characteristic landscape. Although this change would not be visually subordinate to the characteristic landscape in the immediate vicinity, it would be subordinate to the viewshed of the PNF along SR 169.

No Action: The Forest Service would retain the Gray Wolf parcel, and no increase in the visual impact on views from SR 169 would occur. However, the existing visual impact of the landfill would remain.

Cumulative Effects- Proposed Action: Because there would be no direct and/or indirect effects from this project, this project would not contribute to cumulative impacts on scenic integrity. Federal actions on lands administered by the Forest Service that would be exchanged have generally not affected scenic integrity. These actions include construction of roads, creating firebreaks, erosion control features, and improvements for stock. Reasonably foreseeable activities for the lands being exchanged include maintenance and construction of roads and creating firebreaks during emergencies. A total of approximately 140 acres would be used for the expansion of the landfill. This use, along with uses of surrounding Forest Service land for recreational and other activities identified above, would have a minor cumulative effect on scenic integrity, but would not result in a change to the visual quality objectives for the area.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on scenic integrity on the federal or non-federal parcels.

3.1.5 Heritage Resources

An SWCA archaeologist evaluated each of the parcels during field visits conducted from February 29 through March 3, 2000 and May 3 through 11, 2001. Each parcel was assessed for the potential to contain heritage resources. All observed archaeological and historical evidence was recorded. The results of the evaluation for each of the non-federal lands are summarized below.

None of the parcels are subject to treaty rights with Native Americans nor do they contain any known Indian Trust Assets.

Non-Federal Lands

Ash and Cedar. Cultural resources on this parcel include a series of features that appear to be related to ranching and mining activities. Two low, stacked rock walls and a rock-lined well are situated within a 100-foot section of the north bank of the unnamed, ephemeral drainage that runs through the parcel. On the south side of the drainage, a single mine adit was observed. No artifacts were observed in association with any of these features.

Buck Tank. The Buck Tank parcel encompasses a human-made reservoir located within a drainage running through rocky pinyon pine and juniper plant associations. Sixteen flaked stone artifacts were noted within the parcel, scattered on both banks of the drainage. In addition, a short remnant of a possible corral fence was found on the east bank of the drainage; however, because no historic artifacts were found in the area, the date of the fence could not be accurately estimated.

Buster Mine. The Buster Mine parcel is situated in mountainous terrain within the Bradshaw Mountains. Pedestrian survey of the parcel was somewhat limited by the terrain. The Buster Mine parcel is named for the Buster Mine, an historic period mine situated near the western edge of the parcel boundary. The site consists of a mine adit, several tailing or waste rock piles, a corral, and a road. No other heritage resources were noted within the Buster Mine parcel.

Capital Coal. The Capital Coal parcel encompasses a large, flat extension of Big Black Mesa that was probably useful for various resource procurements during prehistoric and historic times. Assessment of the parcel identified several pieces of flaked stone dispersed in very low density across the parcel and one small obsidian projectile point was discovered. No archaeological sites or other heritage resources were observed.

Nutrioso. Three areas of heritage resources were documented during the site evaluation, none of which constitutes an archaeological site. These resources included a small scatter of five plainware ceramic sherds in the southwest portion of the parcel, a scatter of 12 black-on-white painted ceramic sherds located near the center of the parcel and a scatter of glass, lumber fragments, metal, and brick found in the southeast corner of the parcel.

Turkey Creek. Heritage resources on the Turkey Creek parcel include artifacts distributed over much of the drainage terrace that comprises and extends beyond much of the western portion of the parcel. This area is just above the confluence of Turkey Creek and another unnamed drainage, forming an ideal position for habitation close to terrain suitable for agriculture. At least two masonry room blocks appear to be present at the terminus of the terrace just above the floodplain of Turkey Creek. These structures each contain 3 to 5 rooms arranged in a linear pattern oriented north-to-south. Three single, unattached masonry rooms were also observed at the site near the room blocks.

Artifacts observed at the Turkey Creek site include flaked stone, plainware ceramics, and ground stone. The numbers of ground and flaked stone artifacts were very high, particularly manos that had been created from locally available cobbles. Ceramic artifacts observed included 100 to 200 plainware sherds. No decorated ceramics were detected.

Numerous rock piles seen within the Turkey Creek parcel may have been used in conjunction with agricultural activity here. Similarly, several short rock alignments were noted that could have been small check dams or terrace units. Overall, the sites cover much of the western half of the parcel and extend west as far as the small primary access road for the area. In addition, surface artifacts were observed northwest of the parcel while gaining access to the area.

Yearin. The Yearin parcel encompasses numerous long, flat ridges that appear to be ideal settings for habitation or limited activity sites. Initial observation of the area revealed that many of these ridges exhibit numerous natural outcrops of low-to-medium grade chert. Cores and primary flakes of this material are present in low density across several of the ridges that were investigated. Only one potential site was noted on top of one of the ridges. It consists of a medium-density scatter of local chert flakes, several cores of the same material, 10 to 20 plainware ceramic sherds, and a vesicular basalt trough metate fragment.

A large flat terrace dominates the eastern portion of the Yearin parcel. Archaeological investigation of this area revealed that the chert outcrops observed to the west do not continue past the large drainage that bisects the parcel north-to-south. Numerous pieces of flaked stone and a few ceramic sherds were noted in this area; however, densities were not high enough to qualify as an archaeological site.

Federal Lands

Gray Wolf Parcel

Prehistoric Heritage Resources. A 100-percent pedestrian survey of the federal parcel was completed in 2002 (PR #018), and two archaeological sites were recorded. The State Historic Preservation Office (SHPO) concurred with the recommendation that both sites are potentially eligible for inclusion to the National Register of Historic Places (NRHP). Test excavations were conducted at sites both sites in late 2003 [sites AR-03-09-05-322(PNF) and AR-03-09-05-343(PNF)] to determine eligibility.

Data from surface collection, surface mapping, and excavations at AR-03-09-05-322 (PR #030) were sufficient to show that the site may be recommended eligible to the NRHP. However, analysis of these data suggested the research potential of the site has been exhausted through this testing, and no further archaeological work is recommended for the site.

Data collected from AR-03-09-05-343 (PR #030), which was previously recommended eligible to the NRHP based on excavations in the southern half of the site (Lerner, Shereen, and Troncone 1993), suggests that data recovery fieldwork on the site should be completed.

Historic Heritage Resources. Elden Bowman (1978) identified a historic road that passes through the eastern part of the land exchange project area and along the southern boundary of the current landfill property as a part of the General Crook Trail. Bowman conducted his reconnaissance of the road in the early 1970s and enlisted the aid of local Boy Scout troops to help remark the trail with wood mileposts, rock cairns, and metal signs. In fact, the portion of the road in the project area was in place earlier than the 1872-73 construction of Crook's Road, having been built in 1864 as Woolsey's Toll Road (also called the Stoneman Road).

During a visit to the project area by PNF archaeologists Jim McKie and Bruce Nellans, several of the cairns that had been constructed by Bowman to mark the Crook Trail were relocated on the federal lands.

Proposed Action: The Forest Service is prohibited from disposing of lands with sites eligible for the NRHP unless acceptable mitigation occurs (PR #044). The proposed land exchange would result in the loss of one archaeological site (the other site was eliminated through testing). However, the PNF would require this site be excavated, and all data and artifacts properly archived within a public museum so that the parcel would not contain any eligible sites when the exchange is completed. The SHPO approved the final testing report and mitigation plan for these excavations in 2004. The initial Memorandum of Agreement and the subsequent Inventory Standards and Accounting Form includes SHPO's approval of a trail relocation under certain stipulations (PR #049, 050).

Approximately 0.75-mile of the General Crook Trail/Stoneman Road would be removed from federal management and lost from public use. Furthermore, an undetermined portion of the trail would be excavated as part of the new landfill. The exact distance is not known; however, this analysis assumes that the entire segment would be lost to public use. Therefore, WMA has agreed to pay the Forest Service to relocate the trail and construct interpretative signs. These impacts would not substantially impact the eligibility of the trail because it is a relatively short segment compared to that remaining under federal management.

Upon acquisition, the non-federal lands would be managed in accordance with the current applicable Forest Plans and become subject to federal protection of the NHPA. This protection would require that any impacts to resources eligible for the National Register of Historic Places be preserved or any impacts mitigated. Any mitigation would be subject to review by the State Historic Preservation Office.

No Action: Under the No Action alternative, the federal land would remain in federal ownership, and no landfill expansion would occur; therefore, there would be no effects to heritage resources. No further testing or data recovery would be required for the one remaining site, and the General Crook Trail/Stoneman Road would not be relocated. None of the heritage resources associated with the non-federal lands would come into federal management and protection. Heritage resources would remain the property of the private landowner. It is within the landowner's authority to remove these resources from their property without mitigation. However, any future federal action involving the private parcels would be subject to analysis under NHPA.

Cumulative Effects- Proposed Action: Past federal actions on lands administered by the Forest Service have affected heritage resources. These include the construction of roads, creating firebreaks, erosion control features, and improvements for stock. Reasonably foreseeable activities include maintenance and construction of roads and creating firebreaks during emergencies. An undetermined number of sites have been impacted from these activities. However, impacts have typically been mitigated through testing and data recovery. This alternative would contribute to the loss of one archaeological site by excavation and the relocation of approximately 0.75-mile of the General Crook Trail/Stoneman Road.

The Crook Trail/Stoneman Road has been affected by several past and ongoing activities that have had a cumulative effect on the location and use of the trail over the years. Historic cumulative impacts include: the use of the area as a "sheep driveway" for the seasonal movement of herds across the Prescott NF

during the early 20th century, the construction and subsequent improvement of dirt/gravel roads for private property access during the late 19th century/early to mid 20th century, grazing allotment management by permittees, Forest Service administrative actions, improvements like fencing for cattle allotment management, and general recreation. Recent impacts on the trail include the construction of State Route 169, the proliferation of off-road vehicle usage, Forest Service vegetation management activities that principally involve controlled burns, and the use of the existing landfill. The continuation of many of these activities and expansion of the landfill have had a cumulative effect on the historic integrity of the trail. However, the Crook Trail/Stoneman Road would remain accessible in the current corridor with the benefit of improved designation. Thus, the impact of this project is small and generally beneficial when considered in light of past and ongoing activities associated with the area.

Some segments of the Crook Trail/Stoneman Road lie on private lands (and associated features). Past and present actions on the non-federal parcels include construction of dirt roads; no heritage resources have been identified that have been impacted. These uses are unlikely to change in the foreseeable future.

This alternative would have the cumulative effect on the non-federal parcels of increasing protection of an undetermined number of heritage resources. This protection would cumulatively lessen impacts to heritage resources.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on heritage resources on the federal or non-federal parcels.

3.2 ENVIRONMENTAL IMPACTS ON OTHER RESOURCES

3.2.1 Vegetation

Affected Environment: Below is a brief description of the vegetation within the federal and non-federal lands based on site visits. The Arizona Game and Fish Department (AGFD) reviewed the scoping information for the land exchange and in a letter evaluated wildlife habitat value on the federal and non-federal lands (PR #020). Where appropriate, specific wildlife habitat attributes and values identified by the AGFD (PR #021, #009) are summarized. A wide variety of game and non-game wildlife typical of the surrounding habitats are expected to occur on each of the parcels.

Non-Federal Lands

Ash and Cedar. The Ash and Cedar parcel is located in Santa Cruz County at an elevation of approximately 5,300 feet. Vegetation associated with the Ash and Cedar parcel is typical of the Oak Woodland vegetation community that occurs in the transition zone between Plains Grasslands and Pine-Juniper Woodland. This association is dominated by Emory oak, mesquite, pointleaf manzanita, gray oak, gramma, and other native grasses. Agave was also commonly observed on the parcel.

Buck Tank. The Buck Tank parcel is located in Coconino County at an elevation of 5,920 feet. Juniper and mesquite provide the dominant overstory in the surrounding uplands and scrub oak occurs in chaparral and riparian scrub. Emergent vegetation is present along portions of the pond not lined by rock

and includes sedges and rushes. A cattle tank/pond formed by a human-made soil berm is present along Martin Dam Draw (a perennial tributary). This is considered an important habitat feature for wildlife because of the lack of permanent surface water in the surrounding area.

Buster Mine. The Buster Mine parcel varies between 5,800 and 6,400 feet in elevation and is in the Bradshaw Mountain range in Yavapai County. Chaparral and Madrean oak forest communities vegetate the parcel, which contains steep boulder slopes and outcrops grading into the drainages. Upland vegetation includes manzanita, mountain mahogany, several oak species, juniper, ponderosa pine, agave, banana yucca, prickly pear and hedgehog cactus, and several species of grasses and forbs. Ponderosa pine dominates bottomland communities. Towers Creek, an ephemeral wash, traverses the northern third of the parcel. The abandoned shaft does not appear to provide good habitat for bats.

AGFD believes that the Buster Mine parcel is a prime area for game species such as quail, coyote, deer, and javelina and is of value to wildlife because it is located near the Castle Creek Wilderness (PR #021).

Capital Coal. The Capital Coal parcel is in Yavapai County located at elevations ranging from approximately 5,180 to 5,400 feet in elevation. Dense pinyon-juniper woodland is the dominant community and includes several species of juniper. Other common woody plants include ponderosa pine, scrub live oak, winterfat, fernbush, Palmer agave, banana yucca, prickly pear, cholla, hedgehog cactus, and various grasses. Steep canyon walls flank the unnamed wash in the southwestern portion of the parcel.

Nutrioso. The Nutrioso parcel is located in Apache County, at an elevation of approximately 8,000 feet in elevation. Vegetation associated with this parcel is typical of Montane Meadow Grasslands as defined by Brown (1994). Common vegetation includes grama grasses, other native grasses, snakeweed, and sagebrush. No trees, wetland vegetation, or permanent water is present on the parcel. Terrain in the project area is flat to gently sloping eastwards, and no mineshafts or stock tanks were observed.

Turkey Creek. The Turkey Creek parcel is located in Yavapai County at an elevation of approximately 3,260 to 3,400 feet. Vegetation consists of Sonoran desert scrub communities including a cottonwood-mesquite-riparian scrub association along Turkey Creek (ephemeral) and a mesquite-mixed cacti association in upland areas. Bottomland areas contain moderately dense patches of cottonwood, mesquite, seep willow, and desert broom. Less common bottomland species included willow, scrub live oak, mountain mahogany, red barberry, saltcedar, catclaw acacia, and mesquite. Upland areas also contained scrub live oak, juniper, red barberry, catclaw acacia, allthorn, blackbrush, snakeweed, banana yucca, ocotillo, and saguaro, prickly pear, hedgehog, and cholla cactus.

Yearin. The Yearin parcel is located in Yavapai County at elevations from approximately 4,700 to 5,410 feet. Both upland and bottomland communities include grassland and pinyon-juniper. These communities include pinyon pine, several juniper species, scrub live oak, silver-leaf oak, mountain mahogany, manzanita, snakeweed, antelope bush, Palmer agave, banana yucca, prickly pear and cholla

cactus, and bear grass. The parcel contains steep terrain with rugged canyon draws that convey waters into Hell Canyon, located southeast of the parcel.

Federal Lands

Gray Wolf Parcel. The Gray Wolf parcel lies at elevations ranging from approximately 4,000 to 4,520 feet in elevation in Yavapai County. Vegetation communities on the parcel include semidesert grassland, mixed scrub, and chaparral. Racetrack Wash traverses the federal lands and contains riparian scrub and scrub live oak-mixed scrub association. Juniper and mesquite provide the dominant overstory in grassland areas, and scrub oak is dominant in chaparral and riparian scrub communities. A small patch of cottonwood trees occurs in Racetrack Wash south of the landfill and a small patch of willow grows on the north side of the landfill, south of SR 169.

AGFD stated that "…mule deer, javelina, and quail may still utilize the Gray Wolf parcel, [however] existing landfill activities have decreased the area's value to wildlife." (PR #021)

Proposed Action: The Proposed Action would result in federal acquisition of the seven properties with diverse vegetation communities. There would be a net gain of wildlife habitat for the Forest Service under this alternative of 606 acres. These properties include upland and riparian habitats consisting of desertscrub, semidesert grasslands, chaparral, pine-juniper woodlands, and montane meadow grasslands. Additionally, the perennial water on the Buck Tank parcel would be managed by the Forest Service in the future for wildlife uses. These properties include habitat for mule deer, javelina, quail, and numerous other game and non-game species. All vegetation and wildlife resources on the non-federal lands would be managed according to the appropriate Forest Plans. Potential benefits to wildlife would result from the Forest Service's ability to consistently manage for wildlife on the non-federal lands.

The Proposed Action would also result in the disposal of the Gray Wolf parcel to WMA for the purposes of expanding the existing landfill. Vegetation along the northern and southern portions of the Gray Wolf parcel would be left relatively undisturbed (PR #037). However, the entire parcel would be enclosed with either a chain-linked or five-strand wire fence. This would preclude large mammals from entering and utilizing undeveloped areas in the Gray Wolf parcel.

No Action: The PNF would continue to manage 255 acres of wildlife habitat adjacent to the existing landfill. The Forest Service would not gain 872 acres (a net of 606 acres) of diverse vegetation communities and wildlife habitat. It is possible that these lands could be sold for private development or other uses; however, no other plans for the lands exist at this time.

Cumulative Effects- Proposed Action: Settlement patterns in Arizona over the past century have substantially altered biological resources. These alterations are due to commercial and residential development, mining, construction of roads and utility lines, farming, etc. Biological resources have also been impacted by the introduction of non-native species, grazing, and land management practices such as wildland fire suppression. Quantifiable data are not available, but it is apparent that biological resources have been impacted on both the federal and non-federal parcels. Although minimal, these impacts are the

result of grazing and road construction. These impacts have resulted in the loss of some vegetation through clearing. However, this alternative is not likely to appreciably add any impact to the existing impacts resulting from other projects because of the small size of this project in comparison to the larger habitat areas.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on biological resources on the federal or non-federal parcels.

3.2.2 Special Interest Species

Affected Environment: The Wildlife Specialists Report on special interest species (PR #018) is summarized below. Special interest species include those plant and animal species that are:

- Listed, proposed for listing, or candidates for listing as threatened or endangered under the Endangered Species Act of 1972 (ESA), as amended;
- Species of concern by the U.S. Fish and Wildlife Service (USFWS);
- Listed on the Regional Forester's Sensitive Species List;
- Management indicator species shown in affected Forest Plans;
- Considered Wildlife of Special Concern in Arizona by AGFD; or
- Listed under the Migratory Bird Treaty Act.

Federally listed threatened or endangered species, and proposed threatened or endangered species, and their designated critical habitat, are afforded protection under the ESA. No proposed or designated critical habitat is located on any of the exchange parcels. Impacts to species that are candidates for listing under the ESA are also evaluated should they be proposed for listing during the analysis process for this project.

The Regional Forester's Sensitive Species category includes all federally protected and candidate species, plus species formerly included on the USFWS Category 2 candidate species list (now discontinued, USFWS 1996). The Regional Forester's Sensitive Species status does not confer legal protection of a species under the ESA; however, it does identify species that may need special management consideration to prevent population declines, which could necessitate listing under the ESA. Regional Forester's Sensitive Species are defined as "those plant and animal species identified by the Regional Forester for which population viability is a concern, as evidenced by:

- Significant current or predicted downward trends in population numbers or density, or
- Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution (Forest Service Manual [FSM] 2607.5)"

As mandated by the National Forest Management Act of 1976 (NFMA), potential impacts to Management Indicator Species (MIS) on the federal land parcel were also evaluated (PR #018).

Species designated as Wildlife of Special Concern in Arizona (WSCA) are not afforded protection on federal lands. However, the Forest Service considers potential impacts to these species during any NEPA process.

Non-Federal Lands

One common objective in the various Forest Service management plans is to acquire private inholdings within the National Forests that provide habitat for federal and state listed threatened, endangered, or sensitive plant and wildlife species. The USFWS, Forest Service, and AGFD identified special interest species as potentially occurring on the non-federal lands proposed for this exchange. Habitat evaluations were completed for special interest species that potentially occur on each of the non-federal lands. A biologist visited each of the non-federal lands, evaluated habitat features, and compared them to individual species habitat requirements. No species-specific surveys were conducted on the non-federal lands. The number of special interest species that may occur on the different parcels varies due to a variety of habitat factors. A detailed description of the status and habitat requirements of the special status species that have the potential to occur on the non-federal lands is presented in the project record (PR #013).

Ash and Cedar. Thirty of the 104 special interest species identified during agency coordination may occur on the Ash and Cedar parcel (see Table 3.1) (PR #018). Although bald eagle was identified as potentially occurring by AGFD, no breeding habitat was observed on the parcel.

Table 3.1. Special Interest Species Potentially Occurring in the Ash and Cedar Parcel of the Proposed Gray Wolf Land Exchange

SPECIES NAME (Status*)		
BIRDS		
Bald Eagle (T)	Apache Northern Goshawk (S)	Gould's Wild Turkey (S)
MAMMALS		
Jaguar (E)	Lesser Long-nosed Bat (E)	Yellow-nosed Cotton Rat (S)
Pale Townsend's Big-eared Bat (SC)	Southern Pocket Gopher (S)	
AMPHIBIANS & REPTILES		
Arizona Ridge-nosed Rattlesnake (S)	Mexican Garter Snake (S)	Chiricahua Leopard Frog (E)
Lowland Leopard Frog (S)	Mexican Vine Snake (WSCA)	
INSECTS		
Arizona Metalmark (S)	Aryxna Giant Skipper (S)	Mexican Meadowfly (S)

Table 3.1. Special Interest Species Potentially Occurring in the Ash and Cedar Parcel of the Proposed Gray Wolf Land Exchange, continued

SPECIES NAME (Status*)		
PLANTS		
Arid Throne Fleabane (S)	Chihuahuan Sedge (S)	Huachuca Golden Aster (S)
Huachuca Milk-vetch (S)	Huachuca Mountain Lupine (S)	Mock Pennyroyal (S)
Texas Purple Spike (S)	Thurber Hoary Pea (S)	Toumey Groundsel (S)
Wooly Fleabane (S)	Browallia eludens (S)	Coursetia glabella (S)

* E=USFWS Endangered, T=USFWS Threatened, SC= USFWS Species of Concern, S=Regional Forester's Sensitive Species.

Buck Tank. Seventeen of the 40 special interest species identified during agency coordination were determined to potentially occur on the Buck Tank parcel (see Table 3.2) (PR #018). Of the 17 species identified as potentially occurring, Northern goshawk is considered likely to occur because suitable habitat was observed on the parcel. No potential day roosts for any bat species were identified on the parcel. However, all 10 of the bat species identified through coordination may occur due to the presence of a permanent stock tank, which likely provides the bats with a suitable foraging area for insects and a source of drinking water.

Table 3.2. Special Interest Species Potentially Occurring in the Buck Tank Parcel of the Proposed Gray Wolf Land Exchange

SPECIES NAME (Status*)		
BIRDS		
Bald Eagle (T)	Flammulated Owl (S)	Loggerhead Shrike (S)
Cooper's Hawk (S)	Sharp-shinned Hawk (S)	Northern Goshawk (S)
Belted Kingfisher (S)		
MAMMALS		
Allen's Lappet-browed Bat (S)	Fringed Myotis (S)	Long-eared Myotis (S)
Long-legged Myotis (S)	Western Small-footed Myotis (S)	Occult Little-brown Bat (S)
Spotted Bat (S)	Yuma Myotis (S)	Cave Myotis Bat (S)
Western Big-eared (S)		

* E=USFWS Endangered, T=USFWS Threatened (LT), SC= USFWS Species of Concern, S=Regional Forester's Sensitive Species.

Buster Mine. Three of the 40 special interest species identified during agency coordination were determined to potentially occur on the Buster Mine parcel. These species are bald eagle (threatened), Arizona agave (endangered), and Arizona southwestern toad (Regional Forester's Sensitive Species). Although bald eagle was identified as potentially occurring, no breeding habitat appears to exist on the parcel.

Capital Coal. Four of the 42 special interest species identified during agency coordination were determined to potentially occur on the Capital Coal parcel. These species are bald eagle (threatened), American peregrine falcon (Regional Forester's Sensitive Species), Tusayan rabbitbrush (Regional Forester's Sensitive Species), and Hualapai milkwort (Regional Forester's Sensitive Species). No breeding habitat for bald eagle was observed on the parcel.

Nutrioso. Two of the 50 special interest species identified during agency coordination were determined to potentially occur on the Nutrioso parcel. These species are bald eagle (threatened) and White Mountains ground squirrel (Regional Forester's Sensitive Species). The bald eagle was identified as potentially occurring because it is possible this species may fly over the parcel. However, no breeding or foraging habitat for bald eagle was observed on the parcel.

Turkey Creek. Five of the 40 special interest species identified during agency coordination were determined to potentially occur on the Turkey Creek parcel. These species are bald eagle (threatened), lesser long-nosed bat (endangered), Arizona southwestern toad (Regional Forester's Sensitive Species), Arizona phlox (Regional Forester's Sensitive Species), and Hualapai milkwort (Regional Forester's Sensitive Species). No potential night roosts for lesser long-nosed bat were identified; however, agave are present and may provide forage for lesser long-nosed bat. No breeding habitat was observed on the parcel for bald eagle.

Yearin. Four of the 41 special interest species identified during agency coordination were determined to potentially occur on the Yearin parcel. These species are bald eagle (threatened), American peregrine falcon (Regional Forester's Sensitive Species), Arizona phlox (Regional Forester's Sensitive Species), and Hualapai milkwort (Regional Forester's Sensitive Species). No breeding habitat was observed on the parcel for bald eagle or American peregrine falcon.

Federal Lands

Gray Wolf Parcel. Seventeen threatened, endangered, proposed, and candidate species are listed by USFWS as potentially occurring in Yavapai County. Of these 17, no federally listed species are considered likely to occur on the Gray Wolf parcel (PR #018).

One species listed as sensitive by the Forest Service, the Arizona toad, may occur in portions of Racetrack Wash where perennial water is present north of SR 169 (PR #018). Although no perennial water occurs in the portions of Racetrack Wash on the parcel, and there are no confirmed sightings of the toad north of the parcel, the possibility that individual toads could occasionally occur on the Gray Wolf parcel cannot be eliminated.

Habitat for pronghorn (a popular game species) on the Gray Wolf Parcel is considered by AGFD to be of "low quality," and areas to the north and south of the parcel are considered "poor quality" habitat for this species (PR #022). Low quality habitat is defined as only capable of supporting low densities of pronghorn, currently, or for a long period of time (ibid.). Poor quality habitat only supports "scarce populations" (ibid.).

The potential for occurrence of 12 MIS as identified by the PNF Biologist was evaluated for the federal land parcel. These species are antelope, mule deer, Abert's squirrel, northern goshawk, turkey, pygmy nuthatch, plain titmouse, hairy woodpecker, rufous-sided towhee, Lucy's warbler, and macro-invertebrates. Of these, mule deer and pronghorn are the only MIS considered to have potential to occur on the Gray Wolf parcel (see paragraph above regarding habitat quality evaluation by AGFD).

No MIS were evaluated for the non-federal lands because the Forest Service does not track MIS on private lands. However, it is likely that MIS do occur on the non-federal lands because they are present in varying degrees on surrounding lands administered by the Forest Service.

Proposed Action: The Proposed Action alternative would result in no known adverse effect to any federally listed threatened, endangered, or proposed threatened or endangered plant or animal species on the federal land because none are known to occur there. Furthermore, the Proposed Action would have no impact on proposed or designated critical habitat. The Forest Service would acquire potential habitat for the following five federally listed threatened and endangered species: bald eagle, Mexican spotted owl, jaguar, lesser long-nosed bat, and Chiricahua leopard frog. Potential habitat for 39 Regional Forester's Sensitive Species would be acquired and afforded greater protection under the jurisdiction and management of the Forest Service than under private ownership. Special interest species and their habitats on the non-federal lands would be managed according to the appropriate Forest Plans.

Any potential impacts to species listed under the ESA would require consultation between the Forest Service and USFWS under Section 7 of the ESA. No federal action would be allowed that would jeopardize the continued existence of a threatened or endangered species. No federal action would be permitted that resulted in a special status species' population decline such that it warranted listing as under the ESA.

It is unlikely, but possible, that individual Arizona toads would be impacted through the continued operation of the Gray Wolf Landfill. However, no additional toads are expected to be impacted by the proposed expansion because the footprint of the proposed expansion does not contain suitable habitat. Furthermore, no potential breeding habitat would be impacted and there would be no trend towards federal listing or a loss of population viability of Arizona Toad or other Regional Forester's Sensitive Species because no suitable breeding habitat exists within the Gray Wolf parcel.

Two MIS species, mule deer and pronghorn, would be fenced out of the approximately 255 acres of the Gray Wolf parcel under this alternative. This impact is not likely to result in a declining population trend for mule deer or pronghorn because the habitat value of the parcel for these species is considered to be

low quality (PR #022). Furthermore, the proposed land exchange would not impede the movement of pronghorn in the PNF (they could still move around the landfill).

No Action: The No Action alternative would result in no impact to any federally listed threatened, endangered, or proposed threatened or endangered plant or animal species on the federal parcel. Any future development potentially impacting any federally listed species would require consultation under the ESA. Regional Forester's Sensitive Species or MIS species would not be managed on the non-federal parcels to prevent impacts that could result in the loss of population viability and listing under the ESA.

Cumulative Effects- Proposed Action: Past activities have included mining, construction of roads and utility lines, prescribed burns, and livestock grazing. All activities in the foreseeable future would be evaluated so that they would not cause any special interest species to be listed. Proposed or future activities on the federal or non-federal parcels in combination with the effects of the other projects would likely have a negligible effect on special interest species because they would not be permitted to result in a loss of population viability such that listing under the ESA is required without further evaluation under NEPA.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on special interest species on the federal or non-federal parcels.

3.2.3 Riparian and Wetland Habitats

Affected Environment: Forest Service Manual 2500-2527.05 defines a base floodplain as the lowland and relatively flat areas joining inland water that are, at a minimum, subject to a one percent (100-year recurrence) or greater chance of flooding in any given year. Wetlands are described as those areas that are inundated by surface or ground water with a frequency sufficient to support and that, under normal circumstances, do or would support a provenance of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Riparian areas are defined as geographically delineable areas with distinctive resource values and characteristics that are comprised of the aquatic and riparian ecosystems. Each of the parcels proposed for exchange were evaluated for the presence of floodplain, riparian, and wetland characteristics using these criteria. The results of these evaluations are presented below.

Non-Federal Lands

Four of the seven non-federal parcels contain floodplain, wetland, or riparian resources. These resources and their approximate surface area were estimated by Forest Service specialists (PR #024) and are summarized in Table 3.3.

Table 3.3. Physical Parameters and Types of Riparian and Wetland Habitats on Non-Federal Lands

Parcel Name	Resource	Estimated Surface Area (acres)
Ash & Cedar	Riparian areas/Wetlands Second order stream	1.3 acres 1.8 acres of floodplain
Buck Tank	Wetland (stock tank) Second order stream	< 1 acre 2 acres of floodplain
Buster Mine	No wetlands No streams or floodplains	0 acres 0 acres
Capital Coal	No wetlands No streams or floodplains	0 acres 0 acres
Nutrioso	No wetlands No streams or floodplains	0 acres 0 acres
Turkey Creek	No wetlands Riverine system	0 acres 37 acres of floodplains
Yearin	No wetlands Small order stream	0 acres 1.41 acres of floodplain

Federal Lands

Gray Wolf Parcel. There are no riparian areas mapped by the Forest Service on the Gray Wolf parcel; however, 11 acres of floodplain were delineated (PR #024). Racetrack Wash, upstream of the point of diversion for the landfill, is a riverine system that traverses the Gray Wolf parcel west of the existing access road. It is not regularly inundated nor does it possess hydric soils and thus does not meet the characteristics needed to be classified as a wetland. Xeroriparian vegetation along portions of Racetrack Wash consists of cottonwoods, sedges, deergrass, and seep willow. In addition, a smaller, unnamed ephemeral drainage extends east of and parallel to the existing landfill access road.

Proposed Action: The Proposed Action alternative would result in a net gain of approximately 31.21 acres of floodplains and 1.3 acres of wetlands to federally managed public lands. Because no hazards to life and property are known to exist within or adjacent to parcels that contain wetlands and floodplains, no increased flood hazards are anticipated in association with the proposed exchange. For these reasons, the Proposed Action alternative meets the intent of Executive Order 11988 and Executive Order 11990 and complies with FSM 2527. The gain of floodplains would have no effect on the management of the non-federal lands. The consolidation of the private inholdings would allow the Forest Service to more consistently manage lands within each Ranger District.

No Action: Under this alternative, the federal land would remain undeveloped. There would be no net increase in the amount of wetlands, floodplains, or riparian habitat administered by the Forest Service. Impacts to riparian and wetland habitats on private land under this alternative could occur as a result of private actions taken by the landowner. These actions would likely be subject to regulations under Section 404 of the Clean Water Act.

Cumulative Effects- Proposed Action: Because there would be no direct and/or indirect effects from this project, this project would not contribute to cumulative effects on riparian and wetland habitat.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on riparian and wetland habitat.

3.2.4 Livestock Management and Agriculture

The National Resources Conservation Service (NRCS) is responsible for identifying prime and unique farmlands. No prime or unique farmlands were identified as occurring on the Gray Wolf parcel and no prime and unique farmlands occur on the non-federal lands (PR #038). Grazing occurs on all of the parcels with the exception of the Nutrioso parcel.

Affected Environment:

Non-Federal Lands

All parcels lack fences to prevent livestock grazing. The Nutrioso parcel is fenced along the property boundary. However, it is unknown if this is intended to exclude grazing or delineate the property boundary. The Forest Service does not typically determine the capacity of private inholdings to support grazing. Although grazing does occur on most of the parcels, it is outside of Forest Service management authority.

Ash and Cedar. The Ash and Cedar parcel is included in the approximately 15,600-acre Duquesne grazing allotment and is currently open to cattle grazing (PR #025). Decisions affecting grazing on this parcel were made in a 2004 Allotment Management Plan. The addition of the parcel to the allotment is not anticipated to affect livestock grazing (PR #045). The current grazing permit for the allotment is not subject to change until analysis associated with future management plans has been completed.

Buck Tank. The Buck Tank parcel is within the approximately 52,000-acre Double-A grazing allotment and is currently open to cattle grazing (PR #026). The tank on the parcel serves as a water resource for livestock. Decisions affecting grazing on this parcel were made in a 1995 Allotment Management Plan. The addition of the parcel to the allotment is not anticipated to affect livestock grazing (PR #047). The current grazing permit for the allotment is not subject to change until analysis associated with future management plans has been completed.

Buster Mine. The Buster Mine parcel is within the 27,147-acre Peck grazing allotment and is currently open to cattle grazing (PR #028). The tank on the property serves as a water resource for livestock.

Decisions affecting grazing on this parcel were made in a 1981 Allotment Management Plan. The addition of the parcel to the allotment is not anticipated to affect livestock grazing (PR #046). The current grazing permit for the allotment is not subject to change until analysis associated with future management plans has been completed.

Capital Coal. The Capital Coal parcel is part of the 61,037-acre Limestone grazing allotment and is currently open to cattle grazing (PR #041). The tank on the property serves as a water resource for livestock. Decisions affecting grazing on this parcel were made in a 1988 Allotment Management Plan. The addition of the parcel to the allotment is not anticipated to affect livestock grazing (PR #046). The current grazing permit for the allotment is not subject to change until analysis associated with future management plans has been completed.

Nutrioso. The Nutrioso parcel is not part of any grazing allotment, is fenced along the west side with barbed wire, and is not accessible by livestock. This parcel is adjacent to the Alpine Administrative Horse Grazing parcel, which is limited to seasonal use by Forest Service horses (PR #027).

Turkey Creek. The Turkey Creek parcel is within the Peck grazing allotment and is currently open to cattle grazing. The tank on the property serves as a water resource for livestock (PR #028). Decisions affecting grazing on this parcel were made in a 1981 Allotment Management Plan. The addition of the parcel to the allotment is not anticipated to affect livestock grazing (PR #046). The current grazing permit for the allotment is not subject to change until analysis associated with future management plans has been completed.

Yearin. The Yearin parcel is within the Limestone grazing allotment and is currently open to cattle grazing. The tank on the property serves as a water resource for livestock (PR #041). Decisions affecting grazing on this parcel were made in a 1988 Allotment Management Plan. The addition of the parcel to the allotment is not anticipated to affect livestock grazing (PR #046). The current grazing permit for the allotment is not subject to change until analysis associated with future management plans has been completed.

Federal Lands

Gray Wolf Parcel. The federal lands are currently used for permitted cattle grazing within the approximately 28,444-acre Cienega Grazing Allotment (PR #023). The last Cienega Allotment Management Plan was completed in 1985.

Proposed Action: On the federal parcel, approximately 255 acres of the Cienega Allotment would be eliminated. However, this would not result in a loss of AUMs (PR #023) because of the small acreage compared to the overall size of the allotment.

A net increase of approximately 606 acres of varying livestock forage would come into federal ownership. No changes would be made in the amount of livestock grazing on the existing allotments that

include the non-federal lands, again because of the small size of these parcels. The Nutrioso parcel would be added to the Alpine Administrative parcel and would be opened to seasonal grazing by horses.

No Action: Under this alternative WMA would retain ownership of the parcels and would maintain the rights and privileges associated with ownership. There would be no impact to grazing allotments on the non-federal or selected lands.

Cumulative Effects- Proposed Action: This alternative would not contribute to any cumulative effects on grazing on the federal or non-federal parcels because of the relatively limited acreage involved in the exchange for this project.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on grazing on the federal or non-federal parcels.

3.2.5 Socioeconomics

The Forest Service makes payment to counties with respect to National Forest Lands under three statutes known as the Twenty-Five Percent Fund, the Payments in Lieu of Taxes (PILT) Act, and the Secure Rural Schools and Community Self-Determination Act of 2000. The Twenty-Five Percent Fund of May 23, 1908 provides for counties to receive 25 percent of the gross receipts and revenues from timber sales and other income generating activities on National Forest lands. The PILT Act of 1976 authorizes payments to counties based on the number of acres of "entitlement lands" within the county. The Secure Rural Schools and Community Self-Determination Act of 2000 stabilizes payments for fiscal years 2001 through 2006 to counties that received a 25-percent payment during fiscal years 1986 through 1999 to provide funding for schools and roads that supplements other available funds. For purposes of this discussion, entitlement lands are National Forest lands. Non-federal landowners make payments to counties in the form of property taxes.

Non-Federal Lands

WMA currently pays county taxes on each of the seven non-federal parcels. The amounts paid for each parcel are identified below.

Ash and Cedar. WMA paid $11.70 in property taxes to Santa Cruz County in 2005.

Buck Tank. WMA paid $555.48 in property taxes to Coconino County in 2005.

Buster Mine. WMA paid $519.75 of the total due of $1,039.50 in property taxes to Yavapai County in 2005.

Capital Coal. WMA paid $453.73 of the total due of $907.46 in property taxes to Yavapai County in 2005.

Nutrioso. WMA paid $512.00 in property taxes to Apache County in 2005.

Turkey Creek. WMA paid $136.42 in property taxes to Yavapai County in 2005.

Yearin. WMA paid $19,778.32 in property taxes to Yavapai County in 2005.

Federal Lands

Gray Wolf Parcel. No property taxes or other taxes are paid on the federal lands because there are no income-generating activities occurring on this land.

Proposed Action: The reduction in amount of taxes paid from the non-federal lands would have a minimal effect on returns to Yavapai, Coconino, Apache, and Pima Counties, or the Federal Treasury. Any losses by the counties would be offset by an increase in PILT funds due to the additional federal land acreage within the counties. Table 3.4 lists the reduction in private land tax base for Yavapai, Coconino, Apache, and Pima Counties. There would be an increase in PILT funds to these counties, and WMA would pay taxes to Yavapai County on the private land received through the exchange. The Proposed Action would also have no known effect on consumers, civil rights, or disadvantaged or minority groups. Furthermore, there would be no related socioeconomic effect on nearby residents, as no financial burden would be placed on the counties as a result of lost tax revenue.

No Action: There would be no effect on revenues to Yavapai, Coconino, Apache, and Pima counties or the federal government's revenues. There would be no effect on nearby residents because private landowners of the non-federal parcels would continue to pay property taxes.

Table 3.4. The Reduction of Private Land Tax Base

Parcel	County	Reduction in acres	Reduction in Taxes	County acres
Buck Tank	Coconino	40.00	$ 555.48	11,914,880
Ash & Cedar	Santa Cruz	29.53	$ 11.70	792,320
Nutrioso	Apache	14.40	$ 512.00	7,171,200
Turkey Creek	Yavapai	41.83	$ 136.42	5,198,720
Buster Mine	Yavapai	62.00	$ 519.75	(*ibid*)
Yearin	Yavapai	560.00	$19,778.32	(*ibid*)
Capital Coal	Yavapai	124.00	$ 907.46	(*ibid*)
Total		**871.76**	**$22,421.13**	**25,077,120**

Cumulative Effects- Proposed Action: Because of the extremely small size of the effects on County revenues from this project, this project would not contribute to cumulative impacts on socioeconomics.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on socioeconomics on the federal or non-federal parcels because there would be no change from the current situation.

3.2.6 Air Quality

The Clean Air Act is the comprehensive federal law that regulates air emissions from area, stationary, and mobile sources. This law authorizes EPA, ADEQ, and local governing bodies to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The quality of surface air (air quality) is evaluated by measuring ambient concentrations of pollutants that are known to have deleterious effects. The degree of air quality degradation is then compared to established NAAQS. Air pollutants that are regulated by these standards are called "criteria pollutants," and they include ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), suspended particulate matter (PM10 and PM2.5), and lead (Pb).

Air quality standards are designed to protect those people most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. Non-attainment is a term used to indicate violations of the standard. Existing air quality conditions within the subject lands is presented below. Particulate matter that is naturally occurring within the desert accounts for a significant portion of PM10 concentrations.

Affected Environment: All seven of the non-federal parcels are located in areas that are in attainment[2] for all of the criteria pollutants as monitored by the ADEQ. Due to the relatively remote locations and non-industrial land uses surrounding each of the non-federal lands, it is likely that air quality is less influenced by local activities than by regional trends. Vehicular uses, including both authorized use of unimproved roads and unauthorized off-road activities, and forest fires have the potential to contribute to the ozone levels and the amount suspended particulate matter (PM10) in the areas where the parcels are located.

In 1996, ADEQ monitored three of the air pollutant indicators. Lead levels measured at Montezuma Castle National Monument were well below the state and federal standards. Ozone levels measured at Hillside were below state and federal standards with no exceedances. Levels of PM10 measured at Montezuma Castle and Prescott were also well below state and federal standards with no exceedances.

All of the parcels may temporarily be impacted by forest fires in the region.

Non-Federal Lands

Ash and Cedar. Sources of potential air pollution in the vicinity of this parcel include primarily vehicular traffic, which is a source of PM10 and ozone. Air pollution from Tucson and Nogales, Mexico, may occasionally impact air quality on the parcel.

Buck Tank. The parcel is within an attainment area.

[2] An attainment area is a geographic area in which levels of a criteria air pollutant meet the health-based primary standard (national ambient air quality standard, or NAAQS) for the pollutant. An area may have on acceptable level for one criteria air pollutant, but may have unacceptable levels for others. Thus, an area could be both attainment and nonattainment at the same time. Attainment areas are defined using federal pollutant limits set by EPA.

Buster Mine. The parcel is within an attainment area.

Capital Coal. The parcel is within an attainment area.

Nutrioso. The parcel is within an attainment area.

Turkey Creek. The parcel is within an attainment area.

Yearin. The parcel is within an attainment area.

Federal Lands

Gray Wolf Parcel. Air quality in the vicinity of the federal lands is generally good; however, vehicle emissions, wood burning, construction activities, and industrial operations all contribute to air pollution in the area, and the Verde Valley is subject to winter inversions. The parcel is within an attainment area.

The Gray Wolf Landfill is currently permitted by ADEQ Air Class I Permit (#1000864) and is subject to a number of regulatory requirements. According to the ADEQ permit, the natural decomposition of the waste materials, and to some extent the evaporation of volatile organic compounds (VOCs) in the waste materials, constitutes the primary source of emissions from the landfill. The landfill gas that is emitted from the landfill is fundamentally 50 percent methane (CH4) and 50 percent carbon dioxide (CO2), with a fraction containing non-methane organic compounds and hazardous air pollutants. Particulate emissions due to traffic on unpaved roads, application of a cover layer of soil, soil stockpiling, cover layer distribution, and wind erosion make up a substantial amount of PM10 pollution.

Proposed Action: Although the Proposed Action alternative would facilitate landfill expansion, WMA would first have to obtain a permit from ADEQ for the proposed expansion. The permit would require an amended MSWLF demonstrating compliance with all applicable laws and regulations including the Clean Air Act. Thus, there would be no change in air quality on a daily basis. However, these impacts would be extended an additional 10 years.

Landfill expansion would entail cut-and-fill operations and excavation of materials and stockpiling for daily, intermediate, and final waste cover, which is a source of particulate matter. Potential emission sources related to landfill expansion include the continual evaporation of VOCs, particulate emissions related to traffic on unpaved roads, application of cover soils, soil stockpiling, cover layer distribution, and wind erosion. No additional truck traffic would be added to the existing traffic flow on SR 169 during the proposed years of operation. However, truck traffic would be extended approximately 10 years.

If necessary, potential adverse effects to air quality would be mitigated by adequate dust control measures such as wetting or applying some other approved dust palliative to non-paved roads and wetting cover material prior to lay-down so that the net effect would be minor. These and other measures to ensure compliance with Arizona air quality statutes would be specified in the conditions of the Air Quality and

Class I Permit and would be implemented to prevent permit revocation or termination for cause. For these reasons, no adverse effects to air quality are anticipated as a result of the Proposed Action.

No change to air quality would occur on the non-federal parcels. Continued vehicular use on the non-federal lands, including both authorized use of unimproved roads and unauthorized off-road activities, which have the potential to contribute to the ozone levels and PM10, would continue in the area. This alternative would allow for the Forest Service to consolidate lands and manage air quality consistently in the area.

No Action: Air quality on the federal parcel would remain the same under this alternative until the landfill reaches capacity in 2009. Levels of PM10 are expected to drop after closure as a result of the cessation of the daily cut and fill operations. However, the landfill would continue to emit VOCs as identified above.

Air quality on the non-federal parcels would remain the same. Continued vehicular use on the non-federal lands, including both authorized use of unimproved roads and unauthorized off-road activities, which have the potential to contribute to the ozone levels and PM10, would continue in the area.

Cumulative Effects- Proposed Action: Past effects to air quality on lands administered by the Forest Service include impacts from prescribed burns, dust from dirt roads and sand and gravel pits, and automobile emissions. These impacts are not expected to change much in the foreseeable future on the federal or non-federal parcels. Impacts from the federal parcel would be extended an additional 10 years; however, these impacts would not cause the area to lose attainment status because the small size of the project area amounts to a negligible contribution to air pollution.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on air quality on the federal or non-federal parcels.

3.2.7 Hazardous Materials

A Phase I Environmental Site Assessment was completed for all federal and non-federal lands under consideration for the proposed land exchange (PR #012, #010, #002, #006, #011, #001, #007, #003). These assessments were conducted in compliance with the American Society for Testing and Materials Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment. Each investigation involved aerial and site reconnaissance, review of public agency records including applicable federal, state and local sources and personal interviews. The results of each investigation are summarized below.

Forest Service specialists would review all of the non-federal and federal lands prior to approval of the land exchange to ensure that Phase I Environmental Site Assessments are valid before the transfer of title is completed.

Non-Federal Lands

Ash and Cedar. A Phase I Investigation completed by SECOR (PR #012) determined that no evidence of recognized hazardous conditions exist in connection with this property, with one exception. The presence of possible residual contamination from a smelter operation believed to have been located on the property in the mid- to late-1800s. No assessment date or documentation is available concerning the environmental impact of the past smelter operation.

Buck Tank. A Phase I Investigation completed by SECOR (PR #010) determined that no evidence of recognized environmental conditions exist in connection with this property.

Buster Mine. A Phase I Investigation completed by Engineering & Testing Consultants (ETC) (PR #002) determined that although there are no known records or environmental concerns within the study area, potential hazardous material might be associated with a former gold mine within and surrounding the parcel. Testing of the soil and water was not included in the scope of the ETC study, but ETC notes that additional studies could potentially reveal extraction chemicals used in gold mining. In addition, ETC notes that there are potential physical hazards, such as the mine adit, found on the site.

Subsequently, the Forest Service has recommended that the Buster Mine site, mine waste material, and any standing water be further evaluated. WMA would be responsible for appropriate remediation prior to conveyance to the Forest Service.

Capital Coal. A Phase I Investigation completed by SECOR (PR #006) determined that no evidence of recognized environmental conditions exist in connection with the assessed property.

Nutrioso. A Phase I Investigation completed by SECOR (PR #011) determined that no evidence of recognized environmental conditions exist in connection with the assessed property.

Turkey Creek. A Phase I Investigation completed by ETC (PR #001) determined that although there are no known records or environmental concerns within the study area, potential hazardous material might be associated with an on-site sewage disposal system, building materials, and old electric transformers. ETC concluded that additional investigations would be necessary to confirm the presence or absence of hazardous material associated with these features. The electric transformers and building materials were removed by WMA in late 2003 to eliminate the potential for contamination and are considered sufficient remediation.

Yearin. A Phase I Investigation completed by SECOR (PR #007) determined that no evidence of recognized environmental conditions exist in connection with the parcel.

Federal Lands

Gray Wolf Parcel. A Phase I Investigation completed by Rust Environment & Infrastructure (PR #003) determined that no evidence of hazardous materials use, underground storage tanks, PCB or asbestos-containing materials or releases, or regulated materials exist in connection with the federal lands.

Proposed Action: There would be no effect on hazardous materials as a result of the land exchange. No hazardous materials would be generated or accepted at the landfill. WMA would be required to maintain a spill prevention and mitigation plan for materials such as diesel, gasoline, and hydraulic fuels per ADEQ standards.

No Action: There would be no effect on hazardous materials as a result of this alternative.

Cumulative Effects- Proposed Action: This alternative would not contribute to any cumulative effects on hazardous materials on the federal or non-federal parcels.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on hazardous materials on the federal or non-federal parcels.

3.2.8 Recreation

Affected Environment: As private inholdings surrounded by land administered by the Forest Service, recreational uses of the properties by the public are allowed at the discretion of the landowners. All of the parcels are accessible via unpaved roads, and based on observations made during site visits, all of the non-federal parcels appear to be used by the public for a variety of uses.

Non-Federal Lands

Ash and Cedar. No trails or other recreational facilities are located on the Ash and Cedar parcel. Recreation on this parcel may include activities such as hunting, camping, bird watching, etc.

Buck Tank. No trails or other recreational facilities are located on the Buck Tank parcel. Forest Service Road 596 crosses the parcel and, therefore, may be used by off-road vehicles (ORVs). The permanent water source is likely to indirectly support hunting in that it provides a water source for game species. Camping within 0.25-mile of a permanent water source to disrupt access by wildlife is illegal in Arizona. Therefore, legal camping in the Buck Tank parcel would not be possible.

Buster Mine. The middle portion of the Buster Mine parcel includes the Buster Mine Pack Trail, which enters the parcel from the west. Evidence suggests that this trail is currently used as a recreational hiking path. Additional activities may include ORV use, hunting, camping, bird watching, etc.

Capital Coal. No trails or other recreational facilities are located on the Capital Coal parcel. However, the parcel is accessible by ORVs and four-wheel-drive vehicles. Additional activities may include hunting, camping, bird watching, etc.

Nutrioso. The Nutrioso parcel is located along the east side of U.S. 180/191, the Coronado Trail National Forest Scenic Byway. The Nutrioso parcel is unlikely to support a wide variety of recreational uses because of its proximately to U.S. 180/191, and access is prevented by the highway right-of-way fence. The parcel's proximity and lack of trees diminishes its likelihood to be used for camping. No trails, ORV access, or other recreational facilities are located on the Nutrioso parcel.

Turkey Creek. No trails or other recreational facilities are located on the Turkey Creek parcel. This parcel is easily accessible by passenger car via Forest Service Road 178. Recreation on this parcel may include activities such as hunting, camping, bird watching, etc.

Yearin. No trails or other recreational facilities are located on the Yearin parcel. This parcel is accessible by a "two-track" road (Forest Service Road 640). This parcel is the largest of the non-federal lands (560 acres) and offers all the dispersed recreational opportunities typical of the surrounding lands. Recreation on this parcel may include activities such as ORV use, hunting, camping, bird watching, etc.

Federal Lands

Gray Wolf Parcel. The Gray Wolf parcel has a Recreation Opportunity Spectrum (ROS) classification of "Roaded Natural," which is characterized by natural-appearing environments with moderate evidence of human activity. The parcel is currently open and accessible to the public for all major land-based recreational uses allowed by PNF. However, recreation on the Gray Wolf parcel appears to be limited due to lack of roads for ORVs and the aesthetic impact of the landfill. No evidence of camping or other forms of recreational use were observed on the parcel. However, it is possible that hiking and mountain biking takes place on the General Crook Trail/Stoneman Road, which traverses the parcel. This trail is classified as a National Historic Study Trail on the Verde Ranger District website.

Proposed Action: Access to the federal parcel would be prohibited by WMA to prevent uncontrolled access to the landfill. This exclusion would include a 0.75-mile segment of the General Crook Trail. This would require that recreationists use a newly constructed trail around the landfill. The new section would not substantially change the difficulty of the trail or experience of the user.

Although ROS classifications do not apply to private inholdings within the PNF, ASNF, CNF, and KNF, if the Proposed Action is authorized, the non-federal lands would become part of the National Forest System, and the following ROS classifications would apply to each parcel as described in Table 3.5.

No Action: Under this alternative, WMA would retain the rights and privileges of land ownership and could maintain, develop, or sell the parcels as appropriate for the company's needs. Current recreation uses would continue, and the trail as currently configured would not need to be relocated.

Table 3.5. Expected Recreation Opportunity Spectrum Classification of Non-Federal Lands under the Proposed Action

Parcel/National Forest	Acreage	Classification*
Kaibab National Forest Buck Tank	40.00	Roaded Modified
Coronado National Forest Ash & Cedar	29.53	Roaded Modified
Apache-Sitgreaves National Forest Nutrioso	14.40	Roaded Natural
Prescott National Forest		
Turkey Creek	41.83	
Buster Mine	62.00	Roaded Modified
Yearin	560.00	
Capital Coal	124.00	

*based on current classifications of adjacent National Forest lands

Cumulative Effects- Proposed Action: Recreation has been cumulatively impacted on Forest Service lands by past actions, such as changes in access, land exchanges, and road closures. Generally, the Forest Service has ensured access to public lands. The Forest Service would be able to ensure public access on the non-federal parcels in the future. This would be a beneficial cumulative impact to recreation from this project for a net increase of 606 acres. The Proposed Action would allow for the Forest Service to continue providing access through all of the non-federal parcels. Recreation would be excluded from the federal parcel to be exchanged for private use. Although not quantified, the majority of recreation on the parcel is hiking along the General Crook Trail. Recreationists would lose access to the existing alignment of the General Crook Trail; however, creation of a new relocated trail would result in no net loss of trails. Therefore, there would be no cumulative effects on hikers when considering changes to the trails system in the general area.

Cumulative Effects- No Action: This alternative would not contribute to any cumulative effects on recreation on the federal parcel. Access across the private parcels is subject to the landowner's permission. This alternative could result in the loss of opportunity for an undetermined level of access across these parcels.

3.3 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENTS OF RESOURCES

An irretrievable commitment of a resource occurs when the use or productivity of a renewable resource is lost over a limited period of time; for example, when grazing is suspended in an area for a period of time, but resumed later in time. In this example, the grazing productivity during the suspension is lost irretrievably. An irreversible commitment occurs when a non-renewable resource is permanently lost; for example, the extinction of a species.

Proposed Action: There would be an irretrievable commitment of resources under this alternative because there would be a loss of grazing, recreation, and wildlife habitat on approximately 255 acres. Irreversible commitments would include the loss of two relatively small archaeological sites and 0.75-mile of an historic trail, which would be mitigated through testing (and if necessary, full excavation) and trail relocation. Additionally, the as-yet undetermined portion of the Gray Wolf parcel used for landfill expansion would also be an irreversible commitment of resources.

No Action: In the foreseeable future there would be no irretrievable or irreversible commitment of resources on the federal or non-federal lands under this alternative.

3.4 ENVIRONMENTAL JUSTICE

All federal agencies must comply with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations." This involves the fair treatment and meaningful involvement of all people regardless of age, race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations or policies. The goal of fair treatment is to identify potential disproportionately high adverse impacts and identify alternatives that mitigate these impacts.

For this EA, compliance with Executive Order 12898 was accomplished by several means: 1) conducting a scoping process that included a wide section of the interested public, 2) contacting tribal governments, 3) publishing legal notices in local newspapers, and 4) conducting an analysis to determine if the land exchange would have an effect on minority or low income groups.

In reviewing the impacts of the alternatives, no pattern of disproportionate adversely impacted minority or low-income groups has been identified. For those issues that are of special concern to Indian tribes in the region, notably Native American archaeology, the PNF is consulting with the concerned tribes as required under the National Historic Preservation Act, Native American Graves Protection and Repatriation Act, and other federal laws and policies.

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CHAPTER 4.0 CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

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FEDERAL, STATE, AND LOCAL AGENCIES:

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Arizona State Game & Fish Department
- Sabra Schwartz, Heritage Data Management System, Coordinator
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Coconino National Forest

Coronado National Forest
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Kaibab National Forest

Prescott National Forest

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- Tom Furgason, Biology Program Director
- Robin Llewellyn, Biologist
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- Thomas Yoder, Archaeologist

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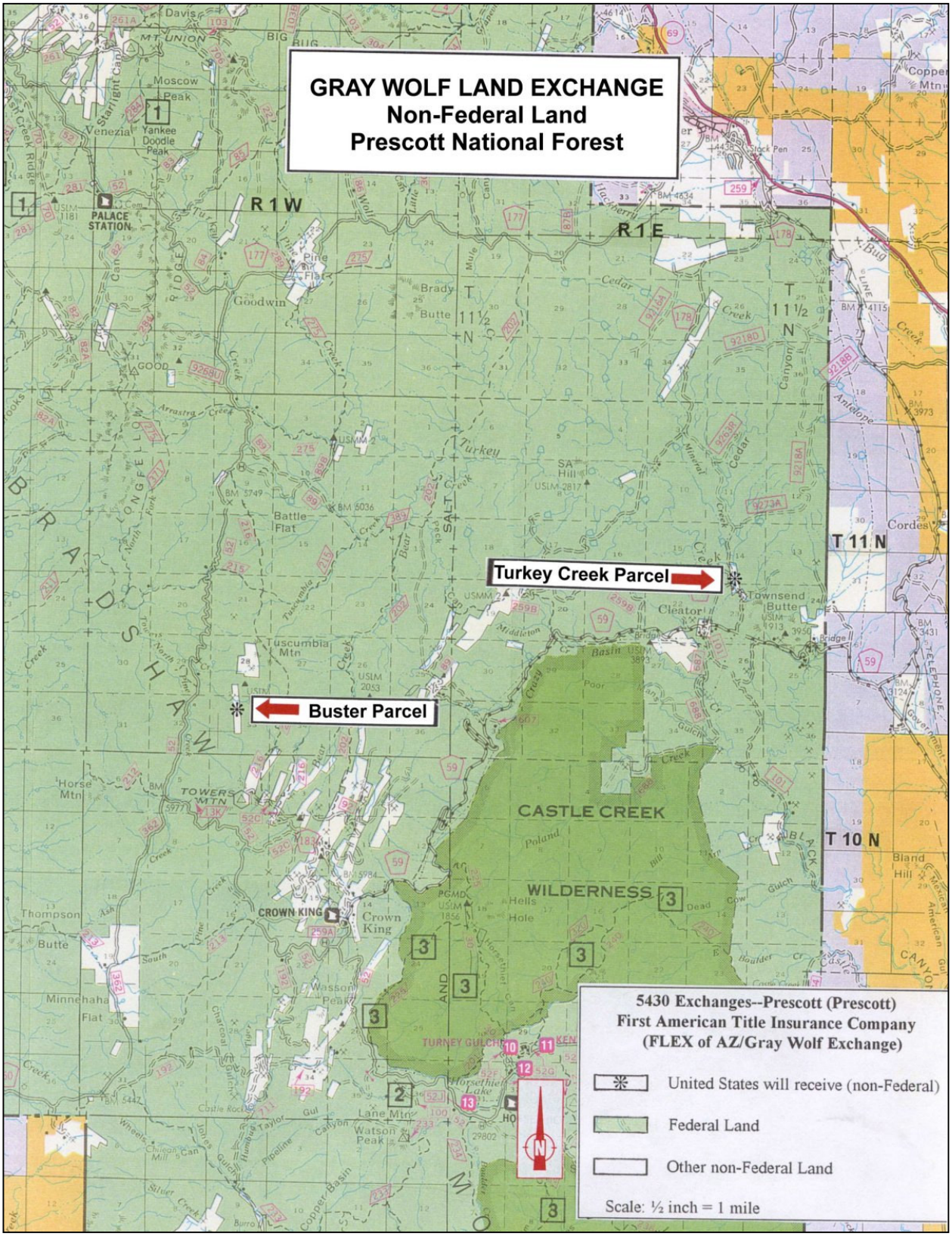
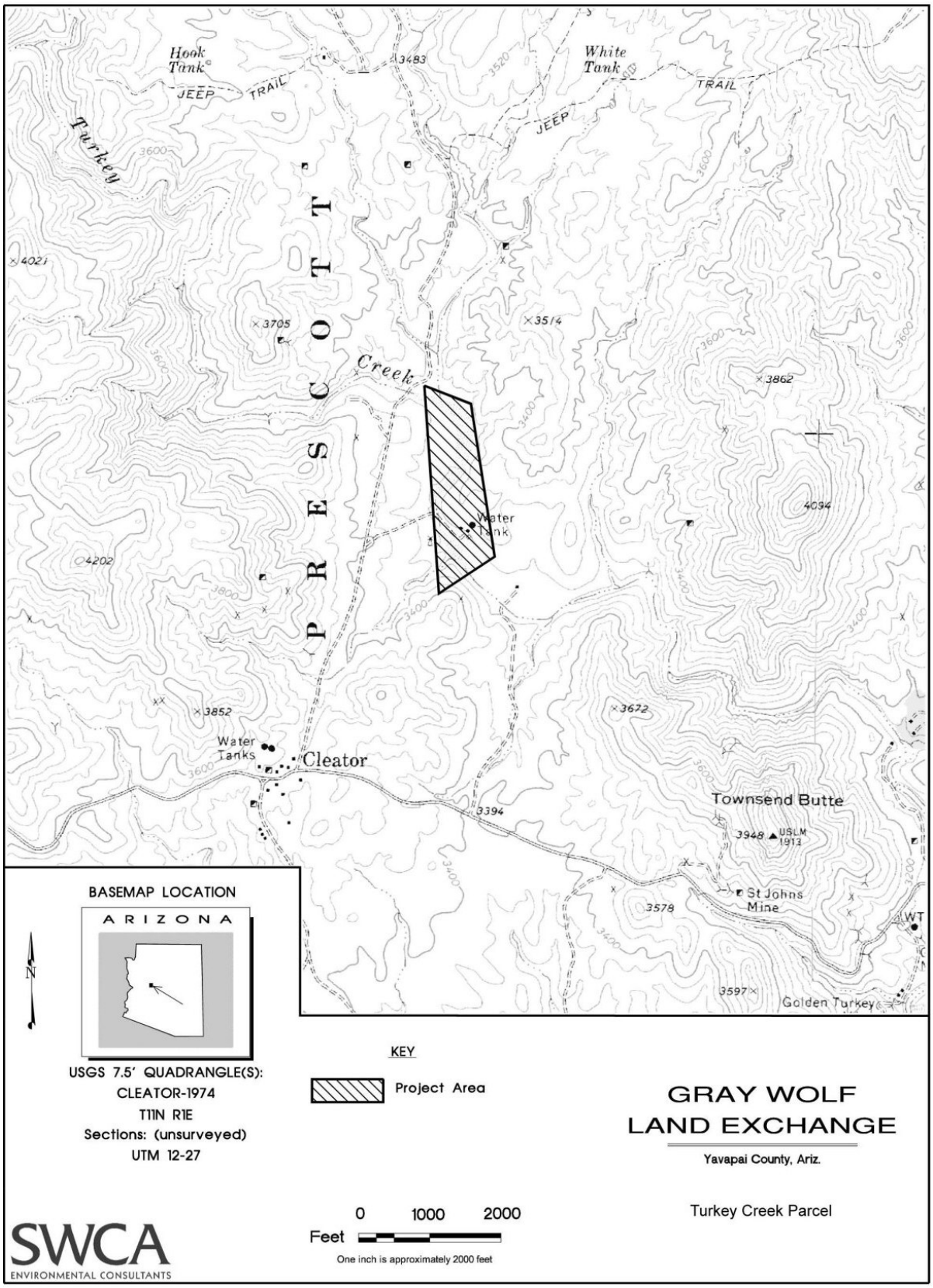
APPENDIX A

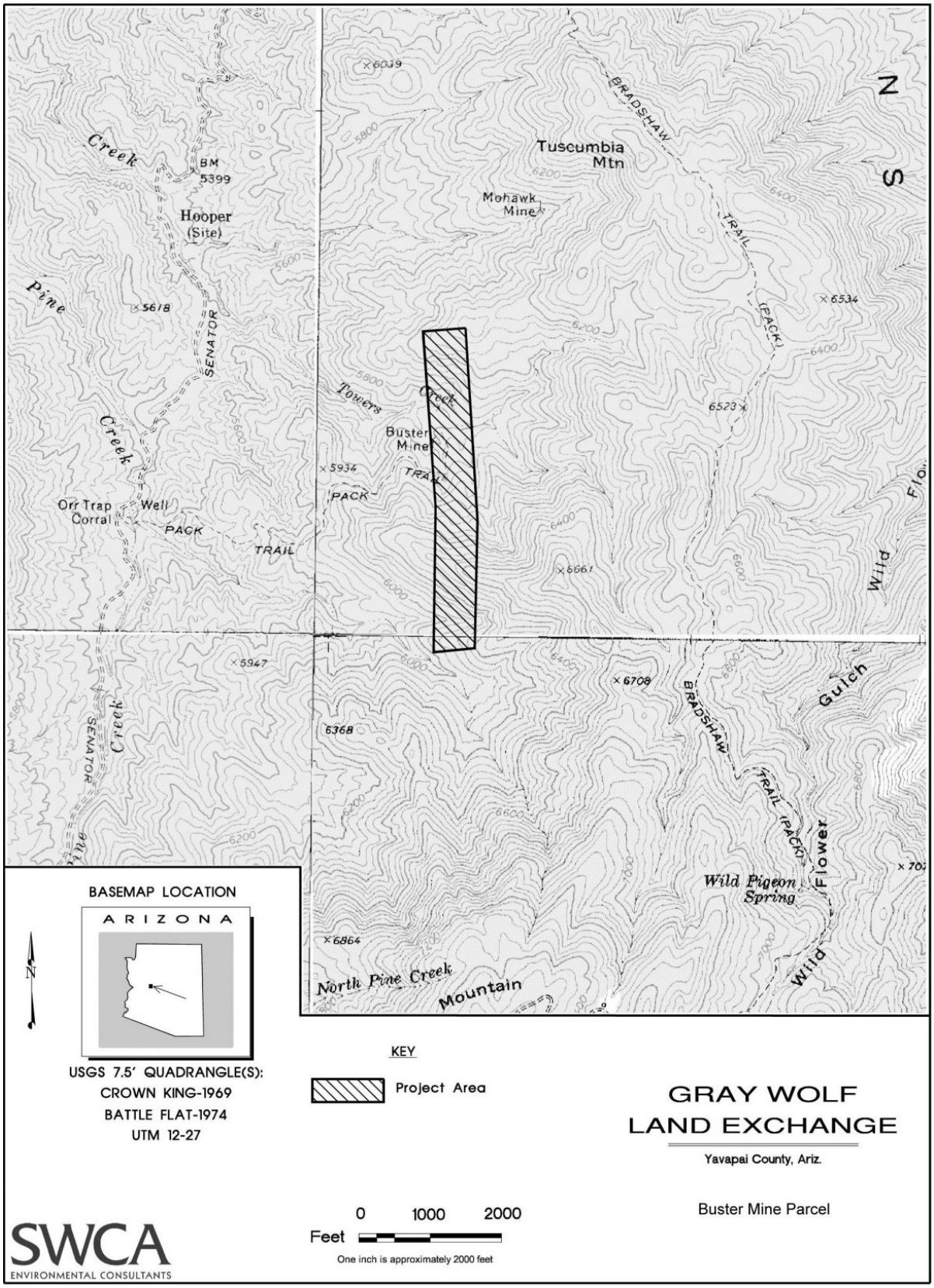
EXCHANGE PARCEL MAPS



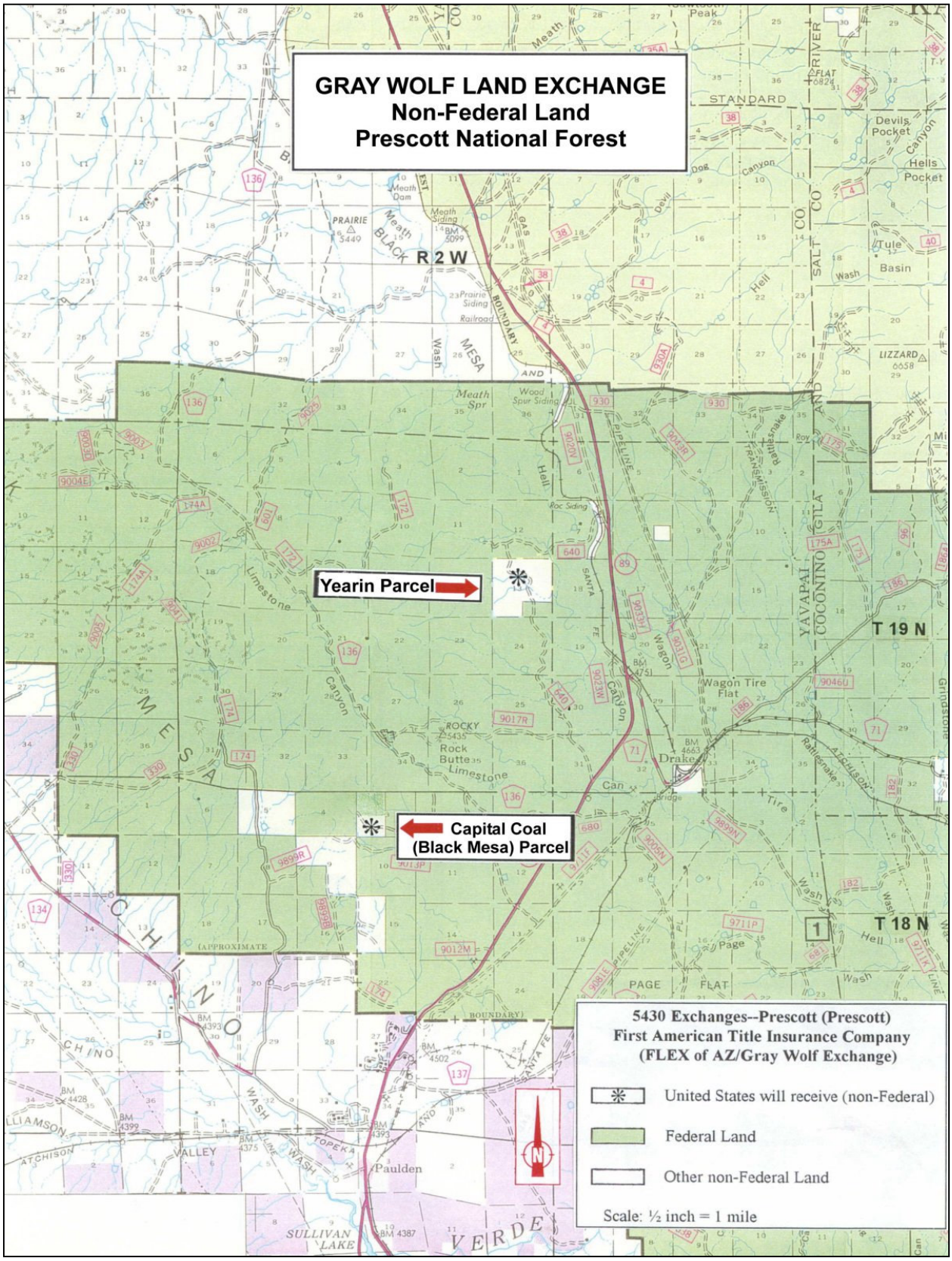
Appendix A: Vicinity Map of Turkey Creek Parcel and Buster Parcel on the Prescott National Forest



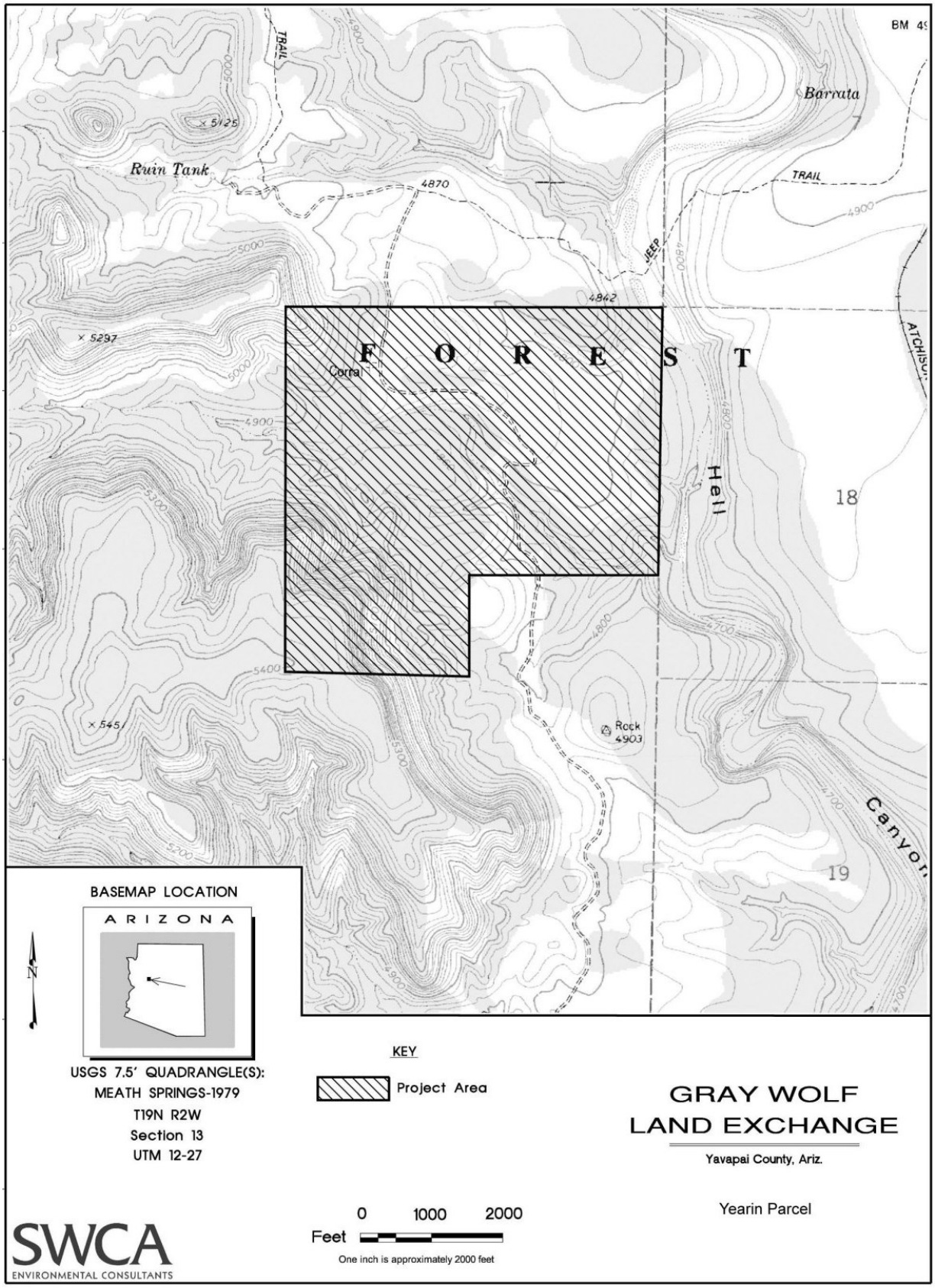
Appendix A: Local Map of Turkey Creek Parcel



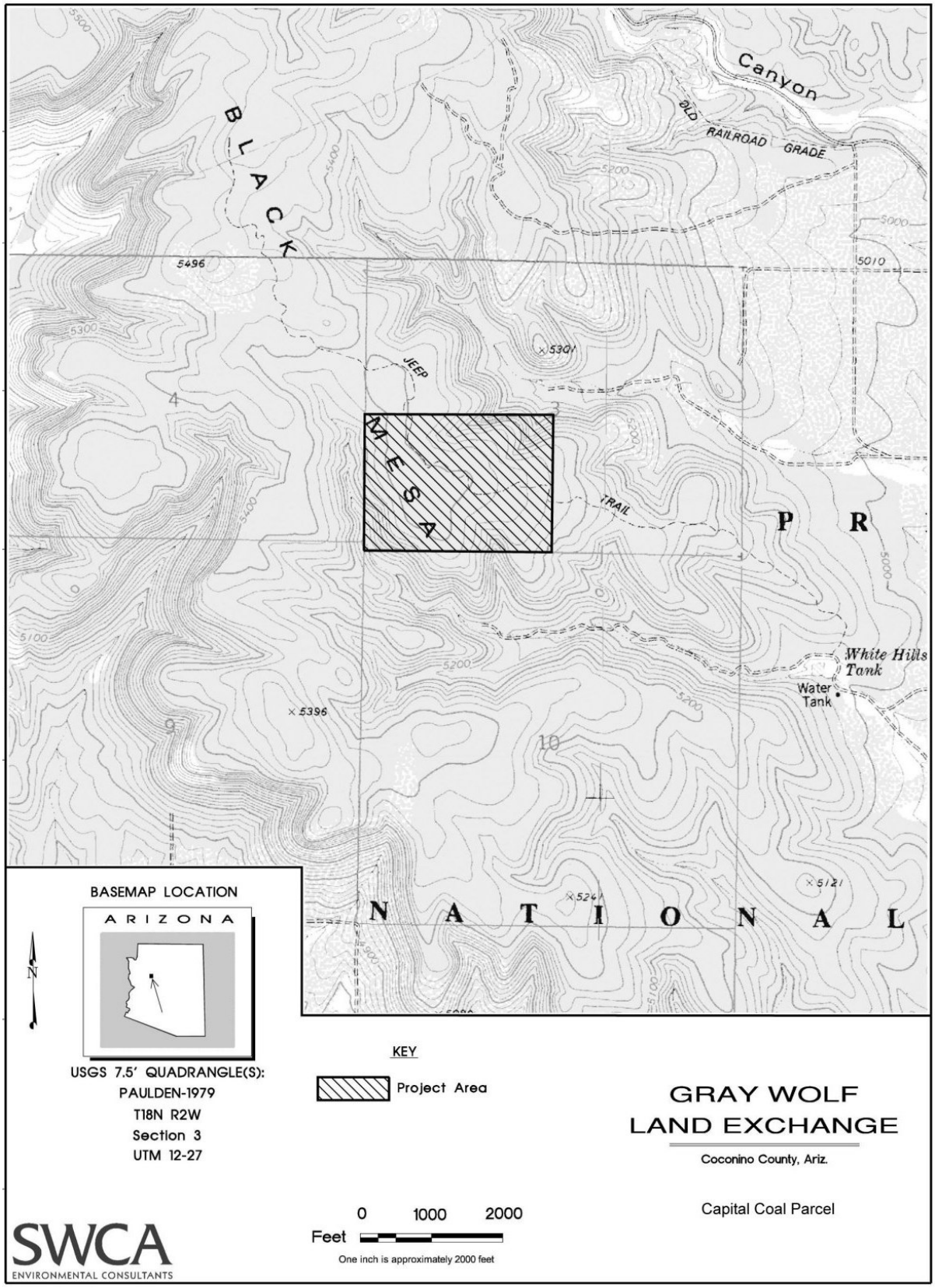
Appendix A: Local Map of Buster Parcel



Appendix A: Vicinity Map of Yearin Parcel and Capital Coal Parcel on the Prescott National Forest

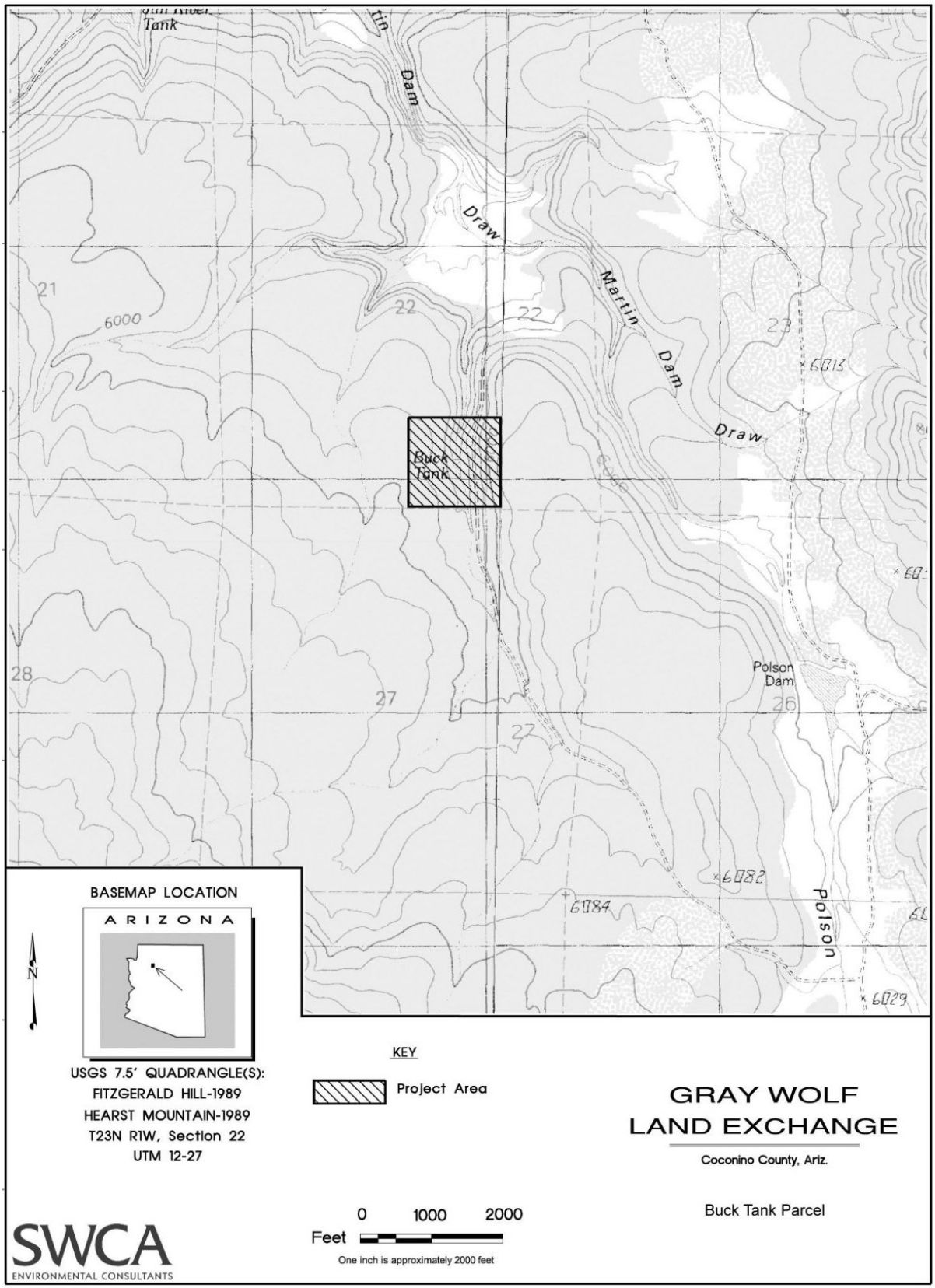


Appendix A: Local Map of Yearin Parcel

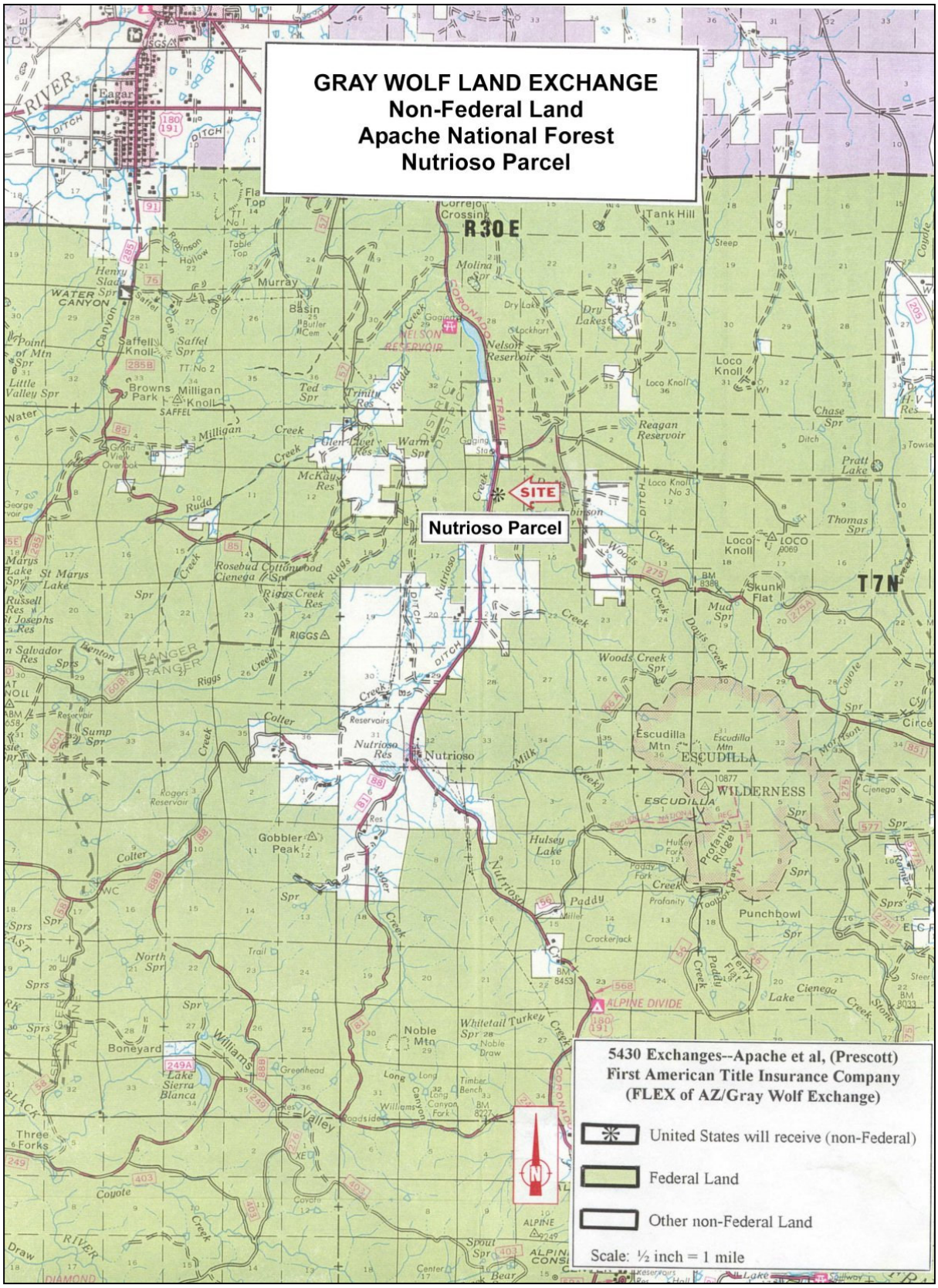


Appendix A: Local Map of Capital Coal Parcel

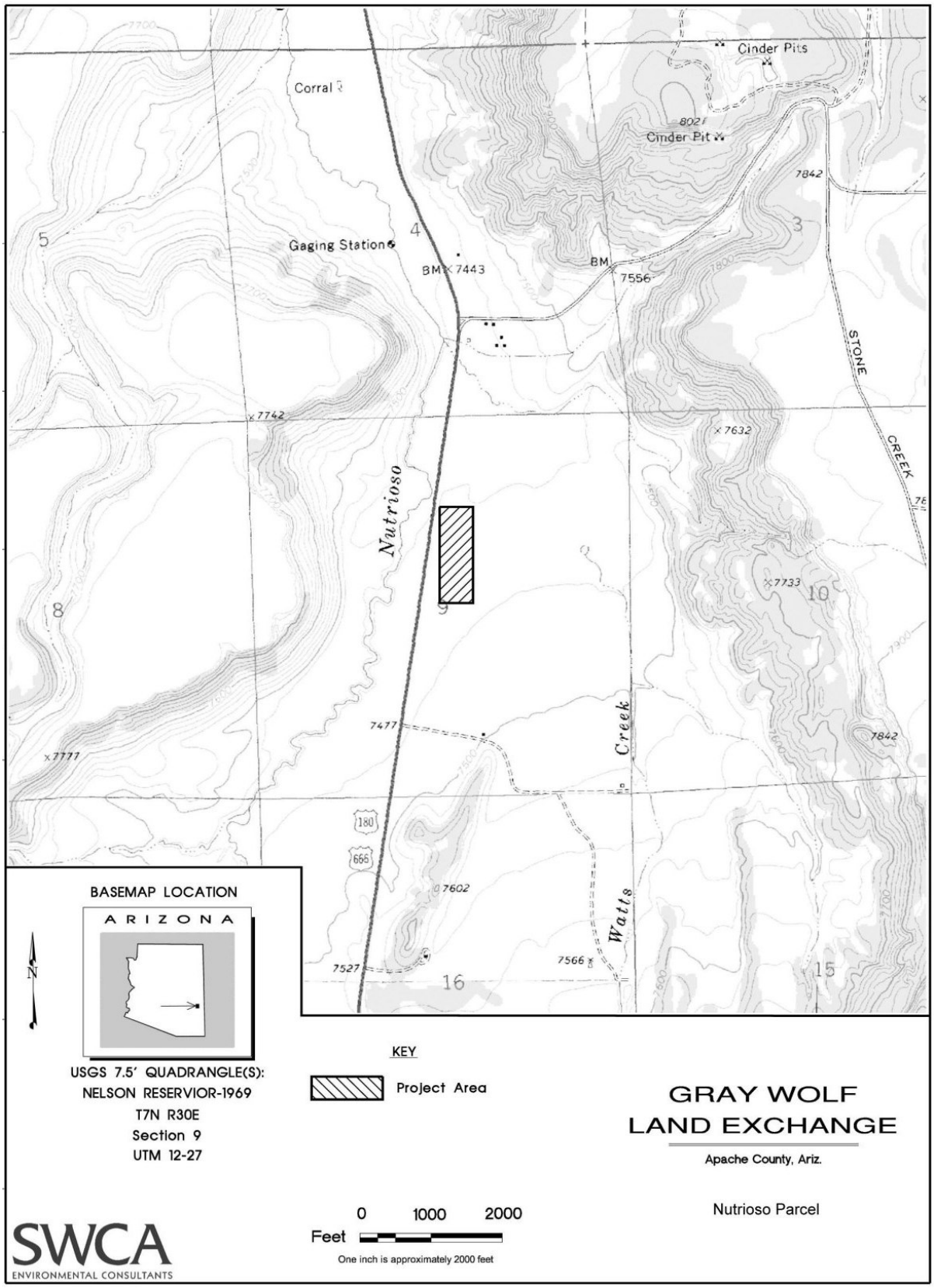
Appendix A: Vicinity Map of Buck Tank Parcel on the Kaibab National Forest



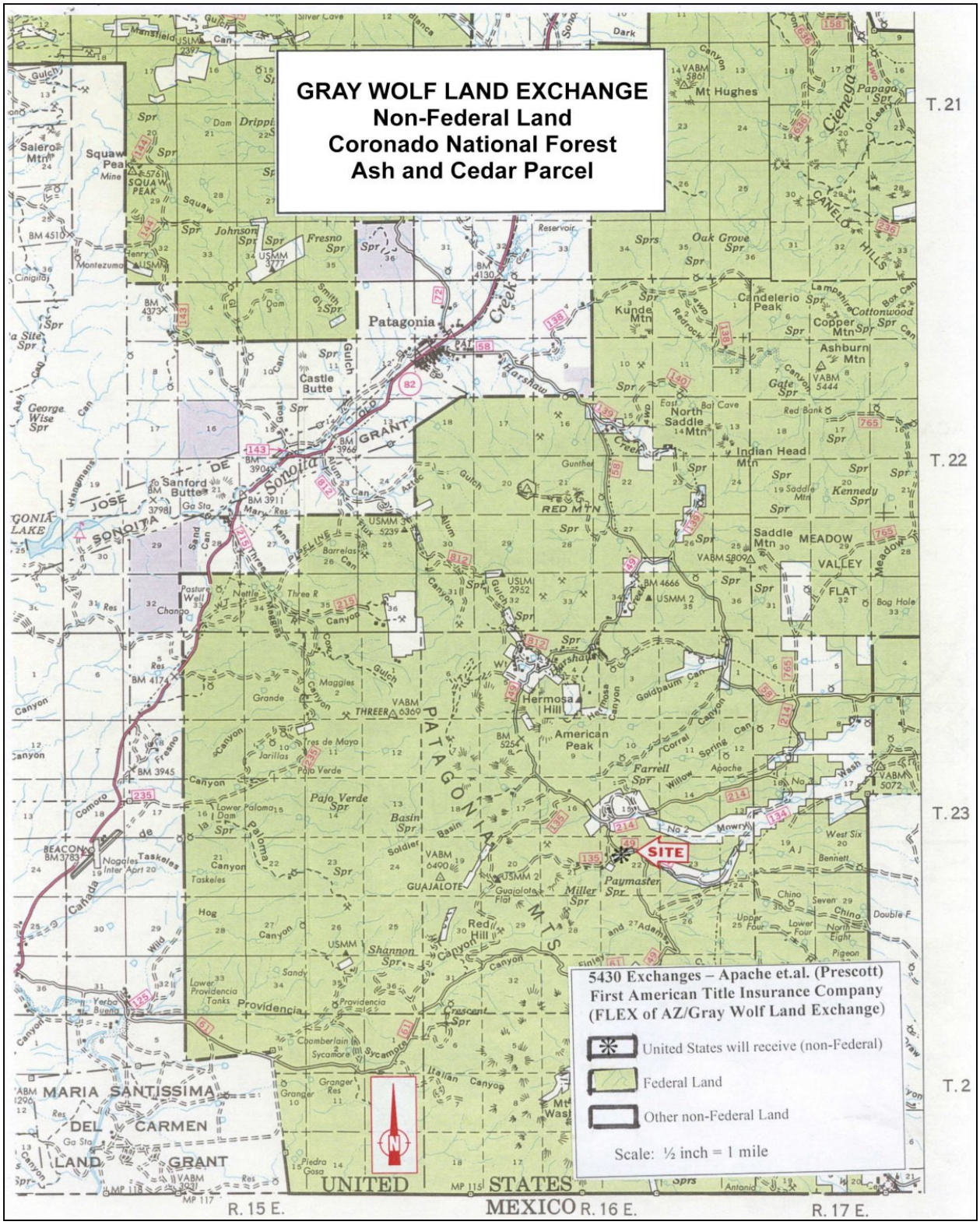
Appendix A: Local Map of Buck Tank Parcel



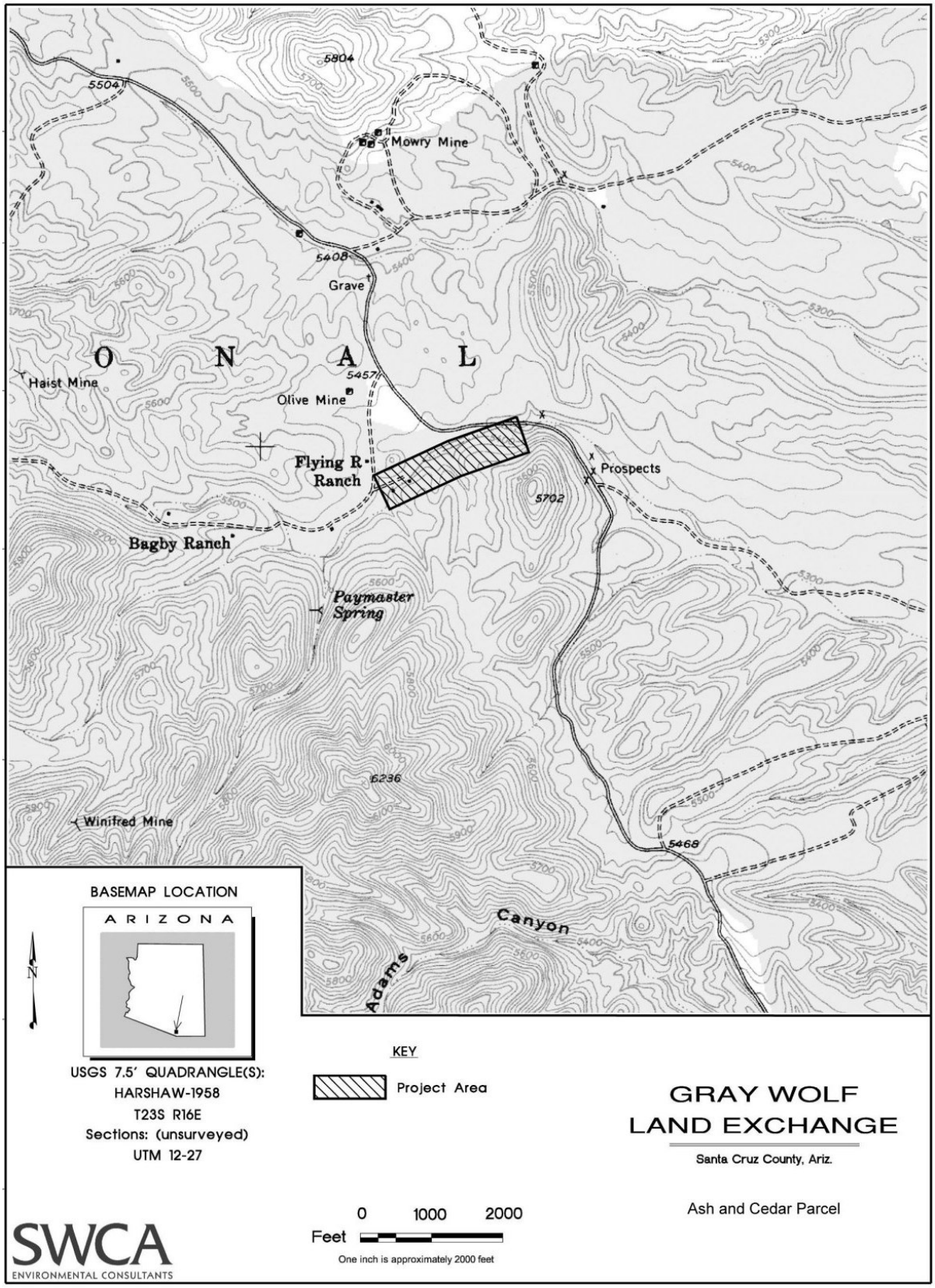
Appendix A: Vicinity Map of Nutrioso Parcel on the Apache National Forest



Appendix A: Local Map of Nutrioso Parcel



Appendix A: Vicinity Map of Ash and Cedar Parcel on the Coronado National Forest



Appendix A: Local Map of Ash and Cedar Parcel

APPENDIX B

FOREST SERVICE MANAGEMENT DIRECTION RELEVANT TO LAND EXCHANGE PARCELS

Table B.1 Forest Service Management Direction Relevant to Land Exchange Parcels

National Forest	Forest-wide	Management Area
Coronado National Forest (Ash and Cedar Parcels)	Lands Goal: Use land ownership adjustment to accomplish resource management objectives.	Management Area 4: Emphasis on livestock grazing, game habitat, and fuelwood harvest. Lands Administration: Act on land exchange offers involving Priority I lands and the most desirable Priority II lands to the extent possible. As noted in Table 11 of the Coronado Forest Plan, local and physical conditions have changed. The parcel classification of Priority III is outdated. Criteria 6, 7, and 11 of Table 11 are more accurate considerations for the parcel selection (PR #042).
	Land Administration Management Practice #3: Acquire lands or interest in lands through exchange, purchase, or donation in accordance with the Forest Land Adjustment Classification Maps.	
	Land Administration Management Practice #5: Exchange should result in an improved forest land ownership pattern.	
Apache-Sitgreaves National Forest (Nutrioso Parcel)	Lands Goal: Acquire lands that are needed for landownership consolidation and improved management efficiency through land exchange, purchase, or donation."	Management Area 1 (Alphine District)-02 (Woodland): Emphasis on a combination of multiple uses including a sustained yield of timber and firewood production, wildlife habitat, livestock grazing, watershed, and dispersed recreation.
	Landownership Adjustment/ Planning and Land Classification: The benefits of acquiring lands offered for exchange are of greater benefit to the public than retaining lands selected for exchange.	
	Land Exchange: Actively seek and encourage land exchanges that directly improve the management of any Forest resources.	
Kaibab National Forest (Buck Tank Parcel)	Lands Goal: Acquire lands that are need for landownership consolidation and improved management efficiency through land exchange, purchase, or donation.	Management Area 1, Realty Management Direction: Provides for efficient management of realty resources that responds to needs for special land uses, rights-of-way, adjustments to land ownership, and property corner and boundary establishment and maintenance.
	Land Acquisition: Acquire key wildlife areas such as riparian areas through acquisition authorities.	Management Area 1, Realty Management Direction: Acquires lands and interests in lands that provide consolidated land ownership, public and administrative access to National Forest Lands, and efficient resource management.

Table B.1 Forest Service Management Direction Relevant to Land Exchange Parcels, continued

National Forest	Forest-wide	Management Area
Prescott National Forest (Gray Wolf, Buster Mine, Capital Coal, Turkey Creek, and Yearin)	Lands Goal: Conduct landownership adjustment, right-of-way acquisition, landline location, and special uses programs to promote efficient management. Lands: Respond to land exchange proposals as presented. Seek to acquire all private holdings meeting one or more of eleven criteria. Applicable criteria are: #4) Wetlands, riparian areas, and other water-oriented lands (Ash and Cedar, and Buck Tank, Turkey Creek, and Yearin) #6) Lands that will improve public land management, meet specific administrative needs, or benefit other national forest programs. (ALL) #9) Lands that are needed to consolidate public land ownership or meet research needs (ALL) #11) Inholdings that contain needed rights-of-way and will contribute to the forest resource management base. (Turkey Creek and Yearin) Lands offered by the United States …meet one or more of the following criteria and those in the Federal Land Policy and Management Act (FLPMA) regulations. Applicable are: #1) Lands needed to meet the needs of expanding communities. (landfill) #3) Provide for consolidation of public lands. (land exchange) #4) Improve management, benefit specific resources, or increase management efficiency. (Negates the need for the special use access permit for Gray Wolf)	Gray Wolf Management Area 3 Chaparral: Emphasis on increasing water yield and improving watershed condition. Management Area 5: Desert Grasslands: Emphasis on range and watershed management. Buster Mine Management Area 3 Chaparral: Emphasis on increasing water yield and improving watershed condition Management Area 4 Pine: Emphasis on wildlife and dispersed recreation. Capital Coal Management Area 2 Woodland: Emphasis on wildlife management and improving and maintaining watershed condition. Turkey Creek Management Area 5 Desert Grasslands: Emphasis on range and watershed management. Yearin Management Area 2 Woodland: Emphasis on wildlife management and improving and maintaining watershed condition.