

# Appendices

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# Appendix 1

## Locations for Acquisition of Legal Access

Legal access will be acquired across private, state or Indian Reservation lands, for public and/or administrative vehicular use, in the following locations.

### Alternatives A and C

1. Murray Springs Road T. 21 S., R. 21 E., Sec. 26.
2. Guadalupe Canyon Road T. 24 S., R. 32 E., Secs. 14,15,16,21.
3. Baker Canyon Road T. 23 S., R. 32 E., Sec. 31;  
T. 23 S., R. 31 E., Sec. 1.
4. Emigrant Canyon Road T. 14 S., R. 28 E., Secs. 25,36;  
T. 14 S., R. 29 E., Sec. 31;  
T. 15 S., R. 29 E., Secs. 3,4,5, 6, 10.
5. Buckeye Canyon Road T. 13 S., R. 27 E., Secs. 26,27,34;  
T. 14 S., R. 27 E., Sec. 9.
6. Mascot Mine Road T. 14 S., R. 27 E., Secs. 16,21, 28, 29.
7. Mineral Park Road T. 14 S., R. 26 E., Secs. 8,9, 11, 14, 15, 16.
8. Happy Camp Canyon Road T. 13 S., R. 28 E., Secs. 3,7,8,9.
9. Walnut Gulch Road T. 13 S., R. 26 E., Secs. 23, 26,35.
10. Little Doubtful Canyon Road T. 12 S., R. 32 E., Secs. 26, 27,35.
11. Doubtful Canyon Road T. 12 S., R. 32 E., Sec. 35;  
T. 13 S., R. 32 E., Secs. 3,9.
12. West Peloncillo Mountains Roads, including Midway Canyon  
T. 12 S., R.31 E., Secs. 11, 12, 13, 24;  
T. 12 S., R. 32 E., Secs. 7,18.
13. Day Ranch Road T. 10 S., R. 32 E., Secs. 21,29.
14. Upper San Francisco River Road  
T. 3 S., R. 30 E., Secs. 20,29 32;  
T. 4 S., R. 29 E., Secs. 12, 13;  
T. 4S., R. 30 E., Secs. 5, 6,7, 18, 19, 30.
15. Black River Road T. 4 S., R. 28 E., Secs. 25,26;  
T. 4 S., R. 29 E., Secs. 19,20,30.
16. Upper Bonita Creek Road  
T. 4 S., R. 27 E., Secs. 27,34;  
T. 5 S., R. 27 E., Secs. 3, 10, 11, 14,23.

17. West Ranch Road T. 5 S., R. 26 E., Secs. 26,35;  
T. 6 S., R. 26 E., Secs. 2,33;  
T. 7 S., R. 26 E., Sec. 4.
18. Black Point Road T. 6 S., R. 25 E., Sec. 7.
19. New Bryce Road T. 6 S., R. 25 E., Sec. 6.
20. Red Knolls Road T. 5 S., R. 23 E., Sec. 25;  
T. 5 S., R. 24 E., Secs. 30,31.
21. Black Rock Road Across San Carlos Apache Indian Reservation and private lands along Black Rock Wash.
22. Goodwin Wash Road Across San Carlos Apache Indian Reservation and private lands along Goodwin Wash.
23. Whittaker Ranch Road T. 6 S., R. 17 E., Secs. 17, 19, 20.
24. Rug Road T. 7 S., R. 18 E., Sec. 14;  
T. 8 S., R. 18 E., Sec. 1,5, 12, 13, 14, 15, 16.
25. Old Aravaipa Road T. 5 S., R. 19 E., Secs. 24, 25, 26, 36.
26. Dry Camp Road T. 6 S., R. 19 E., Secs. 5,8.
27. Wagner Ranch Road T. 6 S., R. 17 E., Secs. 13,23,24.
28. Oak Spring Canyon Road T. 6 S., R. 17 E., Sec. 26;  
T. 6 S., R. 18 E., Secs. 31,32.
29. Wood Ranch Road T. 6 S., R. 17 E., Secs. 23,24.
30. Upper Deer Creek Road T. 6 S., R. 19 E., Sec. 3;  
T. 5 S., R. 19 E., Sec. 34.
31. Gila River Road below Coolidge Dam T. 3 S., R. 18 E., Secs. 17, 18.
32. El Capitan Road T. 2 S., R. 15 E., Secs. 23,25,26.
33. Cutter Road Across San Carlos Apache Indian Reservation and private lands from Cutter to Mescal Creek.
34. Chillito Mine Road T. 4 S., R. 15 E., Secs. 22, 23, 27, 34;  
T. 5 S., R. 15 E., Secs. 2,9, 11.
35. Cherry Springs Canyon Road T. 12 S., R. 20 E., Secs. 4,9.
36. Jackson Cabin Road T. 12 S., R. 20 E., Secs. 11, 12, 13;  
T. 12 S., R. 21 E., Secs. 19, 30,31;  
T. 13 S., R. 21 E., Secs. 5,6.
37. Muleshoe Pipeline Road T. 12 S., R. 21 E., Sec. 31.
38. St. David Cienega Road T. 18 S., R. 21 E., Sec. 20.
39. Charleston Admin. Road T. 20 S., R. 21 E., Sec. 36.

Alternative B

1. Murray Springs Road T. 21 S., R. 21 E., Sec. 26.
2. Guadalupe Canyon Road T. 24 S., R. 32 E., Secs. 14,15,16,21.
3. Emigrant Canyon Road T. 14 S., R. 28 E., Secs. 25, 36;  
T. 14 S., R. 29 E., Sec. 31;  
T. 15 S., R. 29 E., Secs. 3,4,5, 6, 10.
4. Buckeye Canyon Road T. 13 S., R. 27 E., Secs. 26,27,34;  
T. 14 S., R. 27 E., Sec. 9.
5. Mascot Mine Road T. 14 S., R. 27 E., Secs. 16, 21,28,29.
6. Mineral Park Road T. 14 S., R. 26 E., Secs. 8,9,11,14,15,16.
7. Walnut Gulch Road T. 13 S., R. 26 E., Secs. 23,26,35.
8. Doubttul Canyon Road T. 12 S., R. 32 E., Sec. 35;  
T. 13 S., R. 32 E., Secs. 3,9.
9. West Peloncillo Mountains Roads, including Midway Canyon  
T. 12 S., R. 31 E., Secs. 11, 12, 13, 24;  
T. 12 S., R. 32 E., Secs. 7,18.
10. Day Ranch Road T. 10 S., R. 32 E., Secs. 21,29.
11. Upper San Francisco River Road  
T. 3 S., R. 30 E., Secs. 20, 29 32;  
T. 4 S., R. 29 E., Secs. 12,13;  
T. 4 S., R. 30 E., Secs. 5, 6,7, 18, 19, 30.
12. Black River Road T. 4 S., R. 28 E., Secs. 25,26;  
T. 4 S., R. 29 E., Secs. 19,20,30.
13. Upper Bonita Creek Road T. 4 S., R. 27 E., Secs. 27,34;  
T. 5 S., R. 27 E., Secs. 3, 10, 11, 14,23.
14. West Ranch Road T. 5 S., R. 26 E., Secs. 26,35;  
T. 6 S., R. 26 E., Secs. 2,33;  
T. 7 S., R. 26 E., Sec. 4.
15. Black Point Road T. 6 S., R. 25 E., Sec. 7.
16. New Bryce Road T. 6 S., R. 25 E., Sec. 6.
17. Red Knolls Road T. 5 S., R. 23 E., Sec. 25;  
T. 5 S., R. 24 E., Secs. 30,31.
18. Black Rock Road Across San Carlos Apache Indian Reservation and private lands along Black Rock Wash.
19. Goodwin Wash Road Across San Carlos Apache Indian Reservation and private lands along Goodwin Wash
20. Whittaker Ranch Road T. 6 S., R. 17 E., Secs. 17, 19, 20.

21. Rug Road T. 7 S., R. 18 E., Sec. 14;  
T. 8 S., R. 18 E., Sec. 1, 5, 12,13,14, 15, 16.
22. Dry Camp Road T. 6 S., R. 19 E., Secs. 5,8.
23. Wagner Ranch Road T. 6 S., R. 17 E., Secs. 13,23,24.
24. Wood Ranch Road T. 6 S., R. 17 E., Secs. 23, 24.
25. Upper Deer Creek Road T. 6 S., R. 19 E., Sec. 3;  
T. 5 S., R. 19 E., Sec. 34.
26. Gila River Road below Coolidge Dam T. 3 S., R. 18 E., Secs. 17, 18.
27. Cutter Road Across San Carlos Apache Indian Reservation and private lands from Cutter to Mescal Creek.
28. Jackson Cabin Road T. 12 S., R. 20 E., Secs. 11,12,13;  
T. 12 S., R. 21 E., Secs. 19,30,31;  
T. 13 S., R. 21 E., Secs. 5,6.
29. Muleshoe Pipeline Road T. 12 S., R. 21 E., Sec. 31.

## Appendix 2

### Areas of Critical Environmental Concern Evaluations

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# Appendix 2

## Areas of Critical Environmental Concern Evaluations

### Gila Box Outstanding Natural Area

1. **Description of the Value, Resource, System or Hazard:** The Gila Box area is well known for its many significant values. The area contains riparian vegetation along the rivers and is known for the overlap of Sonoran and Chihuahuan Desert vegetation. The Gila Box contains a number of mesquite bosques significant to wildlife and an increasingly rare vegetation community. The area has moderate to high values in known and projected prehistoric archaeological sites and in the numerous historic sites. The rivers may support populations of the threatened loach minnow and spikedace. Endangered bald eagles winter in this area. The area has significant features in the highly eroded volcanic and conglomerate geological formations. Also included is the last free-flowing stretch of the Gila River in Arizona. The Gila and San Francisco rivers are both perennial. The area is noted for its wildlife populations, especially raptors like the black and zone-tailed hawks and bald eagles. The twisting canyons, steep cliffs, erosional features, vegetation, flowing streams and geological formations combine to make this an outstanding scenic area. Finally, the Gila Box is used extensively for recreation, including floatboating, hiking, picnicking, fishing and off-highway vehicle use. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories.

This area meets the relevance criterion because it has significant historic values (numerous homesteading sites), prehistoric values (numerous known and projected archaeological sites) and scenic values (twisting canyons with erosional features, perennial streams and interesting geological formations). It also has a fish and wildlife resource in the native fish and bald eagles.

This area meets the importance criterion because it has more than locally significant qualities in the "last free-flowing stretch of the Gila River in Arizona", the perennial condition of the rivers and the outstanding scenic quality of the area. The bald eagles, perennial streams, fishery resource and the scenic qualities are all sensitive and vulnerable to adverse change, especially from surface disturbing activities.

2. **Relationship to Other Areas of Special Management:** A portion of the area was evaluated for wilderness designation, though none of the area was recommended. This area is also being studied for possible designation under the Wild and Scenic Rivers Act. The Gila Box was proposed as an Outstanding Natural Area in past planning efforts. This area also includes about 10 acres of mesquite bosques nominated as a separate Area of Critical Environmental Concern but included in this evaluation.

3. **Rationale for Designation:** The Gila Box area should be designated as an Outstanding Natural Area Area of Critical Environmental Concern of 2,411 acres because the special values identified above meet the relevance and importance criteria and are in need of special management for their protection and enhancement. In addition, the Gila Box is a well-known canyon to many people both in and out of Arizona, making it a highly sensitive area.

#### 4. **Special Management Prescriptions - Preferred Alternative**

- withdraw the area from mineral entry.
- prohibit surface occupancy for mineral leasing activities.
- close the area to mineral material sales,
- designate the area "Limited" to off-highway vehicle use. Limit vehicle use to existing roads and trails.
- acquire private inholdings, as they become available.
- prohibit authorization of rights-of-way.

- . prohibit woodcutting and gathering for home use. Gathering dead and down wood for campfires is permitted.
- . manage the area as a Visual Resource Management Class II area to preserve the scenic qualities of the Gila Box.

5. Alternatives Considered: In *Alternative B*, an Area of Critical Environmental Concern would be established to include 2,994 acres of public land. This alternative includes the lands in the Preferred *Alternative*, as well as additional lands along the San Francisco River. The management prescription would be the same as under the Preferred *Alternative* with the following exceptions: the river bottoms would be closed to off-highway vehicle use; wildfires in riparian areas would be suppressed; and authorization of rights-of-way would be prohibited in the Area of Critical Environmental Concern outside the existing Arizona Electric Power Company right-of-way.

*Alternative C* has been eliminated through congressional designation of the Gila Box Riparian National Conservation Area. All lands which were included in *Alternative C* are now within the boundaries of the National Conservation Area.

## Turkey Creek Riparian

1. Description of the Value, Resource, System or Hazard: Protection and enhancement of riparian vegetation is a high priority for BLM. Turkey Creek and Oak Grove and Maple canyons contain riparian communities, wildlife, cultural and scenic resources that warrant Area of Critical Environmental Concern designation. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories and by a nomination from The Nature Conservancy.

This area meets the relevance criterion because it has significant cultural and scenic values, a wildlife resource and a natural process or system in the riparian vegetation.

The importance criterion is met because the canyons have more than locally significant qualities in the cultural resources, riparian vegetation, wildlife and scenery. These qualities also make the area fragile, sensitive and vulnerable to adverse change.

2. Relationship to Other Areas of Special Management: The Aravaipa Canyon Wilderness adjoins portions of the proposed Area of Critical Environmental Concern. The recommended boundary is a portion of a 40,000-acre Area of Critical Environmental Concern proposed by The Nature Conservancy.

3. Rationale for Designation: The Turkey Creek riparian area should be designated an Area of Critical Environmental Concern since sensitive resources require special management for protection and enhancement. Maple Canyon contains a high quality mixed broad-leaf riparian community that includes big-toothed maple at its lowest known elevation in Arizona. Turkey Creek and Oak Grove Canyon contain riparian, wildlife, cultural and scenic values that require special management of recreation, livestock, access and vegetation to improve ecological conditions in the 2,326 acre area. The watersheds of the canyon areas do not contain special resources and will be properly managed to protect downstream values according to decisions of the Preferred *Alternative*.

### 4. Special Management Prescriptions - Preferred Alternative

- . designate the area limited to off-highway vehicle use. Limit vehicle use to existing roads and trails.
- . close Turkey Creek Canyon and Oak Grove Canyon (in Area of Critical Environmental Concern) to vehicle use beyond the Oak Grove Canyon corral.
- . manage livestock to avoid yearlong use, consistent with the goals of the Aravaipa Watershed Coordinated Resource Management Plan.
- . monitor water quality and provide input to activity plans to maintain the desired water conditions.
- . manage the area to accelerate recovery of riparian vegetation to reach good ecological condition by 1997.

- acquire adjacent riparian areas and lands within the watershed, as they become available.
- prohibit woodcutting and gathering for home use. Gathering dead and down wood for campfires is permitted.
- manage the area as a Visual Resource Management Class II area to preserve scenic quality.

**5. Alternatives Considered:** In *Alternative B*, an Area of Critical Environmental Concern would be established to include the approximate 50,290 acres of public lands in the Aravaipa watershed. Livestock grazing on the South Rim Allotment would be suspended for the life of this plan except for the terms of the existing permit. Adjacent lands in the watershed will be acquired from willing owners. Upland vegetation communities will be rehabilitated using fire, mechanical, structural and chemical treatments. Roads and earthen dams will be stabilized to reduce erosion. BLM will integrate watershed treatments with livestock allotment management plans and other activity plans and will develop cooperative agreements with adjacent landowners. Management will emphasize rehabilitation and protection of upland and riparian areas using active management to accelerate processes. The Area of Critical Environmental Concern would become a right-of-way avoidance area.

In *Alternative C*, the Area of Critical Environmental Concern will encompass primarily the 22,510 acres on the south rim of Aravaipa Canyon. This proposal is coupled with designation of no additional wilderness. Management emphasis will be to accelerate rehabilitation of the upland areas by initiating cooperative livestock and watershed management research. Livestock on allotment within the watershed will be managed consistent with goals developed in the Aravaipa Watershed Coordinated Resource Management Plan. Riparian habitat will be managed similar to methods in *Alternative A*.

## Table Mountain Research Natural Area

**1. Description of the Value, Resource, System or Hazard:** The area was nominated by The Nature Conservancy due to the presence of two important plant communities. The top of Table Mountain contains an alligator juniper savanna, a plant community known in less than 20 locations. The adjoining Sycamore and Saddle canyons contain a white oak woodland containing Mexican blue oak at the northernmost limit of its range.

This area meets the relevance criterion because it contains a natural process or system in the presence of two plant communities.

The importance criterion is met because the two plant communities have more than locally significant qualities giving them special worth and distinctiveness.

**2. Relationship to Other Areas of Special Management:** The nominated area is separate from all other proposed areas. The area originally nominated by The Nature Conservancy included approximately 40,000 acres on the south rim of Aravaipa Canyon and portions of the north rim. This boundary is retained in *Alternative C* for the Turkey Creek Area of Critical Environmental Concern, however the Preferred *Alternative* includes only the areas with special resources. In *Alternative B* the Table Mountain Research Natural Area would be within the 70,000-acre Aravaipa Watershed Area of Critical Environmental Concern.

**3. Rationale for Designation:** The Table Mountain Research Natural Area should be designated to manage the special botanical values within the 1,220-acre boundary. The plant communities represent important public resources that require management different from surrounding public lands if they are to be maintained.

### 4. Special Management Prescription - Preferred Alternative

- designate the area limited to off-highway vehicle use. Limit vehicle use to existing roads and trails.
- prohibit woodcutting and gathering for home use. Gathering dead and down wood for campfires is permitted.
- prepare a prescribed burn plan that will allow fire to continue its role in the ecology of the Area of Critical Environmental Concern.
- manage livestock to limit concentrated use.

- withdraw the area from mineral entry.
- . close the area to vegetation sales.
- limit research to the effects of natural processes on this plant community.

5. Alternatives Considered: In Alternative B, management would differ in that the area would be withdrawn from mineral entry, no surface occupancy would be permitted for mineral leasing activities, livestock would be excluded from the area and the area would be a Research Natural Area within the Aravaipa Watershed Area of Critical Environmental Concern. In *Alternative C*, is the same as Alternatives A and B except that a mining plan will be required for all operations and the area would be a Research Natural Area within the South Rim Area of Critical Environmental Concern.

## Desert Grasslands Research Natural Areas

1. Description of the Value, Resource, System or Hazard: Desert grasslands on upland soils provide the majority of grazing lands in the desert southwest, provide critical habitat for 13 state-listed wildlife species and are important for watershed stabilization. Relict grasslands provide baseline conditions on which to establish management objectives and gauge management progress. Retention of some undisturbed desert grassland areas is of value to BLM management and scientific research. Three areas (two are on isolated buttes and the other on top of a steep ridge) represent minimally disturbed desert grasslands on two different soils. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories and by nomination from The Nature Conservancy.

The area meets the relevance criterion because it contains a natural process or system in the relict grasslands. These grasslands are in three locations on two soil types.

The importance criterion is met because the area contains more than locally significant qualities that give it special worth and distinctiveness in the relict grasslands. These grasslands are also sensitive, rare or vulnerable to adverse change.

2. Relationship to Other Areas of Special Management: None

3. Rationale for Designation: Special management is required to maintain these relict areas for research purposes and to permit only those research projects that would not adversely affect current conditions. The Area of Critical Environmental Concern will encompass 380 acres on Mescal Ridge; 90 acres on the Pilares; and on Sombrero Butte, 60 acres of BLM, 60 acres of private and 240 acres of state land, to be acquired.

4. Special Management Prescription - Preferred Alternative.

- . withdraw 380 acres in the Mescal Ridge Grassland from mineral entry.
- \_ acquire adjacent state and private parcels, as they become available.
- \_ prepare a prescribed burn plan that will allow fire to continue its role in the ecology of the Area of Critical Environmental Concern.
- . limit research to the effects of natural processes on the grasslands.
- . exclude livestock.

5. Alternatives Considered: In *Alternative B*, management will designate the area closed to off-highway vehicle use, close the area to mineral material sales and prohibit surface occupancy for mineral leasing in addition to prescriptions in *Alternative A*. *Alternative C* differs from Alternatives A and B in that a mining plan will be required.

# Swamp Springs-Hot Springs Watershed

**1. Description of the Value, Resource, System or Hazard:** Portions of the area were identified by BLM as a potential Area of Critical Environmental Concern based on riparian, wildlife and scenic values. A larger area was recommended by The Nature Conservancy for the above resources plus cultural and watershed values. Review of the areas determined that the important cultural resources are located on private lands and the scenic values are of only local importance. The significant resources are located in the major riparian areas of the Swamp Springs and Hot Springs drainages and include riparian vegetation, communities of five species of native fishes and raptor nesting habitat.

This area meets the relevance criterion because it contains a fish and wildlife resource of native fish and nesting raptors. The area also contains a natural process or system in the riparian vegetation.

The importance criterion is met because of the more than locally significant qualities of riparian vegetation, native fish and breeding raptors. These qualities are also fragile, sensitive, rare and vulnerable to adverse change.

**2. Relationship to Other Areas of Special Management:** Part of the proposed Area of Critical Environmental Concern, east of the Jackson Cabin Road and adjacent to the existing Forest Service Galiuro Wilderness, was determined to be suitable for designation as wilderness. The boundaries proposed by BLM and The Nature Conservancy were adjusted to include other riparian areas with special resources and lands in between them that could be managed to enhance those resources. Excluded were lands that could not be effectively managed or those that did not add to the protection of important riparian resources.

**3. Rationale for Designation:** The special resources found in the Swamp Springs and Hot Springs drainages require special management. Portions of the watershed also require special management attention to aid ecological stability and increase the speed of riparian recovery. Some adjoining areas have been included to link the important riparian areas and to increase management efficiency. A 22,883-acre Area of Critical Environmental Concern should be designated, including 17,438 acres of BLM, 4,478 acres of The Nature Conservancy lands and 967 acres of state land, to be acquired.

## 4. Special Management Provisions - Preferred Alternative

- . manage the area to accelerate recovery of riparian vegetation to reach good ecological condition by 1997.
- \_ exclude livestock to facilitate rehabilitation of riparian and upland vegetation communities within the Area of Critical Environmental Concern.
- \_ manage the area to accelerate recovery of upland vegetation communities.
- . acquire legal public access on the Jackson Cabin road where it crosses private lands. Maintain this road to a four-wheel drive standard for public and administrative use. Acquire legal access to Pipeline Road for administrative use only.
- . consolidate public land ownership within Area of Critical Environmental Concern. Acquire additional lands within Redfield, Hot Springs and Bass Canyon watersheds.
- \_ permit recreation, scientific and administrative uses compatible with protection of the riparian resources and restoration of upland vegetation.
- . require a mining plan of operation for all future mining activity.
- \_ prohibit woodcutting and gathering for home use. Gathering dead-and-down wood for campfires is permitted.
- . designate the area limited to off-highway vehicle use. Limit vehicles to existing roads and trails. Designate the riparian area of Hot Springs Canyon closed to off-highway vehicle use.

**5. Alternatives Considered:** Under Alternative B the entire Muleshoe Ranch outside the Redfield Canyon Wilderness Area would be designated as an Area of Critical Environmental Concern and the state land to be acquired on Redfield Creek would be included in the boundary. The size would be approximately 19,400 acres. Management would emphasize rehabilitation of riparian and upland communities using mechanical, chemical, fire, vegetative and livestock management methods. Area of Critical Environmental Concern prescriptions will be retained on lands designated wilderness.

In *Alternative C* only the lands containing the larger riparian areas outside the Redfield Canyon Wilderness Area will be included in the Area of Critical Environmental Concern boundary. This covers 2,556 acres (with 770 acres owned by The Nature Conservancy) within Hot Springs Canyon and adjoining riparian areas. Management emphasis will be to achieve ecologically good riparian condition by 1997. Management action will be initiated to acquire private lands as they become available; exclude livestock; limit off-highway vehicle use to existing roads and trails; develop cooperative management agreements with adjacent landowners; and permit recreational, scientific and administrative uses compatible with protection and management of riparian resources.

## Bear Springs Badlands

**1. Description of the Value, Resource, System or Hazard:** The nominated Area of Critical Environmental Concern is located in a geological badlands setting composed of ridges, small mesas, hillocks, spires and other erosional landforms. The geologic strata in these landforms are extremely well-delineated and many can be seen several miles away due to their contrasting and visually impressive assortment of colors (green, orange and yellow hues).

The fossilized bones of Blancan Age mammals that lived approximately 3 million 4 million years ago are exposed on many of the erosional landforms. Fossilized bones include those from elephant-like mammals (Gomphotheriid), three-toed horse (Nannippus phlegon), camel (Hemiquचना and Camelops) and *Pliohippus* (horse). Also located in the badlands are the fossilized tracks of camel and horse (Equus).

This badlands area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories showing the high scientific and public values of its paleontological resources. Specifically, its fossilized bones are potentially capable of providing substantive information about vertebrate evolution. The fossilized tracks represent one of the few places in North America where one can see such excellent examples of preserved mammal trackways.

This area meets the relevance criterion because it contains a significant scenic value in its impressive erosional features. The area also has a natural process or system in the Class I fossils and tracks of various Blancan Age mammals.

The importance criterion is met because of the more than locally significant Class I fossils and tracks. The fossils and tracks are also fragile, sensitive, rare, exemplary and vulnerable to adverse change.

**2. Relationship to Areas of Other Special Management:** None.

**3. Rationale for Designation:** Bear Springs Badlands should be designated an Area of Critical Environmental Concern due to the presence of scientifically important Class I fossils dating to the late Tertiary geologic period. Areas such as these should be preserved for scientific study because they provide one of the best records of mammalian communities during that period. Further, the fossilized tracks provide a rare opportunity to study and appreciate the interaction of animals that lived millions of years ago.

The nominated area contains 2,927 acres under the *Preferred Alternative*. Under this alternative, an additional 320 acres of state land in the north half of Section 9 in Township 7 South, Range 23 East would be added if acquired.

### 4. Special Management Prescription - Preferred Alternative

- \_ intensively inventory the paleontological resources to determine their nature and extent.

- \_ require a paleontological collection permit for all fossil collecting.
- \_ facilitate scientific and recreational use of the area.
- \_ manage the area as a Visual Resource Management Class II area to preserve its scenic quality.
- . prohibit road construction
- . designate the area limited to off-highway vehicle use. Limit vehicles to existing roads and trails.
- . mitigate livestock and soil erosion control actions that will have adverse impacts on fossils.
- . withdraw the area from mineral entry.
- . prohibit surface occupancy for mineral leasing activities.
- . close the area to mineral material sales.
- . right-of-way avoidance area.

5. Alternatives Considered: *Alternative B* would include about 4,127 acres. The management prescription would be similar to the *Preferred Alternative* except it would limit vehicle use to that necessary for administrative purposes. *Alternative C* would include about 2,007 acres. Management differs from the other alternatives primarily in that 3809 regulations would be used to manage mining activity.

## Guadalupe Canyon Outstanding Natural Area

1. Description of the Value, Resource, System or Hazard: This area has a number of special resources, including an overlap of Chihuahuan, Rocky Mountain and Sierra Madrean vegetation; an extensive riparian forest dominated by sycamores; unconfirmed reports of jaguars and Mexican wolves, both endangered species; one of the premier birdwatching areas in Arizona; and numerous species of Mexican wildlife, especially birds, that enter the United States in only a few places. The area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories and by a nomination from The Nature Conservancy.

This area meets the relevance criterion because it has significant wildlife resources in the numerous species that enter the United States from Mexico, including threatened and endangered animals. The area also has a unique natural system in the overlap of Chihuahuan, Rocky Mountain and Sierra Madrean vegetation communities.

This area meets the importance criterion because it has more than locally significant qualities (threatened and endangered animals, unique botanical and wildlife representations and a riparian area along Guadalupe Creek). These same qualities are, in some cases, endangered and vulnerable to adverse change. Guadalupe Canyon is widely known as one of the premier birdwatching areas in the United States. National priority concerns include the protection of riparian areas and for threatened and endangered species.

2. The lands in Guadalupe Canyon are adjacent to public lands in New Mexico that are designated as an Outstanding Natural Area. Nearby is a Forest Service zoological/botanical area in upper Guadalupe Canyon.

3. Rationale for Designation: The area should be designated as an Area of Critical Environmental Concern of 989 acres because the special values identified above meet the relevance and importance criteria; it needs special management for the protection and enhancement of these values; and it is perceived by the public as a highly sensitive area. BLM has completed one land exchange and is contemplating additional acquisitions specifically for these high-value resources.

4. Special Management Prescription - Preferred Alternative

- . designate the area limited to off-highway vehicle use. Limit vehicle use to existing roads and trails.

- . develop and implement an allotment management plan to manage livestock.
- \_ prepare a prescribed burn plan that will allow fire to continue its role in the ecology of the area.
- . acquire private inholdings, as they become available.
- . prohibit woodcutting and gathering for home use. Gathering dead-and-down wood for campfires is permitted.
- . manage the area as a Visual Resource Management Class II area to preserve the scenic and natural quality of Guadalupe Canyon.

**5. Alternatives Considered:** In *Alternative B* an Area of Critical Environmental Concern would be established to include 5,838 acres of public lands. This alternative includes the lands in the *Preferred Alternative*, as well as additional lands in the Baker Canyon drainage. The management prescription would be the same as under the *Preferred Alternative*. *Alternative C* is the same as the *Preferred Alternative*.

## Bowie Mountain Scenic

**1. Description of the Value, Resource, System or Hazard:** Bowie Mountain was proposed as an Area of Critical Environmental Concern primarily for the scenic values in the natural setting that surrounds Ft. Bowie National Historic Site. Additional scenic values are found in the steep cliffs on the south side of Bowie Mountain. BLM currently has a protective buffer on 590 acres surrounding parts of the National Historic Site. In addition, historic heliograph stations can be found on Bowie Mountain and Helens Dome. The entire area has historical connections to the fort. This area has past use by peregrine falcons, both for nesting and migration, and the habitat may be reoccupied in the future. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories.

This area meets the relevance criterion in that it has significant historic features (heliograph stations) and significant scenic values (the natural setting around Ft. Bowie and the steep cliffs on the south side of Bowie Mountain).

This area meets the importance criterion because any surface-disturbing activity in the viewshed would adversely change the scenic qualities now found in the area. The maintenance of the natural setting was recognized in the San Simon Management Framework Plan through the establishment of a protective buffer around Ft. Bowie National Historic Site. The Area of Critical Environmental Concern proposal seeks to expand that protection to the entire viewshed, as well as to the highly scenic southern slopes of Bowie Mountain.

**2. Relationship to Other Areas of Special Management:** Much of the proposed Area of Critical Environmental Concern is within the Bowie Mountain Wilderness Study Area, an area not recommended for wilderness designation. In addition, 590 acres are currently within the protective buffer around Ft. Bowie National Historic Site.

**3. Rationale for Designation:** The lands in the Bowie Mountain area should be designated as an Area of Critical Environmental Concern of 4,190 acres because the special values identified above meet the relevance and importance criteria and need special management to protect these values. Both the public and the National Park Service have expressed concerns about retaining the natural setting around Ft. Bowie, thereby making this a highly sensitive area.

### 4. Special Management Prescription - Preferred Alternative

- . withdraw 2,230 acres in the viewshed of Ft. Bowie National Historic Site from mineral entry. Require a mining plan of operations for all future mining entry in the remainder of the Area of Critical Environmental Concern.
- . prohibit surface occupancy for mineral leasing activities in the viewshed.
- . close the area to mineral material sales in the viewshed.
- . designate the area limited to off-highway vehicle use. Limit vehicles to existing roads and trails.

- \_ suppress wildfired to protect the scenic backdrop, and structures of the Ft. Bowie National Historic Site.
- . acquire private inholdings, as they become available.
- . prohibit woodcutting and gathering for home use. Gathering dead-and-down wood for campfires is permitted.
- . manage the area as a Visual Resource Management Class I area to preserve the scenic backdrop of Ft. Bowie National Historic Site.
- \_ designate as a right-of-way avoidance area.

5. Alternatives Considered: *Alternative B* involves the same acreage as the *Preferred Alternative*. The only difference in the management prescription is that the entire 4,190 acres would be withdrawn from mineral entry. In *Alternative C* the Area of Critical Environmental Concern would include only 2,562 acres and focus on the Ft. Bowie viewshed. The management prescription is the same as for the *Preferred Alternative*.

## Coronado Mountain Research Natural Area

1. Description of the Value, Resource, System or Hazard: This area was nominated by BLM due to the presence of important plant communities. Coronado Mountain contains a unique plant association of Arizona cypress and Mexican pinyon in a climax condition. The area also contains both pointleaf and Pringle's manzanita, species poorly represented in other Research Natural Areas in Arizona. Intermixed with the manzanitas is an interesting population of netleaf oaks growing as shrubs. The area is also of interest for studies of the primary and secondary succession of plant communities affected by fire. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories.

This area meets the relevance criterion in that it has a natural process or system in the unique plant association of Arizona cypress and Mexican pinyon. It also has the potential for studies of primary and secondary succession in a fire affected plant community.

This area meets the importance criterion in that the plant characteristics listed above are of more than local significance and have qualities or circumstances that make the plants unique. This area would make a significant addition to the plant communities and species found in the Research Natural Area network.

2. Relationship to Other Areas of Special Management: Only about half the top of Coronado Mountain is under BLM management and being considered for Area of Critical Environmental Concern designation. The other half is under management of the Apache-Sitgreaves National Forest.

3. Rationale for Designation: The lands in the Coronado Mountain area should be designated as a Research **Natural** Area of 120 acres because the identified special values meet the relevance and importance criteria and need special management to protect these values.

### 4. Special Management Prescription - Preferred Alternative

- . withdraw from mineral entry.
- . prepare a prescribed burn plan that will allow fire to continue its role in the ecology of the Area of Critical Environmental Concern.
- \_ prohibit woodcutting and gathering.
- . manage the area as a Visual Resource Management Class II area to preserve the scenic and natural qualities of the Area of Critical Environmental Concern.
- . prohibit authorization of rights-of-way

**5. Alternatives Considered:** *Alternative B* is the same as the *Preferred Alternative*. In *Alternative C* only 50 acres would be designated with the management prescription the same as under the *Preferred Alternative*.

## Dos Cabezas Peaks

**1. Description of the Value, Resource, System or Hazard:** The Dos Cabezas Peaks are a noteworthy landmark, both currently and historically. The area contains a small relict grove of aspens and a number of plants normally found in coniferous forest associations, now missing from this range. Because of these plants, the area has some potential for research on processes and interrelationships of isolated and relict species. The type and size of the rock outcroppings are noteworthy. The peaks can be seen from long distances and are quite scenic. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories.

This area meets the relevance criterion on two points. It has significant scenic value in that the peaks are well-known and a highly visible landmark. It also shows evidence of relict plants from the wetter and cooler climates of 15,000 to 20,000 years ago and, as such, fits into the natural process or system characteristic.

This area meets the importance criterion in that it is sensitive and vulnerable to adverse change, especially from surface-disturbing activities.

**2. Relationship to Other Areas of Special Management:** None.

**3. Rationale for Designation:** The Dos Cabezas Peaks should be designated as an Area of Critical Environmental Concern of 25 acres because the special values identified above meet the relevance and importance criteria and need special management to protect these values.

### 4. Special Management Prescription - Preferred Alternative

- . close the area to mineral material sales.
- . require a mining plan of operations for all future mining activity.
- . designate the area limited to off-highway vehicle use. Limit vehicle use to existing roads and trails.
- . prepare a prescribed burn plan that will allow fire to continue its role in the ecology of the Area of Critical Environmental Concern.
  - \_ prohibit woodcutting and gathering for home use. Gathering dead-and-down wood for campfires is permitted.
  - \_ manage the area as a Visual Resource Management Class II area to preserve its scenic quality.
- . prohibit authorization of rights-of-way.

**5. Alternatives Considered:** *Alternative B* is the same as the *Preferred Alternative*. In *Alternative C* the area is not considered for designation as an Area of Critical Environmental Concern but allocated to mineral development.

## Eagle Creek Bat Cave

**1. Description of the Value, Resource, System or Hazard:** This area has one significant value. The Eagle Creek Bat Cave is a maternity cave for the Mexican free-tailed bat, a species in serious decline throughout its range. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories and from a nomination from the Arizona Game and Fish Department.

This area meets the relevance criterion in that it has a wildlife resource in the Mexican free-tailed bats, a rapidly declining species.

This area meets the importance criterion because there is public and environmental concerns about the Mexican free-tailed bats and their maternity cave. The bats are a rapidly declining species, vulnerable to adverse change.

**2. Relationship to Other Areas of Special Management:** This area is part of a larger area proposed as an Outstanding Natural Area in past planning efforts.

**3. Rationale for Designation:** The Eagle Creek Bat Cave should be designated as an Area of Critical Environmental Concern of 40 acres because the special values identified above meet the relevance and importance criteria and the area needs special management to protect these values.

**4. Special Management Prescription - Preferred Alternative**

- . withdraw the area from mineral entry.
- \_ prohibit surface occupancy for mineral leasing activities.
- . close the area to mineral material sales.
- \_ acquire private lands at the mouth of the cave, as they become available.
- \_ manage the area as a Visual Resource Management Class II area to preserve the scenic and natural values.
- . prohibit guano extraction from the cave.
- . limit public access into the cave, particularly during maternity season.
- . monitor and patrol the cave to detect and prevent adverse impacts to the cave and the bats.

**5. Alternatives Considered:** In Alternative B, an Area of Critical Environmental Concern would be established on 3,160 acres of public land in Eagle Creek Canyon. Included in this acreage is the Eagle Creek Bat Cave, as well as those public lands forming the canyon. Additional values to be protected under this alternative include prehistoric and historic archaeological sites, a wintering population of endangered bald eagles, interesting and highly eroded conglomerate and volcanic geological formations and a significant scenic resource. The management prescription is the same as under the *Referred Alternative* with the exception of land acquisition. The acquisition area includes State and private lands in most of the canyon from the Apache-Sitgreaves National Forests to Eagle Creek's confluence with the Gila River.

*Alternative C* includes the same lands as the *Preferred Alternative*. The management prescription is similar to that of the *Preferred Alternative* except the area would not be withdrawn from mineral entry, a mining plan of operations would be required for all future mining activity, the area would not be closed to mineral material sales and guano extraction would be permitted if it does not adversely affect the bat population.

## **Willcox Playa National Natural Landmark**

**1. Description of the Value, Resource, System or Hazard:** The Willcox Playa is a designated National Natural Landmark. The National Natural Landmark program recognizes significant natural features throughout the country. A register of landmarks is maintained by the National Park Service. The Willcox Playa is recognized primarily for its geological values, that being a remnant Pleistocene lake and a typical example of playa lakes in the Southwest. The playa is also of interest because of plants adapting to playa conditions. The area has good potential for archaeological sites around the edges of the playa. The area is occasionally visited by the endangered whooping crane. The Croton Springs area (on private land) has been the scene of studies on deposits of prehistoric pollen. Several rare endemic species of insects and crustaceans are known from the playa. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories and from a nomination from The Nature Conservancy.

This area meets the relevance criterion because it is representative of a natural process or system (a typical Southwestern playa lake and a remnant of a Pleistocene lake) and also a fish and wildlife resource (occasional use by whooping cranes and the presence of rare, endemic insects and crustaceans).

This area meets the importance criterion because it has more than locally significant qualities in its designation as a National Natural Landmark, giving it special worth and meaning. The botanical, cultural and wildlife values are sensitive, rare, unique and/or vulnerable to adverse change.

2. Relationship to Other Areas of Special Management: The Willcox Playa is a designated National Natural Landmark.

3. Rationale for Designation: The lands in the Willcox Playa National Natural Landmark should be designated as an Area of Critical Environmental Concern of 2,475 acres because the special values identified above meet the relevance and importance criteria and are in need of special management.

4. Special Management Prescription - Preferred Alternative

- \_ designate the area closed to off-highway vehicle use.
- \_ acquire state and private lands, as they become available.
- \_ prohibit woodcutting and gathering.
- . manage the area as a Visual Resource Management Class II area to preserve its scenic and natural values.
- . prohibit authorization of rights-of-way.

5. Alternatives Considered: This area would retain its landmark designation in the No *Action Alternative*. *Alternative B* is the same as the Preferred *Alternative*. In *Alternative C* the area is not considered for designation as an Area of Critical Environmental Concern, but allocated to off-highway vehicle use.

## 111 Ranch Research Natural Area

1. Description of the Value, Resource, System or Hazard: The 111 Ranch area contains an extensive and significant deposit of Blancan Age mammal and other fossils. At least 21 described genera of mammals and two previously undescribed nonmammalian species (including the most complete fossil giant tortoise of its kind ever found) have been reported from the area. The 111 Ranch area is one of few known Class I fossil sites in southeastern Arizona, representing late Tertiary deposits. Of considerable scientific interest, the fossils represent one of the better early Pliocene assemblages of the Southwest that are overlain by middle Pliocene deposits. The Blancan vertebrate fauna evidenced in the depositional sequence is an extremely valuable climatological and chronological indicator for the scientific community. This area was identified as a potential Area of Critical Environmental Concern as a result of BLM inventories.

This area meets the relevance criterion because the significant fossil deposits meet the requirements for a natural process or system.

This area meets the importance criterion because it contains more than locally significant fossil deposits. They have special worth and cause for concern, especially when compared to any similar resource. In addition, they are fragile, sensitive and vulnerable to adverse change, especially from surface-disturbing activities.

2. Relationship to Other Areas of Special Management: None.

3. Rationale for Designation: The 111 Ranch area should be designated as a Research Natural Area Area of Critical Environmental Concern of 2,688 acres because the area meets the relevance and importance criteria, contains scientifically important Class I fossils and needs special management for the protection of these values.

4. Special Management Prescription - Preferred Alternative

- . designate the area limited to off-highway vehicle use. Limit vehicle use to existing roads and trails.

- require paleontological inventory and mitigation of impacts for all surface-disturbing activities, such as livestock facilities and wildlife waters.
- prohibit woodcutting and gathering.
- manage the area as a Visual Resource Management Class II area to preserve its scenic and natural values.
- require a paleontological collection permit for all fossil collecting.

5. Alternatives Considered: *Alternative B* is the same as the *Preferred Alternative*. In *Alternative C* only 1,728 acres would be designated as an Area of Critical Environmental Concern. The management prescription in *Alternative C* is the same as under the *Preferred Alternative*.

## Areas Considered but not designated

### Day Mine

The Day Mine area consists of a portion of the Gila Mountain range extending from the upper bajadas, up and over the vertical rock escarpment, across the badland formations north and east of the crest, to the perennial Left Hand Fork of Markham Creek. Plant communities include Sonoran Desert near the northeastern edge of its range, disclimax grassland-shrub, closed chaparral, border pinyon pine forest and mixed broadleafed riparian areas. The proposed area also contains a number of prehistoric cultural properties and some visually striking scenery overlooking the central portion of the Safford Valley.

The proposed area includes Markham Creek and its watershed. This drainage was identified as a potential Area of Critical Environmental Concern during the inventory process. Its aquatic, riparian, wildlife and cultural resources were found to be "Relevant" to the Area of Critical Environmental Concern system. Upon evaluation the proposal was rejected as the resources lacked, either individually or in combination, more than local "Importance". The stream was similar to many other areas and was not in relict ecological condition; wildlife species and populations contained some regionally localized species (black and zone-tailed hawks and lowland leopard frogs) but none have federal status: cultural and scenic properties were only of local interest.

The addition of the badlands, Gila Mountain crest and the upper bajadas west of Markham Creek does increase the number of plant and animal communities and scenic importance. The border pinyon pine forest is not included in any known regional Area of Critical Environmental Concern but does exist in the Chiricahua National Monument, in several existing Forest Service Wilderness Areas and in the Fishhooks Wilderness immediately north of this potential Area of Critical Environmental Concern. The addition of the Sonoran Desert community still does not create a unique assemblage of vegetation types as this mix is found in the Santa Catalina, Galiuro and Pinal Mountain ranges as well as in the Gilas. Some additional cultural properties are included but none are of more than local importance.

The scenic qualities of the vertical escarpment of the Gila Mountains certainly is of local importance. The formation is readily visible from a considerable distance and an inappropriate development would be apparent to many people in the local area. The visual importance should be recognized and the value protected with a Visual Resource Management Class II rating. However, the scenic resource is relatively distant from the local population centers and so not visible to a large number of travelers so it lacks the necessary "more than local significance" to meet the "Importance" criteria.

In summary, the proposal encompasses an area with a number of resources "Relevant" to the Area of Critical Environmental Concern process. However, the resources are known to exist in a number of other locations already protected by federal designations and they lack regional "Importance." For this reason Day Mine area does not qualify as an Area of Critical Environmental Concern and is dropped from further consideration.

## Turtle Mountain

The proposal includes the area between Eagle and Bonita Creeks, the Gila River and the San Carlos Apache Reservation. Plant communities include mixed broadleaf riparian areas at several springs, disclimax grassland-shrub, desert grasslands, encinal woodlands and open chaparral types. Wildlife includes both typical desert and mountain species and Rocky mountain bighorn sheep at the southwest edge of their range in North America, but no federally listed or proposed species. There are a few cultural properties, mostly historic remnants of previous livestock operations. Scenic resources do not include any striking features.

The proposed area includes two areas already evaluated during the Resource Management Plan development process-Turtle Mountain Grassland and Trujillo Canyon. See discussion in this Appendix. BLM guidance identifies the opportunity to include lands between separate Area of Critical Environmental Concerns if it enhances management of the individual Area of Critical Environmental Concerns. The west slope of Turtle Mountain is within the Bonita Creek watershed and special management attention could enhance riparian resources. This potential is recognized in Alternative B. A very small improvement could possibly be obtained by the enhanced management of watershed of the Gila Box by linking it to Turtle Mountain. However, little would be gained for management of Eagle Creek Bat Cave. The lack of similar terrain, management problems, or access routes across Turtle Mountain linking the separate proposed Area of Critical Environmental Concerns greatly reduces the potential for enhanced management efficiency. Rather, the link between the proposed Area of Critical Environmental Concerns is that of the congressionally designated Gila Box Riparian National Conservation Area.

Several resources within a separate Turtle Mountain Area of Critical Environmental Concern will meet the "Relevance" criteria, but none fully meet the criteria for "more than local importance." Therefore, Turtle Mountain does not qualify as an Area of Critical Environmental Concern because it fails to meet the requirements for Relevance, Importance and Need for Special Management.

**Fishhooks Canyon:** This area was nominated in the 1973 Geronimo Management Framework Plan as an Outstanding Natural Area. In 1986 the area was nominated as an Research Natural Area of Critical Environmental Concern by The Nature Conservancy for its botanical resources. On-site evaluation of the resources documented that the area had been subjected to a long period of livestock grazing, and its location adjacent to the San Carlos Indian Reservation would make the special management prescriptions impractical. The Nature Conservancy withdrew its nomination based on the additional information and the Bureau dropped the area from further Area of Critical Environmental Concern consideration. Riparian values will be protected through the District's riparian policy. Scenic values are protected by Visual Resource Management interim Class II.

## Javelina Peak

The Javelina Peak area consists mostly of gently rolling lowlands, with the focal point being the rugged Whitlock Mountain range in the area's northeast portion. These mountains rise abruptly from the San Simon Valley floor and culminate in the rugged, steep-sided 5,592-foot-high Javelina Peak. A small area of highly eroded badlands lies at the western base of Javelina Peak. The southern portion of the area is dominated by heavily vegetated dunes.

The area contains desert shrub, creosote bush and mesquite vegetation types. Common plants include whitethorn, cholla and prickly pear cactus, wolfberry, creosote bush, mesquite, yucca, catclaw, Mormon tea, four-winged saltbush and various grasses.

Resources within the Javelina Peak Area of Critical Environmental Concern include some that meet the Relevance criterion to include: plant communities, cultural and paleontological properties and wildlife. However, none fully meet the criterion for "more than local importance" or "need for special management". The Chihuahuan desertscrub and semi-desert grassland communities are similar to many other areas and are not an outstanding representation of these vegetation types. The cultural resources are believed to be significant only at the local level. Two paleontological areas appear to be of more than local importance. However, because of their location no special management needs have been identified for either area.

No threatened or endangered plants have been found in the area. The night-blooming cereus, a species under review for listing as threatened and endangered, might occur in the area. This plant grows on rock ledges where it would not be disturbed by anticipated land uses.

The peregrine falcon, a threatened and endangered species, is thought to exist in the area and is of more than local importance. However, these birds do not nest or forage in the area, but rather fly over, stopping occasionally to rest and feed. No resource uses that would adversely affect the peregrine falcon, thus no special management is needed.

Javelina Peak does not qualify as an Area of Critical Environmental Concern because it fails to meet the requirements for Relevance, Importance and Need for Special Management.

**Johnny Creek:** The area was proposed for study as an ONA in the 1973 Geronimo Management Framework Plan. Review and study of the resources has determined that the scenic and riparian values did not meet the "Relevance and Importance" criteria and the area was dropped from consideration as an Area of Critical Environmental Concern. The riparian values will receive protection through the riparian policy, and scenic resources by Visual Resource Class III management designation.

**Markham Creek:** Riparian, wildlife, fisheries, scenic and cultural values present in the Markham Creek Canyon were the basis for the suggested Area of Critical Environmental Concern nomination. The area was dropped from consideration as the resources did not meet the "Importance" criteria. The natural and cultural resources will receive protection and management through other decisions in this plan.

**Red Knolls:** The Red Knolls geologic formation was evaluated for Area of Critical Environmental Concern status based primarily on concern for human safety. It was dropped from further consideration when it was determined that no practical management that would reduce the hazards, and nomination would likely attract additional visitors who could not be excluded from the unstable formations.

**Salt Creek:** The proposal was based upon scenic, cultural and riparian resources. On-site evaluation and consultation with authorities documented that the resources did not meet the "Importance" criteria and the area was dropped from review. The riparian and cultural values will receive management attention by other decisions in this document.

**Trujillo Canyon:** The area was investigated to determine if riparian or cultural resources required Area of Critical Environmental Concern designation and special management. The resources met the "Relevance" criteria but did not meet the "Importance" criteria and the area was dropped from further consideration.

**Turtle Mountain Desert Grassland:** The area suggested for Area of Critical Environmental Concern designation contained relevant and important desert grassland resources. However, the preferred management prescription was not special management. The proposed area was dropped from further consideration due to the lack of special management needs. Other relict grasslands are proposed for Area of Critical Environmental Concern status.

**Mescal Mountain-Needles Eye:** This proposal was a combination of five separate areas suggested for review in the Winkelman Management Framework Plan or nominated by The Nature Conservancy. The Mescal Creek portion was dropped as the wildlife and riparian resources, while relevant and important, did not require special management and will be adequately protected in all alternatives considered in this plan. The entire area is within the Needles Eye Wilderness Area. No special management needs were identified for botanical resources on the El Capitan portion other than retention in public ownership. Riparian, wildlife and scenic resources along the Gila River below Coolidge Dam are within the Needles Eye Wilderness Area and will receive adequate protection through management common to all alternatives in this plan. The other two areas (Desert Grassland and Dry Spring Research Natural Areas) are proposed for designation as Areas of Critical Environmental Concern.

**Swamp Springs Canyon:** This area was identified as a potential Area of Critical Environmental Concern in the 1980 wilderness inventory conducted by BLM. It is part of an Area of Critical Environmental Concern recommended by The Nature Conservancy in 1988. The resources in this area qualify as an Area of Critical Environmental Concern, but better management would be provided if the area was combined with other lands as part of the Swamp Springs-Hot Springs Watershed Area of Critical Environmental Concern proposal. Therefore, Swamp Springs Canyon has been dropped from consideration as an individual parcel except in Alternative C. Portions of the proposed area are within the proposed additions to the Redfield Canyon Wilderness.

**Sycamore Canyon:** This area was recommended for Area of Critical Environmental Concern status for its riparian and scenic values in the BLM 1980 wilderness inventory. On-site review determined that it lacked regional importance on its own merits. However, it was found to be important as part of the Swamp Springs-Hot Springs Watershed Area of Critical Environmental Concern, and inclusion in that boundary would facilitate special management attention to that nominated area. Portions of the Sycamore Canyon area are within the Redfield Canyon Wilderness Area.

**Government Peak:** This area was considered in the San Simon Management Framework Plan as a Research Natural Area. An on-site evaluation showed that the area had been heavily grazed by cattle, had no unique plant associations and offered little from a botanical standpoint for designation as an Research Natural Area. This area was carried forward from past planning and evaluated as an Area of Critical Environmental Concern. Government Peak met the "Relevance" criterion because it has a significant visual resource in the large area of exposed granite boulders and outcrops. This area, however, did not meet any of the categories under the "Importance" criterion. The scenic quality of this area will be protected through a Visual Resource Management Class III designation. This area is within the Dos Cabezas Mountains Wilderness Area.

**Happy Camp, Howell and Tar Box Canyons:** Howell Canyon was considered in the San Simon Management Framework Plan as a Research Natural Area. An on-site evaluation showed that portions of the area had received heavy cattle grazing, and that the overall area offered little in the way of unique or typical plant communities for designation as an Research Natural Area. This area was carried forward from past planning and evaluated as an Area of Critical Environmental Concern. Happy Camp, Howell and Tar Box Canyons did not meet either the "Relevance" or "Importance" criteria. The riparian values in these canyons will receive protection through the riparian policy. This area is within the Dos Cabezas Mountains Wilderness Area.

# Appendix 3

## Wild and Scenic River Eligibility and Classification

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# Wild and Scenic Rivers

## Introduction

As required by BLM Planning Regulations and Guidelines for Fulfilling Requirements of the Wild and Scenic Rivers Act, BLM must study those rivers which potentially qualify for addition to the National Wild and Scenic Rivers System. Two rivers in this area (the Gila and San Francisco) were identified by the National Park Service in 1982 as needing further study. They will be addressed in this document. Other rivers included were identified by BLM personnel and through public input during the draft Resource Management Plan/Environmental Impact Statement review process.

The river study process involves making an eligibility, classification and suitability determination. This Resource Management Plan/Final Environmental Impact Statement addresses only eligibility and classification as required by the Guidelines and will defer suitability determination until a later date due to the need for further public involvement. Only through the detailed suitability and further public involvement will BLM make a recommendation through the Secretary of the Interior to Congress on suitable Wild and Scenic Rivers. Only Congress has the authority to designate a Wild and Scenic River through this process.

## Eligibility Determination

Eligibility determination is made through the evaluation of two criteria: (1) whether the river is free-flowing, and (2) whether it possesses one or more outstandingly remarkable values. Free-flowing is defined by Sec 16 (b) of the Wild and Scenic Rivers Act as "existing or flowing in natural conditions without impoundment, diversion, straightening, riprapping, or other modifications of the waterway." Outstandingly remarkable values include scenic, recreational, geologic, fish and wildlife, historic, cultural, or similar values.

It has been suggested that any flowing water in the arid Southwest is outstandingly remarkable in and of itself, constituting a "similar value". Also, a waterway could be regarded as free-flowing regardless of its intermittency, cubic feet per second flow rate (cfs) or length of the segment. Essentially, this could make hundreds of washes and intermittent streams eligible, even though they are a common occurrence throughout the region.

We believe that the intent of the Wild and Scenic Rivers Act was not to reserve or protect an entire region's waterways but rather to analyze and select those areas which may warrant the additional protection of a Congressional designation based not on their collective worth but on their individual, outstandingly remarkable hydrologic value, if present. This means that a river could be eligible based on its hydrologic value even if no other value is present as specifically mentioned in the act as long as it is considered free-flowing.

In this Appendix, those waterways which demonstrated individual outstandingly remarkable hydrologic value to the region or nation have been considered. This selection was based on a reasonable yearly flow, cfs and length. Therefore, if a waterway possesses outstandingly remarkable hydrologic values we can reasonably assume it is free-flowing. Rivers which do exhibit reasonable yearly flow, cfs and length also possess at least one other outstandingly remarkable value, primarily due to the presence of an obligate riparian system.

Those waterways which do not possess outstandingly remarkable hydrologic values or are in areas of less than 40 percent public land include the following:

San Simon River	Virgus Canyon
Black Wash	Bass Canyon
Mescal Creek	Cherry Springs
Parsons Canyon	Hot Springs Canyon
Fishhooks Canyon	Spring Canyon
Eagle creek	House Camp Canyon
Guadalupe Canyon	Markham Creek
Oak Grove Canyon	Redfield Canyon
Eagle Creek	Numerous other washes

These waterways have been determined ineligible under the criteria described above.

## Classification Determination

The criteria for determining classification are as follows:

**Wild** Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

**Scenic** Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped but accessible in places by roads.

**Recreational** Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines and that may have undergone some impoundment or diversion in the past.

These criteria are further defined in the *Federal Register* at 47 FR 39457-9

Classification of the segments also establishes guidelines for interim management until a decision on designation can be reached.

## Interim Management/Protection Considerations

River values and characteristics of candidate river segments and study areas are protected by interim management considerations until studies and Congressional action have been completed. Once a river segment is determined eligible and the appropriate prospective classification determined (Wild, Scenic or Recreational), it must be afforded adequate interim protection until a final decision can be reached. Management activities and authorized uses shall not be allowed to adversely affect either eligibility or classification, subject to valid existing rights.

The free-flowing characteristics of identified river segments cannot be modified to allow stream impoundments, diversions, channelization and riprapping to the extent BLM is authorized under law. Subject to valid existing rights, outstandingly remarkable values of the segment or area must be protected and enhanced if possible. Management and development of the identified river and its corridor cannot be modified to the degree that its classification would be changed from wild to scenic, or from scenic to recreational.

## Classification Standards/Interim Management

The following guidelines set forth standards for making interim management decisions on study rivers by classification (wild, scenic or recreational). These guidelines will be applied to public lands under BLM administration. They do not apply to privately owned lands.

### Standards for Wild Rivers

**Timber Production:** Cutting of trees will not be permitted except when needed in association with a primitive recreation experience (such as clearing for trails and protection of users) or to protect the environment (such as control of fire). Timber outside the boundary but within the visual corridors will be managed and harvested in a manner that provides special emphasis to visual quality.

**Water Supply:** All water supply dams and major diversions are prohibited.

**Hydroelectric Power:** No development of hydroelectric power facilities would be permitted.

**Flood Control:** No flood control dams, levees or other works are allowed in the channel or river corridor. The natural appearance and essentially primitive character of the river area must be maintained.

**Mining:** The majority of eligible rivers identified as having a wild classification in this appendix are contained within a designated wilderness or National Conservation Area which have been withdrawn from mineral entry and mineral leasing laws. Only Hot Springs Creek and a small portion of the lower Gila River are outside these areas and have not been identified in this document for withdrawal from mineral entry and leasing laws. BLM will deny new mining claims and mineral leases within 1/4 mile of these rivers. Subject to regulations (43 CFR 3809) prescribed to protect the rivers being considered, other existing mining activity would be allowed to continue, but must be conducted in a manner that minimizes surface disturbance, sedimentation and visual impairment. Reasonable access would be permitted.

**Road Construction:** No roads or other provisions for overland motorized travel would be permitted within a narrow, incised river valley or, if the river valley is broad, within 1/4 mile of the riverbank. A few inconspicuous roads leading to the boundary of the river area at the time of study will not disqualify wild river classification. Also, unobtrusive trail bridges could be allowed.

**Agriculture:** Agriculture is restricted to a limited amount of domestic livestock grazing and hay production to the extent currently practiced. Row crops are prohibited.

**Recreation Development:** Major public use areas, such as large campgrounds, interpretive centers or administrative headquarters are located outside the wild river area. Simple comfort and convenience facilities, such as fireplaces or shelters may be provided as necessary within the river area. These should harmonize with the surroundings.

**Structure:** A few minor existing structures could be allowed assuming such structures are not incompatible with the essentially primitive and natural values of the viewshed. New structures would not be allowed except in rare instances to achieve management objectives (i.e., structures and activities associated with fisheries enhancement programs could be allowed).

**Utilities:** New transmission lines, gas lines, water lines, etc. are discouraged. Where no reasonable alternative exists, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are indicated, the scenic, recreational and fish and wildlife values must be evaluated in the selection of the site.

**Motorized travel:** Motorized travel on land or water could be permitted, but is generally not compatible with this classification.

## Standards for Scenic Rivers

**Timber Production:** A wide range of silvicultural practices could be allowed provided that such practices are carried on in such a way that no substantial adverse effect on the river and its immediate environment would occur. The river area should be maintained in its near-natural environment. Timber outside the boundary but within the visual scene area should be managed and harvested in a manner that provides special emphasis on visual quality.

**Water Supply:** All water supply dams and major diversions are prohibited.

**Hydroelectric Power:** No development of hydroelectric power facilities would be allowed.

**Flood Control:** Flood control dams and levees would be prohibited.

**Mining:** Subject to regulations in 43 CFR 3809 prescribed to protect the values of rivers being considered, new mining claims and mineral leases could be allowed and existing operations allowed to continue. However, mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation and pollution, and visual impairment.

**Road Construction:** Roads may occasionally bridge the river area and short stretches of conspicuous or longer stretches of inconspicuous and well-screened roads or screened railroads could be allowed. Consideration will be given to the type of use for which roads are constructed and the type of use that will occur in the river area.

**Agriculture:** A wider range of agricultural uses is permitted to the extent currently practiced. Row crops are not considered as an intrusion of the "largely primitive" nature of scenic corridors if there is no substantial adverse effect on the natural-like appearance of the river area.

**Recreation Development:** Larger-scale public use facilities, such as moderately sized campgrounds, public information centers and administrative headquarters are allowed if such structures are screened from the river. Modest and unobtrusive marinas could also be allowed.

**Structures:** Any concentrations of habitations are limited to relatively short reaches of the river corridor. New structures that would have a direct and adverse effect on river values would not be allowed.

**Utilities:** This is the same as for wild river classifications.

**Motorized Travel:** Motorized travel on land or water may be permitted, prohibited or restricted to protect the river values.

## **Standards for Recreational Rivers**

**Timber Production:** Timber harvesting would be allowed under standard restrictions to protect the immediate river environment, water quality, scenic, fish and wildlife and other values,

**Water Supply:** Existing low dams, diversion works, riprap and other minor structures are allowed, provided the waterway remains generally natural in appearance. New structures are prohibited.

**Hydroelectric Power:** No development of hydroelectric power facilities is allowed.

**Flood Control:** Existing flood control works may be maintained. New structures are prohibited.

**Mining:** Subject to regulations (43 CFR 3809) prescribed to protect values of rivers being considered, new mining claims and mineral leases are allowed and existing operations are allowed to continue. Mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation, pollution and visual impairment.

**Road Construction:** Paralleling roads or railroads could be constructed on one or both riverbanks. There can be several bridge crossings and numerous river access points.

**Agriculture:** Lands may be managed for a full range of agricultural uses, to the extent currently practiced.

**Recreation Development:** Campgrounds and picnic areas may be established near the river. However, recreational classification does not require extensive recreation development.

**Structures:** Small communities as well as dispersed or cluster residential developments are allowed. New structures are allowed for both habitation and for intensive recreation use.

**Utilities:** This is the same as for wild and scenic river classifications.

**Motorized Travel:** Motorized travel on land or water may be permitted, prohibited or restricted. Controls will usually be similar to surrounding lands and waters.

## **Gila Box Segment**

### **Location/Description of Segment**

The study area is in Graham and Greenlee counties in southeastern Arizona. The Gila and San Francisco rivers flow through a steep-walled canyon within the Gila Box area. This area, known for its 1 000-foot deep canyons, lies between the Gila Mountains and the Black Hills. Running water, rugged and colorful terrain, highly eroded geologic formations and diversity of plants and animals produce outstanding scenery.

Climatic conditions in the study area are similar to those found throughout the region. In southeast Arizona, lowlands alternate with mountains to create abrupt changes in climatic conditions over short distances. Annual rainfall averages 7 to 16 inches in the valleys, with most falling in the late summer months. Dry conditions are most common from April to June, with less severe dry conditions occurring in the fall.

The study area includes 15,413.62 acres, of which 14,113.80 acres are under BLM administration with the remainder in private ownership. This includes 34 miles of river, with 30.75 miles under BLM administration. The remainder is in private ownership.

The study area begins in the NE1/4 Section 3, Township 6 South, Range 30 East and runs downstream to the SW1/4 Section 29, Township 6 South, Range 28 East. This section includes the Gila River portion of the study area. A total of 26 miles of the Gila River are being evaluated.

The San Francisco section begins in the NW1/4 Section 7, Township 5 South, Range 30 East and runs downstream to its confluence with the Gila River (Section 21, Township 5 South, Range 29 East). Eight miles of the San Francisco River are being evaluated.

Several special features enhance the river's potential for inclusion in the wild and scenic river system. The portion under consideration is free-flowing for the entire length. Natural qualities of this river have made it an increasingly popular rafting and canoeing area. Riparian vegetation, uncommon in the southwestern United States, greatly enhances wildlife habitat. This area is well-known for its population of wintering bald eagles. In addition, there are many outstanding scenic areas with steep cliffs, colorful bluffs, deep canyons and excellent examples of geological erosion. Prehistoric and historic sites have been recorded that qualify for listing on the National Register of Historic Places.

## Evaluation of River Values

The study area is a free-flowing river that contains many outstandingly remarkable values including scenic, recreation, geologic, fish and wildlife, hydrologic, historic and cultural values. Twisting canyons, steep cliffs, erosional features, vegetation, free-flowing streams and geologic formations contribute to the outstanding scenery. The Gila and San Francisco are both perennial rivers.

Many opportunities for a wide variety of recreational activities are available. The rivers provide outstanding opportunities for hiking/backpacking, seasonal floatboating, camping, photography, seasonal off-highway vehicle use and sightseeing. There are also good opportunities for hunting, fishing, rock climbing, horseback riding and birdwatching. Floatboating use is steadily increasing during late winter and early spring. The exceptional natural condition of the area, rugged topography, twisting canyons and flowing rivers all help to provide outstandingly remarkable opportunities for recreation.

The area is composed of volcanic and volcanoclastic rocks ranging from Pleistocene to Oligocene. These flows and pyroclastics are chiefly andesites and basaltic andesites. Geothermal features at Gillard Hot Springs as well as outstandingly remarkable geologic features include highly eroded volcanic and conglomerate formations can be found.

Animal life in the study area is greatly enhanced by the perennial rivers and their riparian vegetation. Riparian vegetation contributes to terrestrial wildlife density and diversity. Bald eagles and peregrine falcons, state and federally listed endangered species, occur in the area. Other state-listed species in the study area are the ferruginous pygmy owl, belted kingfisher, black-bellied whistling duck, black hawk, osprey, snowy egret and great egret. Coati and the Arizona mountain kingsnake and are of concern in the study area due to their limited distribution in Arizona.

Aquatic species include game fish such as channel and flathead catfish. Many other aquatic species depend on the perennial rivers, including the federally threatened loach minnow and state-listed razorback sucker, both found in the study area.

Big game species in the study area are javelina, mountain lion, mule deer and Rocky Mountain bighorn sheep. Game birds are quail, dove, numerous duck species, geese and band-tailed pigeons. A very rich assortment of nongame species occur due the presence of water and the riparian habitat.

The Gila and San Francisco rivers are perennial. Since perennial rivers are very uncommon in the Southwest, the hydrologic values are outstandingly remarkable. They are also extremely important for the vegetation, fish and wildlife and recreation values associated with these rivers.

This segment of the Gila River has outstandingly remarkable cultural resource values. At least 11 historic and 14 prehistoric sites are located in the study area. Undoubtedly, many more have yet to be recorded. Two historic and two prehistoric sites qualify for listing on the National Register of Historic Places.

## Other River Values

In addition to those values described above, the river also contains the following significant values. Four major vegetation types are present in the study area—grassland, mountain shrub, desert shrub and riparian vegetation. Riparian vegetation is worthy of preservation due to the disappearance of the majority of this type in the arid Southwest. Riparian vegetation is characterized by Fremont cottonwood, Gooding willow, Arizona sycamore, Arizona walnut, velvet ash, seep willow, burro brush, netleaf hackberry and mesquite. The condition of the riparian vegetation in the study area is poor to fair in most places, with limited amounts in good condition. Riparian values of these rivers, however, are still significant due to the limited distribution of this vegetation type.

## Eligibility Determination

BLM has determined that 34 miles are eligible for inclusion in the National Wild and Scenic Rivers System. This includes 8 miles of the San Francisco River and 26 miles of the Gila River.

## Classification Determination

This section identifies the classification that best describes each eligible river segment as viewed in its existing condition. Five segments have been classified.

Segment 1 (Gila River NW1/4 Sec. 3, T. 6 S., R. 30 E. to SE1/4 Sec. 26, T. 5 S., R. 29 E.). Segment 1 includes a total of 6.85 miles, of which 0.90 mile crosses private land. This segment includes 2,801.55 acres of public land and 240.00 acres of private land.

A Scenic classification best describes this segment of the river. This area possesses outstandingly remarkable scenic, recreation, geologic and fish and wildlife values. This segment is very scenic and is a popular starting point for people floating the river. The area is accessible by only one road. Also, there are only a few minor developments along the river. This section is free from impoundments and the shorelines are largely primitive and undeveloped.

The Old Safford-Clifton Road bridge crosses this segment of the river. In addition to this main road, several trails lead into this segment. A small picnic site is located near the bridge and receives some overnight use during the floating season. Two ranching headquarters are located along this portion of the river.

The road and other minor developments do not significantly affect the naturalness or other outstanding values of this area. Therefore, the Scenic classification best fits this segment.

Segment 2 (Gila River SE1/4 Sec. 26, T. 5 S., R. 29 E. to NE1/4 Sec. 22, T. 6 S., R. 28 E.). Segment 2 includes 15.20 miles, of which 0.25 mile crosses private land. This segment includes 8,110.20 acres of public land and 360.00 acres of private land.

A Wild classification best describes this segment of the river. This area possesses outstandingly remarkable scenic, recreation, geologic, fish and wildlife, historic and cultural values. Segment 2 is free of impoundments and generally inaccessible except by trails. The shoreline is largely primitive and undeveloped. The Wild classification is consistent with the current study of this area for wilderness potential.

Segment 3 (Gila River NE1/4 Sec. 22, T. 6 S., R. 28 E. to SW1/4 Sec. 29 T. 6 S., R. 28 E.). Segment 3 includes 4.50 miles. This segment includes 1,391.86 acres of public land and 5.00 acres of private land.

A Scenic classification best describes this segment of the river. This area possesses outstandingly remarkable scenic, recreation, geologic, and fish and wildlife values. Segment 3 is free-flowing and free from any impoundments. It includes a popular take-out point at Bonita Creek for people floating the river and a picnic site at Spring Canyon. This segment is accessible in places by roads but the shoreline is largely primitive and undeveloped.

These developments and roads do not significantly affect the naturalness or other outstanding values of this area. Therefore, a Scenic classification best describes this segment of the river.

Segment 4 (San Francisco River SE1/4 Sec. 21 T. 5 S., R. 29 E., the confluence with the Gila River, to SW1/4 Sec. 14, T. 5 S., R. 29 E.). Segment 4 includes 3 miles, of which 0.10-mile crosses private land. This segment includes 560.00 acres of public land and 280.00 acres of private land.

A Wild classification best describes this segment of the river. Segment 4 possesses outstandingly remarkable scenic, fish and wildlife and geologic values and is generally inaccessible except by trails. Trails and other developments do not affect the natural character of this segment. This segment is free from any impoundments and the shorelines are largely primitive. A Wild classification is consistent with the current study of this area for wilderness potential.

Segment 5 (San Francisco River SW1/4 Sec. 14, T. 5 S., R. 29 E. to NW1/4 Sec. 7, T. 5 S., R. 30 E.). Segment 5 includes a total of 5 miles, of which 1.75 miles crosses private land. This segment includes 1,250.19 acres of public land and 414.82 acres of private land.

A Recreational classification best describes this segment of the river. Segment 5 possesses outstandingly remarkable scenic, fish and wildlife, and geologic values. It is readily accessible by roads and has evidence of an old railroad grade. The area has also been adversely affected by other activities occurring along the shoreline. The waterway, however, remains natural and riverine in appearance.

## **Coolidge Dam to Hayden Segment**

### **Location/Description of Segment**

The stretch of the Gila River being evaluated covers 32 miles from Coolidge Dam to Hayden in southeastern Arizona within Gila and Pinal counties. The county line is the center of the river. The stretch of river is entirely within the BLM Safford District.

From the dam, the river cuts through the Mescal Mountains forming a deep and narrow gorge, then passes through the open terrain of the southern end of the Dripping Spring Valley and enters another canyon area as it flows through the southern Dripping Spring Mountains to Winkelman. The canyon in the Mescal Mountains contains several deeply incised and constricted passages including the Needle's Eye. Steeply dipping limestone forms much of the geology of the upper half of the study area while volcanic formations make up the study area's lower portion.

The elevation of the river below Coolidge Dam is about 2,320 feet above sea level and drops to about 1,910 feet near the tailings pond at the study area's lower end. The width of the river/flood plain varies from 60 feet to over 600 feet. Major drainages entering the Gila River in the study area include Dick Spring Canyon, Mescal Creek, Dripping Spring Wash, the San Pedro River and from the San Carlos Indian Reservation, Hawk Canyon, Deer Creek and Ash Creek.

Vegetation along the river-banks and in the floodplain is dense riparian growth consisting of cottonwood, sycamore, ash, willow and mesquite. Years of controlled water releases including periods of low flow and lack of large natural floods due to the dam have created extremely thick growth along the river in the upper portion of the study area. In many places large trees are established in the river channel and low branches reach out into or stretch completely across the flow. At times these branches may be submerged by the flow. The channel in the lower half of the study area is also affected by the dense growth, though not so extensively. Out of the floodplain, desert shrub vegetation of saguaro, ocotillo, palo Verde and other Sonoran species is predominant.

The climate of the area is characterized by hot summer days often exceeding 100 degrees F, cool to mild days and cold nights in the winter and pleasant temperatures in the spring and fall. Precipitation averages 9 to 10 inches annually, coming mostly during thunderstorms.

Little cultural development is found along the river in the study area. The upper portion of the study area is inaccessible by vehicle for much of its length. The river is paralleled by Highway 77 in the lower portion and passes through the towns of Winkelman and Hayden at the end of the study area.

The study area contains 8,515 acres of public, state, private and San Carlos Indian Reservation land. Table A-I gives a statistical summary of acres and river miles in each land ownership category.

**Table A-I. Study Area Land Ownership**

	Acres	River Miles
Public Land	6,130	24.5 (19.1)*
State Land	700	1.4 (0.4)*
Private Land	1,505	5.6 (0.5)*
San Carlos Reservation	180	0.5
<b>TOTAL</b>	<b>8,515</b>	<b>32.0 (20.0)*</b>

\*miles in common with San Carlos Indian Reservation

## Evaluation of River Values

The entire stretch of the river has no impoundments or diversions. Straightening has not occurred along the river, though Highway 77 has a minor effect on some places where the fill comes down to the river's edge. Otherwise, no riprapping has been done along the river.

Outstandingly remarkable scenic, geologic and fish and wildlife values are present in the study area. Visual resource evaluation of the upper portion of the area has resulted in an "A" rating (highest category) in Scenic Quality under the BLM's Visual Resource Management system. The area is managed as Class II with the objective of retaining the existing character of the landscape. The remaining portion of the river canyon is also highly scenic.

The study area's outstandingly remarkable geologic features include the steeply tilted limestone formations, the Needle's Eye and other deeply incised, narrow stretches of the river canyon. The effect of the river's down-cutting over the centuries is also a remarkable feature. The presence of a flowing river in a desert environment is recognized and highly valued.

Outstandingly remarkable fish and wildlife values are associated with the study area. Bald eagles winter along the river in the upper section of the study area. Other federally listed threatened and endangered and other uncommon animal species such as the peregrine falcon, snowy egret, blackcrowned night heron, osprey, black hawk, zone-tailed hawk, northern beardless tyrannulet and Mississippi kite may occur here. Gila monster and possibly desert tortoise may occur in the study area.

## Other River Values

The study area contains other notable values. Portions of the river receive recreation use for fishing, picnicking, camping and tubing. Some cultural resource values are present but little is known of the overall study area. The Gila River canyon is expected to contain significant cultural resource values.

Fish and wildlife other than those listed above also rely on the river for habitat. Warm-water fish such as channel catfish, flathead catfish, largemouth bass, green sunfish and carp are found in the river. A large number of waterfowl occur along this stretch of the Gila River. Many species of both game and non-game animals (mule deer, white-tailed deer, javelina, desert bighorn sheep, elk, mountain lion, bobcat, gray fox, ringtail, coati, dove and quail) may frequent the river and study area at different times.

The dense vegetation that has grown up along the river not only has riparian and wildlife habitat values, but has also proved invaluable in reducing flood severity and in controlling erosion. The dense growth of trees and shrubs slows or impedes the velocity of large flows, thereby reducing the damage caused by flooding.

## Eligibility Determination

BLM, as well as determinations of the Nationwide Rivers Inventory, find the Gila River from Coolidge Dam to Hayden to be free-flowing and possessing outstandingly remarkable values. Scenic, geologic and unspecified other values have been identified. The above Evaluation of River Values section also documents the study river's free-flowing and outstandingly remarkable values. All 32 miles of the study river are eligible for further study.

## Classification Determination

For the purposes of determining the potential classification of the Gila River in this study, three segments of differing characteristics have been identified. These segments are divided on the basis of obvious changes in land ownership, changes in river character and the presence of differing types and amounts of development.

Each of the segments identified below is classified according to the condition of the river and the adjacent lands as they existed at the time of the study. Each river segment and its immediate environment is considered as a unit. The potential classifications to be assigned as established in the *Wild and Scenic Rivers Act* are Wild, Scenic or Recreational.

**Segment 1** begins at the Coolidge Dam (SE 1/4 NW 1/4 Sec. 17, T.3S, R. 18E.) and ends near a point where the river road turns away from the river southward toward the old Hook and Line Ranch headquarters (intersection of the river and the quarter-section line of Sec. 24, T. 3S., R. 17E.). The segment is about 5.5 miles long. Approximately 580 acres of public land on what is generally the north side of the river are contained in the segment study area. About 180 acres of San Carlos Apache Indian Reservation lands are within the segment.

In the upper 0.5 mile of the river, the dam, power plant, associated facilities and other developments have an obvious and significant effect in the Segment 1 study area. The area also has a switchbacked road leading down to the river and a bridge that provides access across the river to the south and east side. A gauging station is located at that point. Much of the river in this segment has been affected by operations of the dam. The discharge from the dam extends down the river a considerable percentage of the segment's distance. Earthen material has been removed from the canyon slopes leaving a visible scar. From the bottom of the switchbacked road, the road to the power plant parallels the west bank of the river.

A low grade dirt road follows the majority of the river's length, crossing a bridge and exiting the study area near its lower end, crossing another bridge back into the reservation. The Hawk Spring Road enters the study area about two-thirds of the way down the segment. A corral and hay shed are near the junction of the Hawk Spring Road with the river road. The river flowing through this area has retained its relatively natural character.

Segment 1 is classified as *Recreational*. The river is readily accessible by a low-grade dirt road that follows the river for most of the segment. Two bridge crossings exist in the segment. Another road intersects the river road about 3 miles down from the segment's beginning. A minor agricultural development, consisting of a corral and hay roof supporting a grazing operation, is near the river at that point.

**Segment 2** begins near a point where the road on the reservation side turns away from the river southward toward the old Hook and Line Ranch headquarters (intersection of the river and the quarter section line of Sec. 24, T. 3 S., R. 17 E.) and ends near a road coming down a ridge from the north about 1.5 miles east of Dripping Spring Wash (intersection of the river and the west quarter section line of Sec. 14, T. 4 S., R. 16 E.). Segment 2 is about 12.5 miles long. The segment study area contains about 2,630 acres of public land on the north side of the river.

A 44 kv powerline crosses about 2 miles of the Segment 2 study area and parallels the Gila River near the mouth of Mescal Creek. A road was bladed out to one of the towers some years ago but is no longer passable. The road does not reach the river. A small corral in the canyon bottom and the remains of a mining prospect on the canyon slopes are the only other evidences of development. The shoreline and river flowing through this segment are essentially primitive in character and inaccessible except by trail.

Segment 2 is classified as *Wild*. The river is not accessible by road along this segment. The powerline crossing the segment study area is not easily noticeable and does little to detract from the natural character of the area. It was constructed in the 1920s with almost no vehicle access and its towers have taken on a rusty and non-metallic appearance that blends in with the surrounding landscape. The powerline passes through about 2 miles of the 12.5 mile-long segment. Other developments do not affect the essentially primitive conditions. Waters of the river appear unpolluted, providing aesthetic qualities, habitat for the propagation of fish and wildlife, and primary source of contact for recreation. The amount of livestock grazing occurring within the segment study area is limited and considered to have no effect on the primitive character of the area. Overall, the watershed and shorelines of the segment are essentially primitive.

Segment 3 begins near the end of a road coming down a ridge from the north about 1.5 miles east of Dripping Spring Wash (intersection of the river and the west quarter section line of Sec. 14, T. 4 S., R. 16 E.) and ends south of the eastern edge of the Hayden-Winkelman tailings pond. Segment 3 is about 14 miles long. The segment contains about 2,920 acres of public land, 700 acres of state land and 1,505 acres of private land, totalling 5,125 acres. The private land occurs in separate parcels with the river flowing through each one for a total of 5.6 miles. The river flows through state land in three separate stretches totalling 1.4 miles. The remaining 7.0 miles of river in this segment flows through public land.

Highway 77, a two-lane paved road, parallels the river along much of Segment 3. The river is accessible by vehicle from the highway in several places. Small lengths of three other low-grade dirt roads enter the study area though only one reaches the river. Two undeveloped picnic and fishing sites maintained by BLM are adjacent to the river in the NW1/4, Sec. 28, T. 4 S., R. 16 E., and SW1/4, Sec. 5, T. 5 S., R. 16 E. Fill from the highway reaches the river's edge in some places but has not significantly affected the channel or the character of the river. The waterway remains generally natural in appearance.

Segment 3 is classified as Recreational. The river is readily accessible by road. Highway 77 parallels the river for about 9 miles of the 14-mile-long segment. Several short side-roads approach the shoreline from the highway. One other dirt road drops down the river at the upper end of the segment. Some residential and agricultural development is present along the waterway on the private parcels in the segment study area. No impoundments or major diversion are known to have existed along the river. Some minor modification of the waterway has occurred from highway construction as fill reached the shoreline in places. Portions of the town of Winkelman (residential and some business areas) and the adjacent copper mining operations are within the lower portion. However, the waterway generally retains its natural and riverine appearance.

## **Aravaipa Creek Segment**

### **Location/Description of Segment**

Aravaipa Creek is north of the Galiuro Mountains in eastern Pinal County and western Graham County, Arizona. The creek lies 90 miles southeast of Phoenix and 55 miles northeast of Tucson (the two largest metropolitan areas in Arizona) and 40 miles west of Safford, Arizona.

The stretch of river under consideration covers 11.0 miles from the mouth of Turkey Creek to a point approximately 0.5 mile downstream of the confluence of Hell's Half Acre Canyon. The area is contained between the NW 1/4 SW 1/4 Sec. 19, T.6S, R.19E. and the NW1/4 SE1/4, Sec. 19, T.6S., R.17E.. The segment is entirely within the Aravaipa Canyon Wilderness designated by Congress on August 28, 1984.

Aravaipa Canyon has long been recognized for its natural qualities and significant ecological attributes. Beneath scenic towering cliffs, Aravaipa Creek flows perennially, supporting lush riparian vegetation in stark contrast to the

shrubs of the Sonoran Desert on the canyon slopes. The 1,000-foot-deep canyon is home for a variety of wildlife, including 46 mammals, 46 reptiles, 7 native fish and 8 amphibian species. In addition, more than 200 bird species ranging from permanent residents to rare or migrant species may be found in this area.

Climatic conditions in the study area are similar to those found throughout the region. In southeast Arizona, lowlands alternate with mountains to create abrupt changes in climatic conditions over short distances. Annual rainfall averages 7 to 16 inches in the valleys, with most falling during the late summer months.

## Evaluation of River Values

The Aravaipa Canyon Wilderness provides high-quality habitat for a variety of fish and wildlife species. The perennial water of Aravaipa Creek, besides furnishing habitat, allows for the growth of the canyon's riparian vegetation. The high cliffs and dissected uplands provide habitat for additional wildlife.

Desert bighorn sheep, wiped out in the 1930s and reintroduced in the late 1950s and 1973, have increased dramatically and are expanding their range. The number of bighorn sheep in the Aravaipa area is estimated at 160. A small group of bighorn is commonly seen along the north side of the canyon by visitors in the canyon bottom and appears to be tolerant of people hiking or backpacking. The remainder of the sheep use the canyon slopes side canyons and tablelands north of Aravaipa Creek.

Federally listed and candidate threatened and endangered species are found within the area. Three pair of Peregrine falcons are found within the area. The desert tortoise lives in the western part of the area in Sonoran desert habitat in low density. The black hawk, though having no federal status, is listed as a State of Arizona candidate species. This raptor is uncommon in Arizona and the continuation of the species could be in jeopardy in the future. Nesting black hawks are sensitive to disturbance.

Aravaipa Creek contains seven native fish including the loach minnow (*Tiaroga cobitis*) and the spikedace (*Meda fulgida*). Those two species have been listed as threatened under the Endangered *Species Act*. The other native fish found in Aravaipa Creek are roundtail chub, longfin dace, speckled dace, Sonoran sucker and desert mountain sucker. The variety of aquatic habitats-shallow riffles, deep pools, sandy bottoms and gravel bottoms-allows for the variety of fish species. Frequent and often heavy flooding maintains the native assemblage of fish. Exotic species tend to be flushed out of the system by flooding, but some (like the green sunfish) persist in pools in the side drainages. Therefore, it is an outstandingly remarkable fish and wildlife resource.

Aravaipa Creek is also an outstandingly remarkable area for primitive recreation. The creek is a popular destination for day hiking, backpacking, birdwatching, photography, wildlife observations and sightseeing. Hunting occurs in portions of the wilderness during the fall and winter. Horseback riding in the Aravaipa Canyon Wilderness also takes place but less frequently. Most visits happen during the spring and fall when temperatures are moderate and storms are uncommon. However, the climate allows year-round use.

The majority of visitors to Aravaipa Canyon Wilderness come from Tucson and Phoenix, although people from throughout the United States and the world do visit Aravaipa Canyon. The scenery, the desert stream and its tributaries and the opportunities for birding and observing bighorn sheep are the most famed attractions.

Visitor use statistics for Aravaipa Canyon have been kept since the mid-1970s. Over that period, visitor use has remained rather stable with the exception of the years 1980-82 when use increased dramatically, probably because of publicity about the pending wilderness designation. After the flood of October 1983, visitor use lessened for a year but has since returned to that of the 1970s (about 10,000 visitors per year).

## Other River Values

The canyon area is rich in nongame species, particularly riparian bird species, but also mammals, amphibians and reptiles. Yellow-billed cuckoos, buff-collared nightjars, beardless flycatchers, black hawks and zone-tailed hawks are some of the uncommon species doing well in the Aravaipa Canyon Wilderness. Ringtail cats, coatis, bobcats, gray fox and raccoons are among the 46 mammals known living in the canyon.

The spectacular canyon, carved to a depth of 1,000 feet by Aravaipa Creek is noted for its scenic beauty. Combined with the well-developed riparian system, Aravaipa is known as one of Arizona's scenic jewels, changing its characteristics with each season.

Aravaipa is also rich in cultural history dating from as long as 10,000 years ago.

## **Eligibility Determination**

BLM has determined that 11 miles of Aravaipa Creek are eligible for inclusion in the National Wild and Scenic Rivers System.

## **Classification Determination**

This section identifies the classification which best describes the eligible river segment(s) as viewed in its existing condition. One segment has been identified.

Segment 1 (Aravaipa Creek NW 1/4 NW 1/4 Sec. 19, T.6S.R.19E. to NW 1/4 SE 1/4 Sec 13, T.6S. R17E.). Segment 1 includes a total of 11 miles through public land. A Wild classification best describes this segment of the river. The area possesses outstandingly remarkable wildlife, fish, recreation and scenic values. This area is very popular for backpacking. The segment is free from impoundments and the shoreline is undeveloped.

## **Turkey Creek Segment**

### **Location/Description of Segment**

The study area is in Graham County, Arizona, approximately 40 miles southwest of Safford. The creek flows through a shallow, carved canyon and well-developed mixed broadleaf riparian zone. Turkey Creek flows for about 2.5 miles for the majority of the year between the mouth at Aravaipa Creek and a point near its confluence with Oak Grove Canyon and the road to the tablelands. The creek involved falls between the SE1/4 SW1/4, Sec. 32 T.6S. R.19E. and SE114 NW1/4, Sec. 19 T.6S. R.19E.. The creek is a main tributary to the east end of the Aravaipa Canyon Wilderness. Turkey Creek is readily accessible by a low-grade dirt road that parallels and occasionally crosses Turkey Creek for the entire section of the study area.

### **Evaluation of River Values**

Outstandingly remarkable values include a cultural site comprising a cliff dwelling previously occupied by the Salado people, known to have lived only in a relatively small portion of Arizona. In addition high scenic values, recreational values including camping and hiking are found here. The area is popular due in part to its proximity to Aravaipa Canyon Wilderness.

### **Other River Values**

Sensitive wildlife species and the presence of a well-developed, mixed broad leaf riparian system upon which most other values depend.

## **Eligibility Determination**

BLM has determined that 2.5 miles are eligible for inclusion in the National Wild and Scenic Rivers System.

## **Classification Determinations**

This section identifies the classification that best describes each eligible river segment as viewed in its existing condition. One segment has been identified.

Segment 1 (Turkey Creek SE1/4 SW1/4, Sec 32 T.6S. R19E. to SE1/4 NW1/4, Sec. 19 T.6S. R19E.). Segment 1 includes 2.5 miles which flows through public land. A Recreational classification best describes this segment of the river. The area possesses outstandingly remarkable cultural, recreational and scenic values. A Salado cliff dwelling interpreted to the public and the draw of the Aravaipa Canyon Wilderness area provides excellent opportunities for historic preservation and recreation. A road parallels and occasionally crosses Turkey Creek for the entire length of the segment. Some fences and a wooden corral are the only modern structures.

## Swamp Springs Segment

### Location/Description of Segment

The study area is located in Graham County in southeastern Arizona. The stretch of narrow canyon under study flows through 2 miles of public lands from a point 1 mile west of the Jackson Cabin Road to its confluence with Redfield Canyon. The stream contains water throughout the year but is reduced to short flowing reaches and standing pools during drier periods. This segment is situated from NE 1/4 Sec. 34 T.11S. R.20E. to NE 1/4 Sec. 32 T.11 S. R.20E.

Swamp Springs comprises a significant amount of riparian lands in the locale. The entire watershed is contained on public lands.

### Evaluation of River Values

Outstandingly remarkable values include the presence of two species of native fish (an uncommon occurrence in the desert southwest) and one federal candidate and state threatened species--the yellow-billed cuckoo. The common black hawk, a state candidate species, also occurs in the area.

### Other River Values

The presence of a majority of the riparian lands in the vicinity, the scenic and recreational values including hiking, birding and wading in this drainage are other attributes. The area is currently being considered for wilderness designation.

### Eligibility Determination

BLM has determined that 2 miles are eligible for inclusion in the National Wild and Scenic Rivers System. Approximately 0.5 mile of this stream, located at the mouth, flows through state lands.

### Classification

This section identifies the classification that best describes each eligible river segment as viewed in its existing condition. One segment has been identified.

Segment 1 (Swamp Springs NE1/4, Sec. 34 T.11S. R.20E. to NE1/4, Sec. 32 T.11S. R. 20E.). Segment 1 includes 2 miles, of which approximately 0.5 mile flows through state land. A Wild classification best describes this segment of the river. The area possesses outstandingly remarkable fish and wildlife values.

## Hot Springs Canyon Segment

### Location/Description of Segment

The study area is located in Cochise County in southeastern Arizona. The river flows through a broad canyon containing narrow sections for a length of 6 miles, 1 mile of which flows through State and private lands. The area is located between NE1/4, Sec. 36 T.12S. R.20E. and NW1/4, Sec 5 T.13.S R.20E.

## Evaluation of River Values

The outstandingly remarkable feature of Hot Springs Canyon is the existence of four species of native fish and nesting gray hawks-one of 55 pair in the United States. Six continuous miles of flow within a deep scenic canyon is enhanced by the riparian vegetation lining the shores.

## Other River Values

The area possesses habitat necessary for at least nine species of breeding raptors. The area is scenic and offers opportunities for hiking, horseback riding, birding, wading and camping. There is some off-highway vehicle access at the lower end of the segment.

## Eligibility Determination

BLM has determined 6 miles are eligible for inclusion into the National Wild and Scenic Rivers System, 1 mile of which crosses state and private lands.

## Classification Determination

This section identifies the classification that best describes each eligible river segment as viewed in its existing condition. One segment has been identified.

**Segment 1** (Hot Springs Canyon NE 1/4 Sec. 36 T.12S. R20E. to the NW 1/4 Sec. 5 T.13S. R20E.). Segment 1 includes a total of 6.0 miles of which 1.0 miles crosses private and state land. A Wild classification best describes this segment of river. The area possesses outstandingly remarkable fish values. There are no developments or roads along this segment.

## Bonita Creek Segment

### Location/Description of Segment

The study area is located in Graham County in southeastern Arizona. The mouth of Bonita Creek can be reached by driving 15 miles northeast of Safford on the Sanchez road. The legal description extends from the SW1/4, Sec. 27 T.4S. R27E. to lands at the mouth of the creek at NW1/4 NE1/4, Sec. 29 T.6S. R. 28E. The creek flows for a distance of approximately 15 miles south of the San Carlos Apache Indian Reservation through a moderately broad canyon which closes to steep-walled sections in some locations. A low grade dirt road, periodically washed out by flash floods, winds along and crosses the creek in many locations for its entire length to the reservation boundary. A few large parcels of private land are contained in the creek bottom. Two miles of Bonita Creek cross private lands.

## Evaluation of River Values

Resources which are outstandingly remarkable include habitat for federally listed and proposed Threatened and Endangered wildlife species, 15 miles of riparian habitat, a perennial creek with water quality qualifying for state Unique Water designation, National Register quality cultural resource sites, an area with one of the highest numbers of breeding bird species found in the United States, the greatest standing crop biomass of fishes recorded in a southwestern stream and a very scenic canyon. Bonita Creek is the water supply for the City of Safford. The city maintains a pipeline and pump station facilities within the creek drainage as well as picnic facilities for recreationists.

Outstandingly remarkable values include habitat for federally and state listed and proposed Threatened and Endangered species including bald eagle, peregrine falcon, Gila chub, yellow-billed cuckoo, razorback sucker, and black hawk. The breeding bird diversity is among the greatest in the United States. Other outstandingly remarkable values include numerous historic and prehistoric cultural sites including several well-preserved cliff dwellings and a historic cabin. The proposed National Historic Safford-Morenci Trail crosses the drainage.

## Other River Values

Other values which enhance the area's overall social and ecological value include recreational hiking, camping, birding, scenic backcountry driving and water play. The area also has a critical water supply which demonstrates the outstanding quality of the water. Fifteen linear miles of riparian habitat are also present along this perennial stream.

## Eligibility Determination

BLM has determined that a total of 15 miles are eligible for inclusion into the National Wild and Scenic Rivers System, 2 miles of which flow through private lands.

## Classification Determination

This section identifies the classification that best describes each eligible river segment as viewed in its present condition.

**Segment 1** (Bonita Creek SW1/4 SE1/4, Sec. 27 T.4S R.27E. to NW1/4 NE1/4, Sec. 29 T.6S. R.28E.). Segment 1 includes a total of 15 miles of which 2 cross private land. A Recreational classification best describes this segment of river. The area possesses outstandingly remarkable fish and wildlife, cultural/historic and recreational values as well as a critical source of high quality water to the City of Safford. A low-grade road weaves along and crosses the entire length from the mouth of the creek to the Reservation lands. A minor water diversion facility and recreation sites are maintained by the city along the lower portion.

## San Pedro River Segment

### Location/Description of Segment

The study area is located in Cochise County in southeastern Arizona. The study area is the segment of the San Pedro River contained in the San Pedro Riparian National Conservation Area between the Mexican border and St. David Arizona.

The study area begins in the NW1/4, Sec. 19, T.24S, R.22E. and runs downstream to the NW1/4, Sec. 21, T.18S., R.21 E. A total of 46 miles of the San Pedro River has been evaluated, with 38.25 miles under BLM administration.

The study area lies in the Basin and Range Physiographic Province, characterized as possessing gently sloping valleys separated by abruptly rising mountains. The climate is arid to semi arid. Summers are warm, averaging 95 degrees daily maximum in June. Winters are relatively mild with average maximums in January of 61 degrees F and lows of 34 degrees. Precipitation averages about 13 inches annually with 50-60 percent of that total falling in July-September and 20 percent in December-February.

## Evaluation of River Values

The study area contains many outstandingly remarkable values including scenic, recreation, fish and wildlife, hydrologic, paleontological, historic and cultural values. The riparian forest along the San Pedro River is the area's most recognizable visual feature. The riparian forest offers a dramatic visual change from the surrounding country's vegetation, dominated by such Chihuahuan Desert shrubs as creosote, catclaw, tarbush, whitethorn and mesquite.

Natural qualities of this river have made it a very popular area for recreational activities, including birding, wildlife viewing, hiking, camping, horseback riding and nature study. Riparian vegetation, uncommon in the southwestern United States, greatly enhances wildlife habitat. The San Pedro's perennial flow, though sometimes a trickle, is a rare occurrence in the Southwest. In addition, the area contains prehistoric and historic sites that qualify for listing on the National Register of Historic Places.

Animal life in the study area is greatly enhanced by the perennial river and its riparian vegetation. The area supports over 300 species of birds, 80 species of mammals, two native species and several introduced species of fish, and more than 40 species of amphibians and reptiles.

Notable birds include over 25 species of raptors (many hawks, including the rare gray hawk), the Mississippi kite, crested caracara, green kingfisher and yellow-billed cuckoo.

Mammals include many species of rodents, several bats, mountain lion and bobcat. Other mammals, like the whitetail deer, mule deer, javelina, cottontails and jackrabbits, are fairly common.

The portion of the San Pedro River in the study area is perennial. Since perennial rivers are uncommon in the Southwest, the hydrological values are outstandingly remarkable. They are extremely important for the vegetation, fish and wildlife, and recreation values associated with the river.

The paleontological resources of the area rank among the top two paleontological areas in Arizona. They rank in the top five for the late Cenozoic (approximately 1 million-5 million years before present) terrestrial deposits in North America. The area ranks as the top area in the western hemisphere for paleontological sites associated with early mankind because the number of sites, the excellent chronological control of those sites and the potential for additional sites. The fossils of the area have a high potential for yielding important information on mammal evolution and intercontinental dispersal, the earliest humans to occupy North America, late Cenozoic geology and life, vegetation and climatic changes.

The cultural resources of the study area represent a diverse array of site types, cultures and time periods. The human occupation of the area began about 11,200 years ago. Many sites have exceptionally high scientific and/or public values at an international level of importance. The study area provides a unique opportunity for the scientific study, public interpretation and conservation of the full array of cultural resources found in southeast Arizona.

## **Other River Values**

In addition to those values described above, the river also contains the following significant values. The study area, dominated by an extensive riparian corridor, is a composite of several vegetation communities. Long, healthy stretches of Fremont cottonwood and Gooding willow dominate the riparian corridor, along with lesser amounts of Arizona ash and walnut, netleaf hackberry and soapberry. Chihuahuan desertscrub, typified by species such as tarbush, creosote and acacia, dominate the uplands bordering both sides of the river while mesquite and sacaton grass dominate the bottomland adjacent to the riparian corridor.

## **Eligibility Determinations**

To be eligible for inclusion in the Wild and Scenic Rivers System, the river segment being studied must be free-flowing and possess one or more outstandingly remarkable values.

BLM has determined 46 miles of the San Pedro River are eligible for inclusion in the National Wild and Scenic Rivers System.

## **Classification Determination**

This section identifies the classification that best describes the eligible portions of the San Pedro River as viewed in its existing condition.

Segment 1 (San Pedro River NW1/4, Sec. 19, T.24S. R.22E. to NW1/4, Sec 21, T.18S. R. 21 E.). Segment 1 includes a total of 46 miles which flows through public land. The area possesses outstandingly remarkable scenic, recreation, fish and wildlife, hydrologic, paleontological, historic and cultural values. The area is readily accessible by roads. State Highways 82,90 and 92 cross the study area. Two county roads, Charleston and Hereford also provide access to the river. In addition to the five paved roads, several dirt roads provide access to the area.

The Southern Pacific Railroad (Benson to Douglas rail line) parallels the river from Hereford to the northern boundary of the study area. This is an active railroad line. Also, several old railroad grades are located in the study area.

Many rights-of-way including natural gas pipelines, water pipelines, utility easements, powerlines and telephone lines cross the study area. Noticeable concentrations are at the Charleston Road crossing and in the Hereford-Palominas area.

The St. David Irrigation District has a diversion structure and canal in the northern portion of the study area. The small diversion structure diverts water into the canal for use on fields near St. David.

The area also has been adversely affected by past activities in the area. These activities include livestock grazing, sand and gravel operations, mining and farming.

A Recreational classification best describes the entire study area. The study area is readily accessible by five paved roads and numerous dirt roads. Almost the entire length is paralleled by an active railroad line. The area has been affected by numerous rights-of-way and other activities occurring along the shoreline. However, the waterway generally retains its natural and riverine appearance.

## Appendix 4

### Management Objectives for Priority Species/Habitats

#### Alternatives A, B, and C

##### 1. Riparian/Aquatic Habitat and Species Dependent on Riparian/Aquatic Habitat

Riparian and aquatic habitat supports 60 percent of Arizona's wildlife species and 75 percent of species listed as threatened or endangered, yet they are one of the smallest communities comprising about 1/2 percent of the Safford District. Because wildlife and fishes are concentrated in these small areas, riparian and aquatic habitat management has been the focus of the Wildlife Program. The primary objectives are as follows:

- a. Maintain and improve riparian areas to achieve 75 percent in good ecological condition by 1997.
- b. Increase the amount (length and width) of riparian vegetation to provide more wildlife habitat.
- c. Increase the complexity (number of vegetation layers and plant species) of riparian communities for more niches and greater biological diversity.
- d. Manage for three age classes (large decadent, mature and sapling) of riparian trees.
- e. Manage for development of a complete shrub and grass/forb component.
- f. Increase the duration and length of surface water flow in drainages.
- g. Improve water quality.
- h. Conduct inventories to document current use of riparian and aquatic habitats by fish and wildlife and to identify management needs or transplant opportunities.
- i. Increase number of fish and amphibian populations by transplants, in conjunction with the Fish and Wildlife Service and the Arizona Game and Fish Department.
- j. Monitor riparian and aquatic habitat to document conditions and response to management actions by vegetation, water conditions and animal use.
- k. Protect native fish and wildlife by exclusion or removal of non-native species which may adversely affect native species.
- l. Protect and restore springs and seeps and their native vegetation and wildlife.

##### 2. Species identified for Reintroductions in Fish and Wildlife Service Plans

One of the primary tools available for wildlife management is transplanting species from captive populations or areas where they are common to suitable habitat currently unoccupied or with a non-viable population. Such transplants are always done in conjunction with the Arizona Game and Fish Department, and with the Fish and Wildlife Service when a federally listed or candidate species is involved. Opportunities exist for many species (such as Gila topminnow, spikedace or wild turkey) that are currently present on public lands to be transplanted to suitable, unoccupied habitat elsewhere in the District. The management objective for these species is to increase the number of viable populations on public lands. Different problems exist for species totally extirpated from the District and special attention is focused on this group of fishes and wildlife.

Only two federal recovery plans specifically identify Safford District for reintroduction of extirpated species: woundfin minnow and the aplomado falcon. The Endangered *Species Act* mandates Bureau support, and *Alternatives A and C* emphasize these species. Other extirpated species were present within the District, but their recovery plans do not identify public lands here for reintroductions. In *Alternative B*, BLM will shift management emphasis to support potential efforts to reintroduce all extirpated species. These species include grizzly bear, wolf, ocelot, jaguar, Colorado River squawfish and Mexican garter snake. Habitat management for game species would be de-emphasized to free personnel and funding for these other species.

### 3. Desert Tortoise

BLM completed a rangewide management plan for desert tortoise in November 1988. The Bureau's goal is "...to manage habitat so as to ensure that viable desert tortoise populations exist on public lands. This will be accomplished through cooperative resource management aimed at protecting the species and its habitat."

The District's first objective is to determine the distribution and relative population of desert tortoise on public lands. Then, based upon four criteria, (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) tortoise density and (4) population status, specific management actions will be initiated. In view of the relative health of the Sonoran Desert population of desert tortoise and the small, isolated parcels of suitable habitat managed, Safford District may have few opportunities to enhance habitat conditions. The District, however, will make every effort to protect and enhance viable desert tortoise populations on public lands.

### 4. Desert and Rocky Mountain Bighorn Sheep

Both Rocky Mountain and desert bighorn sheep utilize public lands within the Safford District. The management goal for desert bighorns is to increase the capability of habitat by 10 percent to support populations of sheep in all potential areas. Objectives include the following:

- a. Support Arizona Game and Fish Department reintroductions.
- b. Develop water sources in suitable habitat.
- c. Develop livestock and fire management systems compatible with sheep needs.
- d. Mitigate other actions to prevent avoidable adverse impacts.
- e. Conduct BLM inventories and support other inventory and monitoring efforts of bighorn sheep and their habitat.

Rocky Mountain bighorn sheep are currently using the northeast corner of the District and are rapidly increasing their range and numbers in the Eagle Creek area. Management objectives are to monitor the distribution and size of this population, especially in relation to the distribution of desert bighorns in the Peloncillo Mountains.

### 5. Mule Deer

Most public land in the Safford District supports mule deer; however little habitat contains high numbers. Arizona Game and Fish Department objectives are to increase the capability of the habitat by 7 percent on BLM lands. Bureau objectives parallel those of the state. Specific management objectives are as follows:

- a. Improve forage conditions through better livestock management and use of controlled burns.
- b. Provide yearlong water at 3-mile intervals in important habitat.
- c. Block up public lands to improve management efficiency and to support viable populations
- d. Mitigate avoidable adverse impacts by other programs and authorized actions.
- e. Conduct BLM inventories and support other inventories and monitoring efforts of mule deer and their habitat.

## 6. Prong horn Antelope

Public lands in the Safford District provide habitat for one population of pronghorn. Arizona Game and Fish Department strategic plans call for a 15 percent increase in pronghorn habitat capability on BLM lands. District objectives are to improve habitat for the one herd so that it will support a viable population:

- a. Improve forage condition.
- b. Provide water, where it is a limiting factor.
- c. Reduce mortality factors, as identified.
- d. Conduct or support monitoring or inventory efforts of pronghorn and their habitat.

Improved management techniques of desert grasslands may create new areas with habitat suitable for pronghorn. Opportunities for transplants to produce new populations will be investigated and conducted in cooperation with Arizona Game and Fish Department, where warranted.

## 7. Oak Woodlands and Species dependent on Oak Woodland Habitat

Oak woodlands provide crucial habitat for several priority wildlife species. Management efforts will benefit all these species and so the goals overlap. Priority species include white-tailed deer, Montezuma quail, wild turkey and black bear. Arizona Game and Fish Department strategic plan goals are for no change in white-tailed deer, turkey and black bear populations on public lands. Specific management objectives are as follows:

- a. Increase perennial grass height to provide better cover for whitetailed deer fawns, Montezuma quail and nesting turkeys.
- b. Increase food quality and quantity for all wildlife species.
- c. Reintroduce Merriam's and Gould's turkeys to areas with suitable habitat, in cooperation with Arizona Game and Fish Department.
- d. Increase white-tailed deer numbers 10 percent through better livestock management and use of prescribed fire.

Bear and Montezuma quail numbers will benefit as habitat conditions improve, increasing in numbers and distribution.

## 8. Saguaro-Palo Verde

The eastern edge of the Sonoran Desert lies in the Safford District. Where this community is dominated by saguaro cactus and palo verde shrubs, it is the most structurally and floristically diverse desert type in the world. Several priority species such as desert tortoise and javelina key into this community. Other wildlife of possible future concern, such as Harris hawks and purple martins, also concentrate here. Management objectives are as follows:

- a. Maintain this community in good or better ecological condition.
- b. Mitigate disturbances to prevent avoidable adverse impacts.
- c. Control fire to prevent loss of this fire-sensitive community.
- d. Block up the land ownership pattern to acquire management units.

## 9. Desert Grassland

Desert grasslands in the Safford District include Sonoran desert, Chihuahuan desert and plains grassland types. All are fire-dependent communities. Historic management methods resulted in shrub, cactus and juniper invasion at the expense of perennial grasses. Priority species such as pronghorn, bighorn sheep and the extirpated aplomado falcon, plus other species of growing concern such as Cassin's sparrows, Brewer's sparrows and the massasauga are adversely affected as grasses decline. Currently 13 grassland-dependent wildlife species are included in the list of state threatened species.

The management objective of the Safford District is to reduce invading shrubs, cactus and junipers and increase native perennial grasses in the most productive portions of the public lands. Methods will include changes in livestock and fire management practices. Benefits to riparian and aquatic areas will also occur due to improved watershed conditions. Some changes in distribution and local populations of species that prefer shrublands, such as javelina, may occur as this objective is attained.

## 10. Wetlands

Riparian and aquatic habitat is very important to most of the District's wildlife. Wetlands, as a type of riparian community characterized by saturated soil at the land/water junction, are especially crucial to waterfowl, shorebirds and amphibians. Currently only an estimated 100-200 acres of wetlands are found in the District. Previous planning efforts have identified the need for additional wetlands. In *Alternative B* wetland habitat would be separated from the riparian and aquatic topic to give it special emphasis. Management objectives are as follows:

- a. Prevent avoidable disturbances to improve existing wetlands.
- b. Construct low dams, water diversions and water spreading projects to develop additional wetlands.
- c. Acquire additional wetlands from willing owners, and develop as necessary.
- d. Acquire water rights to ensure continued supply.

## 11. Other Species and Habitats of Interest

Many wide-ranging species must be managed by Districtwide practices and policies. Bureau policy, NEPA and the Endangered *Species Act* provide general guidance for management and mitigation. Consultation with Arizona Game and Fish Department and the Fish and Wildlife Service provides additional support. The District's goal is to protect and enhance habitat for all priority species on public lands. All actions will be evaluated for possible effects to wildlife and Arizona Game and Fish Department or Fish and Wildlife Service will be consulted where applicable. Site-specific habitat improvements will be identified in activity plans and adverse impacts will be mitigated in individual actions or plans as proposed.

## Appendix 5

# Lands that Meet Federal Land Policy and Management Act Requirements for Sale

## Alternatives A, B, and C

The following public lands qualify for sale under Section 203(a)(l) of Federal Land Policy and Management Act of 1976. The tracts are difficult and uneconomical to manage because of their location or other characteristics. Although they qualify for sale, the preferred method for disposal is by exchange or Recreation and Public Purposes Act lease/patent.

These parcels identified for disposal are not to be considered all-inclusive. Unforeseen future land management concerns or public demand may necessitate the need for other public lands not within the disposal areas to be sold or exchanged. The parcels considered at that time will be subject to the same BLM planning process and National Environmental Policy Act as those identified in this document.

	Land for Sale Under Alternatives:		
	A	B	C
Gila and Salt River Meridian, Arizona			
T. 2 S., R. 14 E.,			
Sec. 7,       NE1/4NE1/4 excluding mineral patent;	X	X	X
Sec. 31,     lots 1 and 2, NE1/4NW1/4.	X	x	x
T. 2 S., R. 15 E.,			
Sec. 20,     lot 1 S1/2NE1/4, N1/2SE1/4,			
SE1/4SE1/4, unpatented mineral survey;	X	X	X
Sec. 29,     lots 5, 9, 10-13 incl., E1/2NE1/4,			
N1/2SE1/4, unpatented mineral survey in			
N1/2 and W1/2;	X	x	x
Sec. 31,     NE1/4, N1/2SE1/4.	X	X	X
T. 3 S., R. 29 E.,			
Remaining public land in			
Sec. 32	X	x	x
Sec. 35	X	x	x
Sec. 36.	X	x	x
T. 4 S., R. 28 E.,			
Remaining public land in			
Sec. 12,     E1/2NE1/4 (within).	X	x	x
T. 4 S., R. 29 E.,			
Remaining public land in			
Sec. 1	X	x	x
Sec. 2	x	x	x
Sec. 3	X	x	x
Sec. 4	X	x	x
Sec. 6,     S1/2S1/2 (within);	X	X	X
Sec. 7	X	x	x
Sec. 8	X	x	x
Sec. 10	X	X	X

Land for Sale Under  
Alternatives:

Gila and Salt River Meridian, Arizona

	A	B	C
Sec. 11	X	X	X
Sec. 12	X	X	X
Sec. 18	X	X	X
Sec. 29, NE1/4NW1/4 (within).	X	X	X
T. 5 S., R. 23 E.,			
Sec. 9, NE1/4NE1/4;	X	X	X
Sec. 11, E1/2NW1/4, NW1/4SW1/4;	X	X	X
Sec. 13, W1/2SW1/4SW1/4, SE1/4SW1/4SW1/4.	X		X
T. 5 S., R. 29 E., Sec. 12			
Lot 2	X		X
Lot 3	X		X
Lot 4	X		X
NE1/4NW1/4	X		X
N1/2 Lot 5	X		X
N1/2S1/2 Lot 5	X		X
N1/2 Lot 6	X		X
SE1/4 Lot 6	X		X
N1/2SW1/4 Lot 6	X		X
N1/2 Lot 7	X		X
SW1/4 Lot 7	X		X
W1/2SW1/4 Lot 7	X		X
N1/2NW1/4 Lot 10	X		X
NW1/4NE1/4 Lot 10	X		X
N1/2NE1/4 Lot 11	X		X
NW1/4NW1/4	X		X
N1/2SE1/4NW1/4	X		X
SW1/4SE1/4NW1/4	X		X
N1/2SE1/4SE1/4NW1/4	X		X
SW1/4SE1/4SE1/4NW1/4	X		X
N1/2SW1/4NW1/4	X		X
N1/2SE1/4SW1/4NW1/4	X		X
T. 6 S., R. 16 E.,			
Sec. 27, unplotted parcel in SE1/4NW1/4.	X	X	X
T. 6 S., R. 17 E.,			
Sec. 7, south of San Carlos bdy.;	X	X	X
Sec. 8, south of San Carlos bdy.	X	X	X
T. 6 S., R. 22 E.,			
Sec. 26, all south of San Carlos bdy.	X	X	X
T. 6 S., R. 24 E.,			
Sec. 9, E1/2SW1/4.	X	-	X
T. 6 S., R. 25 E.,			
Sec. 8, S1/2NE1/4SE1/4;	X	X	X
Sec. 13	X	X	X
Sec. 14	X	X	X
Sec. 24	X	X	X

		Land for Sale Under Alternatives:		
Gila and Salt River Meridian, Arizona		A	B	C
Sec. 25,	N1/2, N1/2SE1/4, SE1/4SE1/4	X	X	X
Sec. 26,	N1/2SE1/4	X	x	x
Sec. 22,	SE1/4NE1/4;	x	x	x
Sec. 25,	SW1/4SW1/4NW1/4;	X	x	x
Sec. 26,	N1/2NW1/4NE1/4, E1/2SW1/4NW1/4NE1/4, SE1/4NW1/4NE1/4	X	x	x
T. 6 S., R. 26E.,				
Sec. 31,	Lots 1-3,5-6, 9, 12, 15, 16	X	x	x
Sec. 32,	Lot 5, NE1/4, N1/2SW1/4, N1/2SE1/4	X	X	X
Sec. 33,	Lots 1-12, Lots 15, 16	X	X	X
T.6 S., R. 27 E.,				
Sec. 33,	all	X	x	x
Sec. 34,	N1/2, SW1/4, N1/2SE1/4	X	x	x
Sec. 35,	Lot 4, N1/2NE1/4, NW1/4, NW1/4SW1/4	X	X	X
Sec. 36,	Lots 7, 8, NE1/4, N1/2NW1/4	X	X	X
T. 6 S., R. 28 E.				
Sec. 31,	Lots 1 through 5	X	X	X
T. 6 S., R. 30 E.,				
Sec. 1,	lots 14, 18, 22;	X	X	X
T. 7 S., R. 16 E.,				
Sec. 10,	lot 7, SE1/4SE1/4;	x	-	X
Sec. 11,	S1/2S1/2;	x	-	X
Sec. 12,	S1/2SW1/4;	x	-	X
Sec. 13,	N1/2NW1/4, E1/2SE1/4NW1/4;	x	-	X
Sec. 14,	N1/2N1/2, W1/2SW1/4NW1/4;	x	-	X
Sec. 15,	lot 12, NE1/4NE1/4.	x	-	X
T. 7 S., R. 27 E.,				
Sec. 1,	Lots 1 through 3, SE1/4NE1/4	X	X	X
Sec. 4,	lots 1-5 incl., S1/2N1/2, SW1/4;	X	x	x
Sec. 7,	lots 1 and 2, NE1/4, E1/2NW1/4;	X	x	x
Sec. 8,	lots 1, 2,3, NW1/4, N1/2SW1/4;	X	X	X
Sec. 9,	lots 14-19 incl.;	X	x	x
Sec. 21,	N1/2SW1/4NE1/4.	X	X	X
T. 7 S., R. 31 E.,				
Sec. 34,	E1/2NE1/4SE1/4, W1/2NE1/4SE1/4;	X	X	X
Sec. 35.	NW1/4NW1/4SW1/4.	X	X	X
T. 8 S., R. 16 E.,				
Sec. 21,	NW1/4;	X	X	X
Sec. 24,	E1/2NE1/4;	x	-	X
Sec. 29,	SE1/4SW1/4.	X	X	X
T. 8 S., R. 17 E.,				
Sec. 19,	E1/2SW1/4 (R&PP).	X	X	X

Land for Sale Under  
Alternatives:

Gila and Salt River Meridian, Arizona

	A	B	C
T. 8 S., R. 26 E., Sec. 10, NE1/4NE1/4	X	X	X
Sec. 20, lots 1 and 2;	X	X	X
Sec. 21, E1/2NE1/4NE1/4, W1/2NW1/4SW1/4	X	X	X
Sec. 29, lots 17, 19, 20,21, N1/2NW1/4NE1/4, W1/2E1/2NW1/4.	X	X	X
T. 8 S., R. 31 E., Sec. 11, E1/2NE1/4, NE1/4SE1/4; Sec. 35, E1/2E1/2.	X	X	X
T. 8 S., R. 32 E., Sec. 9, E1/2SE1/4; Sec. 10, W1/2SW1/4; Sec. 30, W1/2NW1/4SE1/4.	X	X	X
T. 12 S., R. 29 E., Sec. 29, SE1/4SW1/4.	X	X	X
T. 13 S., R. 30 E., Sec. 26, E1/2NE1/4SE1/4, N1/2SE1/4SE1/4, SW1/4SE1/4SE1/4, W1/2SE1/4SE1/4SE1/4; Sec. 35, SE1/4.	X	X	X
T. 13 S., R. 31 E., Sec. 20, SW1/4SW1/4; Sec. 29, W1/2NW1/4, NW1/4SW1/4; Sec. 31, lot 2.	X	X	X
T. 14 S., R. 30 E., Sec. 1, S1/4; Sec. 11, E1/2SE1/4; Sec. 13, NE1/4.	X	X	X
T. 14 S., R. 31 E., Sec. 4, SW1/4SW1/4, E1/2SE1/4; Sec. 5, SE1/4SE1/4; Sec. 6, lot 6, NE1/4SW1/4; Sec. 8, NE1/4NE1/4, NW1/4, E1/2SW1/4, W1/2SE1/4; Sec. 9, N1/2NW1/4; Sec. 17, NE1/4, SW1/4, SE1/4; Sec. 18, S1/2SE1/4; Sec. 19, SE1/4; Sec. 20, S1/2S1/2; Sec. 21, NE1/4, SE1/4; Sec. 22, NW1/4; Sec. 23, SW1/4NE1/4, W1/2SE1/4.		X	X
T. 14 S., R. 32 E., Sec. 19, lot 4.	X	X	X

Land for Sale Under  
Alternatives:

Gila and Salt River Meridian, Arizona		A	B	C
T. 15 S., R. 27 E.,				
Sec. 3,	SW1/4NW1/4, N1/2SW1/4;	X	x	x
Sec. 11,	SW1/4NE1/4.	X	x	x
T. 15 S., R. 28 E.,				
Sec. 4,	W1/2NE1/4SW1/4.	X	x	x
T. 16 S., R. 22 E.,				
Sec. 1,	S1/2SW1/4, SW1/4SE1/4 excluding mineral patent;	x	.	X
Sec. 2,	lots 12, 13, 14 excluding mineral patent, NW1/4NW1/4NW1/4 excluding mineral patent;	x	.	X
Sec. 3,	lots 5, 8, 9, 10, 14-18 incl.;	x	.	X
Sec. 4,	lot 5, N1/2SE1/4, SW1/4SE1/4;	x	.	X
Sec. 6,	lots 3-7 incl., SE1/4NW1/4, E1/2SW1/4;			X
Sec. 8,	N1/2SW1/4, SW1/4SW1/4, NW1/4SE1/4;	x	.	X
Sec. 9,	SW1/4SW1/4;	x	.	X
Sec. 10,	lots 1 and 2, SW1/4NE1/4, NW1/4SW1/4;	x	.	X
Sec. 12,	NE1/4SE1/4, S1/2SE1/4 excluding mineral patent;			X
Sec. 13,	lot 7, N1/2NE1/4, NE1/4NW1/4 excluding mineral patent;	x	.	X
Sec. 17,	SW1/4NE1/4, SE1/4NW1/4, SE1/4;	x	.	X
Sec. 18,	lot 4, N1/2SE1/4, SE1/4SE1/4;	x	.	X
Sec. 21,	W1/2NW1/4;	x	.	X
Sec. 22,	MS 2356;	x	.	X
Sec. 23,	lot 5, MS 2356;	x	.	X
Sec. 24,	lots 4-7 incl.	x	.	X
T. 16 S., R. 23 E.,				
Sec. 4,	SE1/4NW1/4, NE1/4SW1/4;	x	.	X
Sec. 6,	lots 7 and 8;	x	.	X
Sec. 23,	lot 2, W1/2NE1/4, S1/2, MS 585, unpatented mineral surveys;			X
Sec. 24,	MS 586.	x	.	X
T. 16 S., R. 27 E.,				
Sec. 30,	SE1/4SE1/4;	X	x	x
Sec. 31,	NE1/4NE1/4;	X	X	X
Sec. 34,	SE1/4NE1/4, NE1/4SE1/4.	X	x	x
T. 16 S., R. 30 E.,				
Sec. 14,	SW1/4NE1/4.	x	.	X
T. 17 S., R. 31 E.,				
Sec. 5,	SE1/4SE1/4.	x	.	X
T. 17 S., R. 32 E.,				
Sec. 6,	lot 2.	x	.	X
T. 18 S., R. 25 E.,				
Sec. 1,	lots 1 and 2, S1/2NE1/4, N1/2SW1/4,			

Land for Sale Under  
Alternatives:

Gila and Salt River Meridian, Arizona

A B C

	SE1/4SW1/4, SE1/4, excluding mineral patent;			X
Sec. 4,	lot 4;	X	X	X
Sec. 5,	lots 1, 10, 11;	X	x	x
Sec. 6,	lots 6-10 incl., N1/2SE1/4, NE1/4SW1/4;			X
Sec. 7,	lots 1 and 2, E1/2NW1/4.			X
T. 19 S., R. 22 E.,				
Sec. 34,	SE1/4SE1/4SW1/4NE1/4, S1/2NW1/4SE1/4NE1/4, E1/2SE1/4NE1/4, N1/2SW1/4SE1/4NE1/4, SW1/4SW1/4SE1/4NE1/4, SE1/4SW1/4SE1/4NE1/4, NW1/4NW1/4NE1/4SE1/4, NE1/4NE1/4NW1/4SE1/4.	x	x	x
T. 19 S., R. 24 E.,				
Sec. 4,	lot 4;	x	x	x
Sec. 9,	SW1/4NE1/4, NE1/4SE1/4;	X	x	x
Sec. 12,	lots 1, 2, 3;	X	X	X
Sec. 13,	lots 1-9 incl.;	x	x	x
Sec. 14,	lot 2, MS 2738;	X	x	x
Sec. 26,	SW1/4.			X
T. 19 S., R. 25 E.,				
Sec. 4,	S1/2NE1/4, SE1/4;	-	-	X
Sec. 9,	NW1/4NE1/4, NE1/4NW1/4;	-	-	X
Sec. 17,	lots 1, 3, 9-15 incl., 17, 18;	-	-	X
Sec. 18,	N1/2SE1/4NE1/4;	-	-	X
Sec. 20,	lots 1-8 incl., SW1/4NW1/4, W1/2SW1/4, unpatented mineral survey;	-	-	X
Sec. 21,	lots 1-8 incl. excluding mineral patent, E1/2SE1/4 excluding mineral patent.	-	-	X
T. 19 S., R. 27 E.,				
Sec. 17,	SW1/4SW1/4.	x	.	X
T. 19 S., R. 28 E.,				
Sec. 4,	lot 4.	x	.	X
T. 20 S., R. 22 E.,				
Sec. 11,	lots 1-18			
Sec. 14,	lots 1-20	X	X	X
T. 20 S., R. 26 E.,				
Sec. 6,	lots 10-13 incl.			X
T. 21 S., R. 22 E.,				
Sec. 3,	lot 3.	X	x	x
T. 21 S., R. 23 E.,				
Sec. 7,	SE1/4SE1/4;	X	x	x
Sec. 8,	NW1/4NW1/4.	X	x	x

Land for Sale Under  
Alternatives:

Gila and Salt River Meridian, Arizona	A	B	C
T. 22 S., R. 21 E., Sec. 15, SE1/4NE1/4; Sec. 20, E1/2NW1/4.	X X	X X	X X
T. 22 S., R. 23 E., Sec. 4, SW1/4SE1/4.	X	X	X
T. 22 S., R. 26 E., Sec. a, SW1/4SE1/4; Sec. 19, SE1/4NE1/4, E1/2SE1/4.	X X	X X	X X
T. 22 S., R. 28 E., Sec. 23, SW1/4NW1/4; Sec. 30, lot 5; Sec. 34, S1/2S1/2.	X X		X X X
T. 22 S., R. 29 E., Sec. 15, W1/2E1/2, E1/2SW1/4; Sec. 24, NW1/4NE1/4; Sec. 31, SE1/4SE1/4.	X X		X X X
T. 23 S., R. 23 E., Sec. a, lot 2; Sec. 9, lot 5; Sec. 28, SE1/4NE1/4.	X X X	X X X	X X X
T. 23 S., R. 25 E., Sec. 4, NW1/4SW1/4; Sec. 5, NE1/4SE1/4; Sec. 10, SE1/4NE1/4.	X X X	X X X	X X X
T. 23 S., R. 27 E., Sec. 28, NW1/4SW1/4.	X	X	X
T. 23 S., R. 28 E., Sec. 3, lots 1, 2, 4, SW1/4NW1/4, NW1/4SW1/4; Sec. 10, SE1/4NE1/4; Sec. 11, N1/2NW1/4.	X X X	X X X	X X X
T. 24 S., R. 25 E., Sec. 1, E1/2NE1/4SE1/4, NE1/4SE1/4SE1/4; Sec. 12, SE1/4NE1/4NE1/4, W1/2NE1/4NE1/4; Sec. 14, lots 1, 2, 3; Sec. 22, lots 1-4 incl.; Sec. 23, lots 2, 3, 4; Sec. 24, lots 1, 2.	X X X X X X	X X X X X X	X X X X X X
T. 24 S., R. 26 E., Sec. 6, lots 6,7, E1/2SW1/4, NW1/4SW1/4SE1/4; Sec. 19, lots 1-4 incl.; Sec. 24, lots 1-4 incl.	X X X	X X X	X X X

Land for Sale Under  
Alternatives:

Gila and Salt River Meridian, Arizona

				A	B	C
T. 24 S., R. 28 E.,						
Sec. 11,	SE1/4NE1/4,	N1/2NW1/4NW1/4,	W1/2SW1/4;	x	x	x
Sec. 13,	E1/2NW1/4;			X	X	X
Sec. 22,	lots 1-4 incl.;			X	x	x
Sec. 23,	lots 1-4 incl.;			x	x	x
Sec. 24,	lots 1-4 incl.			X	x	x
T. 24 S., R. 29 E.,						
Sec. 1,	SW1/4NE1/4;			X	x	x
Sec. 5,	SE1/4SW1/4,	SE1/4SE1/4;		x	x	x
Sec. 6,	E1/2NE1/4;			X	x	x
Sec. 19,	lots 1-5 incl.			x	x	x
T. 24 S., R. 30 E.,						
Sec. 19,	lot 1;			X	x	x
Sec. 20,	lots 1-4 incl.			X	x	x

## Appendix 6

### Visual Resource Management Class Objectives

Bureau Manual 8410, Visual Resource Inventory (BLM 1986), places the management of visual resources (scenery) into four management classes.

**Class I** The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; it does not, however, preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

**Class II** The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

**Class III** The objective of this class is to partially retain the existing character of the landscape. The level of activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

**Class IV** The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. Every attempt should be made, however, to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements.

# Appendix 7

## Legal Description for Lands Proposed for Mineral Withdrawal

The following lands are proposed for withdrawal from mineral entry under the Mining Law of 1872.

### Alternative A

Gila and Salt River Meridian, Arizona

1. Gila Box Outstanding Natural Area, Area of Critical Environmental Concern 2,411 acres

T. 5 S., R. 30 E.,  
Sec. 30, lots 3 and 4, SW1/4SE1/4, E1/2SW1/4;  
Sec. 31, lots 5, 6, 9-11, 15, 16, 18, 19, E1/2, SE1/4SW1/4;  
Sec. 32, SE1/4SE1/4, W1/2SE1/4, W1/2.

T. 6 S., R. 30 E.,  
Sec. 3, lots 9-12, S1/2NW1/4;  
Sec. 4, lots 1 and 8-15, S1/2NW1/4;  
Sec. 5, lot 1.

2. Table Mountain Research Natural Area, Area of Critical Environmental Concern 1,220 acres

T. 7 S., R. 18 E.,  
Sec. 9, S1/2SW1/4SW1/4;  
Sec. 15, SW1/4;  
Sec. 16, all;  
Sec. 17, E1/2NE1/4;  
Sec. 22, W1/2.

3. Desert Grasslands Research Natural Area, Area of Critical Environmental Concern 380 acres

T. 3 S., R. 16 E.,  
Sec. 16, lots 1-4, S1/2S1/2;  
Sec. 21, N1/2NE1/4;  
Sec. 22, N1/2NW1/4.

4. Bear Springs Badlands Area of Critical Environmental Concern 2,927 acres

T. 6 S., R. 23 E.,  
Sec. 26, SW1/4SW1/4;  
Sec. 27, S1/2NE1/4, S1/2;  
Sec. 34, lots 3 and 4, NW1/4, N1/2SW1/4.

T. 7 S., R. 23 E.,  
Sec. 1, SW1/4SW1/4, SE1/4SE1/4;  
Sec. 2, S1/2;  
Sec. 3, lots 3 and 4, S1/2NW1/4, S1/2;  
Sec. 4, S1/2;  
Sec. 10, N1/2;  
Sec. 11, N1/2;  
Sec. 12, N1/2.

5. Bowie Mountain Scenic Area of Critical Environmental Concern 2,230 acres
  - T. 15 S., R. 28 E.,
    - Sec. 11, S1/2;
    - Sec. 12, S1/2S1/2;
    - Sec. 13, N1/2, SE1/4, E1/2SW1/4, NW1/4SW1/4;
    - Sec. 14, NE1/4, NE1/4SE1/4, E1/2NW1/4SE1/4, NE1/4NW1/4, NE1/4SE1/4NW1/4.
  - T. 15 S., R. 29 E.,
    - Sec. 7, SW1/4SE1/4, SW1/4SW1/4;
    - Sec. 18, all;
    - Sec. 19, N1/2N1/2.
6. Coronado Mountain Research Natural Area, Area of Critical Environmental Concern 120 acres
  - T.3S., R.29E.
    - Sec. 31, NW1/4NE1/4, SW1/4NE1/4, NW1/4SE1/4, SW1/4SE1/4
7. Eagle Creek Bat Cave Area of Critical Environmental Concern 40 acres
  - T. 5 S., R. 29 E.,
    - Sec. 6, NE1/4SW1/4.
8. Fourmile Canyon Campground 159 acres
  - T. 7 S., R. 20 E.,
    - Sec. 18, lots 1 and 2, NE1/4NW1/4, SE1/4NW1/4.
9. Oliver Knoll Atmospheric Deposition Monitoring Station 10 acres
  - T. 4 S., R. 24 E.,
    - Sec. 22, SW1/4SE1/4SE1/4NE1/4, SE1/4SW1/4SE1/4NE1/4, NW1/2NE1/4NE1/4SE1/4, NE1/4NW1/4NE1/4SE1/4.
- 10 District Office Site (proposed) 12 acres
  - T. 7 S., R. 25 E.,
    - Sec. 24, that portion of the W1/2NW1/4NE1/4 lying north of the Golf Course Road.
- 11 Yuma Wash Archaeological Site 120 acres
 

No legal description will be listed, as required by the Archaeological Resources Protection Act.
- 12 Tres Alamos Archaeological Site 160 acres
 

No legal description will be listed, as required by the Archaeological Resources Protection Act.
13. Midway Cave Archaeological Site 40 acres
 

No legal description will be listed, as required by the Archaeological Resources Protection Act.

## Alternative B

### Gila and Salt River Meridian, Arizona

1. Gila Box Outstanding Natural Area, Area of Critical Environmental Concern 2,994 acres

T. 5 S., R. 29 E.,

- Sec. 11, SE1/4NE1/4, SE1/4;
- Sec. 12, lot 1 and 5-16, SW1/4, S1/2NW1/4;
- Sec. 14, N1/2, SW1/4;
- Sec. 15, S1/2NE1/4, SE1/4, S1/2SW1/4;
- Sec. 16, S1/2SE1/4;
- Sec. 20, S1/2S1/2;
- Sec. 21, E1/2, SW1/4;
- Sec. 22, all;

T. 5 S., R. 30 E.,

- Sec. 7, lots 3, 4, 6, and 7;
- Sec. 30, lots 3 and 4, SW1/4SE1/4, E1/2SW1/4;
- Sec. 31, lots 5, 6, 9-11, 15, 16, 18, 19, E1/2, SE1/4SW1/4;
- Sec. 32, SE1/4SE1/4, W1/2SE1/4, W1/2.

T. 6 S., R. 30 E.,

- Sec. 3, lots 9-12, S1/2NW1/4;
- Sec. 4, lots 1 and 8-15, S1/2NW1/4;
- Sec. 5, lot 1.

2. Table Mountain Research Natural Area, Area of Critical Environmental Concern 1,220 acres

T. 7 S., R. 18 E.,

- Sec. 9, S1/2SW1/4SW1/4;
- Sec. 15, SW1/4;
- Sec. 16, all;
- Sec. 17, E1/2NE1/4;
- Sec. 22, W1/2.

3. Desert Grasslands Research Natural Area, Area of Critical Environmental Concern 790 acres

T. 3 S., R. 16 E.,

- Sec. 16, lots 1-4, S1/2S1/2;
- Sec. 21, N1/2NE1/4;
- Sec. 22, N1/2NW1/4.

T. 6 S., R. 19 E.,

- Sec. 17, S1/2SW1/4SW1/4, SW1/4SE1/4SW1/4;
- Sec. 20, W1/2NE1/4NW1/4, NW1/4NW1/4.

T. 8 S., R. 18 E.,

- Sec. 22, E1/2SE1/4;
- Sec. 23, W1/2W1/2SW1/4;
- Sec. 26, W1/2W1/2NW1/4;
- Sec. 27, E1/2E1/2.

4. Bear Springs Badlands Area of Critical Environmental Concern 4,127 acres

T. 6 S., R. 23 E.,  
Sec. 26, SW1/4SW1/4;  
Sec. 27, S1/2NE1/4, S1/2;  
Sec. 34, lots 1-4, N1/2, N1/2S1/2;  
Sec. 35, lot 4, W1/2NW1/4, NW1/4SW1/4.

T. 7 S., R. 23 E.,  
Sec. 1, SW1/4SW1/4, SE1/4SE1/4;  
Sec. 2, lots 3 and 4, S1/2NE1/4, S1/2NW1/4, S1/2;  
Sec. 3, lots 1-4, S1/2N1/2, S1/2;  
Sec. 4, lots 1-4, S1/2N1/2, S1/2;  
Sec. 10, N1/2;  
Sec. 11, N1/2;  
Sec. 12, N1/2.

5. Coronado Mountain Research Natural Area, Area of Critical Environmental Concern 120 acres

T.3S.R.29E  
Sec. 31 NW1/4NE1/4, SW1/4NE1/4, NW1/4SE1/4 SW1/4SE1/4

6. Eagle Creek Canyon Outstanding Natural Area, Area of Critical Environmental Concern 3,642 acres

T. 4 S., R. 28 E.,  
Sec. 3, lot 3, S1/2NW1/4, SW1/4;  
Sec. 4, lots 1-4, S1/2N1/2, S1/2;  
Sec. 5, lots 1 and 2, SE1/4NE1/4, E1/2SE1/4;  
Sec. 9, E1/2E1/2;  
Sec. 23, SW1/4SW1/4;  
Sec. 25, SW1/4SE1/4, SE1/4SW1/4;  
Sec. 26, NW1/4SE1/4, N1/2SW1/4, SW1/4SW1/4, NW1/4;  
Sec. 35, SE1/4, NW1/4.

T. 5 S., R. 28 E.,  
Sec. 1, lots 1 and 4, SE1/4NE1/4, S1/2SE1/4, E1/2SW1/4, S1/2NW1/4;  
Sec. 12, N1/2NE1/4;  
Sec. 13, E1/2NE1/4.

T. 5 S., R. 29 E.,  
Sec. 6, NE1/4SW1/4;  
Sec. 7, E1/2E1/2, NW1/4NE1/4, W1/2W1/2;  
Sec. 18, NE1/4NE1/4, SE1/4SE1/4, W1/2SW1/4, NE1/4SW1/4;  
Sec. 19, E1/2E1/2, SW1/4NE1/4, SW1/4SW1/4, NW1/4NW1/4;  
\*Sec. 30, W1/2NE1/4.

\*This 80-acre parcel is also located in the Gila Box ONA ACEC.

7. Fourmile Canyon Campground 159 acres

T. 7 S., R. 20 E.,  
Sec. 18, lots 1 and 2, NE1/4NW1/4, SE1/4NW1/4.

8. Oliver Knoll Atmospheric Deposition Monitoring Station 10 acres

T. 4 S., R. 24 E.,  
Sec. 22, SW1/4SE1/4SE1/4NE1/4, SE1/4SW1/4SE1/4NE1/4, NW1/4NE1/4NE1/4SE1/4,  
NE1/4NW1/4NE1/4SE1/4.

9. District Office Site (proposed) 12 acres  
     T. 7 S., R. 25 E.,  
     Sec. 24, that portion of the W1/2NW1/4NE1/4 lying north of the Golf Course Road.
10. Yuma Wash Archaeological Site 120 acres  
     No legal description will be listed, as required by the Archaeological Resources Protection Act.
11. Tres Alamos Archaeological Site 160 acres  
     No legal description will be listed, as required by the Archaeological Resources Protection Act.
12. Midway Cave Archaeological Site 40 acres  
     No legal description will be listed, as required by the Archaeological Resources Protection Act.

## Alternative C

Gila and Salt River Meridian, Arizona

1. Bowie Mountain Scenic Area of Critical Environmental Concern 2,562 acres  
     T. 15 S., R. 28 E.,  
     Sec. 11, S1/2;  
     Sec. 12, S1/2S1/2;  
     Sec. 13, N1/2, SE1/4, E1/2SW1/4, NW1/4SW1/4;  
     Sec. 14, NE1/4, NE1/4SE1/4, E1/2NW1/4SE1/4, NE1/4NW1/4, NE1/4SE1/4NW1/4.  
     T. 15 S., R. 29 E.,  
     Sec. 7, SW1/4SE1/4, SW1/4SW1/4;  
     Sec. 18, all;  
     Sec. 19, N1/2N1/2.
2. Fourmile Canyon Campground 159 acres  
     T. 7 S., R. 20 E.,  
     Sec. 18, lots 1 and 2, NE1/4NW1/4, SE1/4NW1/4.
3. Oliver Knoll Atmospheric Deposition Monitoring Station 10 acres  
     T. 4 S., R. 24 E.,  
     Sec. 22, SW1/4SE1/4SE1/4NE1/4, SE1/4SW1/4SE1/4NE1/4, NW1/4NE1/4NE1/4SE1/4,  
     NE1/4NW1/4NE1/4SE1/4.
4. District Office Site (proposed) 12 acres  
     T. 7 S., R. 25 E.,  
     Sec. 24, that portion of the W1/2NW1/4NE1/4 lying north of the Golf Course Road.

## **Appendix 8**

### **Legal Description of Lands Proposed for Mineral Leasing Withdrawal**

#### **Alternative A**

No lands are proposed for withdrawal from mineral leasing under this alternative.

#### **Alternative B**

No lands are proposed for withdrawal from mineral leasing under this alternative.

#### **Alternative C**

No lands are proposed for withdrawal from mineral leasing under this alternative.

## Appendix 9

### Water Quality Testing Sites

#### Water Quality Testing Sites Alternatives A, B, and C

Site Name	Legal Description	Type of Analysis	Reason for Sampling
Aravaipa Creek	T. 6 S., R19 E., Sec. 19, SW1/4NE1/4	chemical/ biological	public health/ Unique Waters
Aravaipa Creek	T. 6 S., R. 17 E., Sec. 13, NW1/4SE1/4	chemical/ biological	public health/ Unique Waters
Aravaipa Creek	T. 6 S., R. 18 E., Sec. 16, NW1/4NW1/4	chemical/ biological	public health/ Unique Waters
Aravaipa Creek	T. 6 S., R. 18 E., Sec. 17, NW1/4NE1/4	chemical/ biological	public health/ Unique Waters
Virgus Canyon	T. 6 S., R. 18 E., Sec. 27, SE1/4	chemical/ biological	data base
Hell's Half Acre Canyon	T. 6 S., R. 18 E., Sec. 18, SW1/4SW1/4	bacterio- logical	public health
Javelina Canyon	T. 6 S., R. 18 E., Sec. 7, SE1/4SE1/4	bacterio- logical	public health
Horse Camp Canyon	T. 6 S., R. 18 E., Sec. 9, SW1/4SW1 /4	bacterio- logical	public health
Booger Canyon	T. 6 S., R. 18 E., Sec. 15, NE1/4NW1/4	bacterio- logical	public health
Paisano Canyon	T. 6 S., R. 18 E., Sec. 14, NW1/4NW1/4	bacterio- logical	public health
Hell Hole Canyon (Deer Creek)	T. 6 S., R. 18 E., Sec. 13, SW1/4SW1/4	bacterio- logical	public health
Parsons Canyon	T. 6 S., R. 18 E., Sec. 24, SW1/4NW1/4	bacterio- logical	public health
Turkey Creek	T. 6 S., R. 19 E., Sec. 19, NW1/4SE1/4	bacterio- logical	public health
Fourmile Canyon Campground	T. 7 S., R. 19 E., Sec. 18, NE1/4NW1/4	chemical/ biological	public health

Site Name	Legal Description	Type of Analysis	Reason for Sampling
Aravaipa Well	T. 7 S., R. 19 E., Sec. 7, NE1/4SE1/4	chemical/ biological	public health
Aravaipa Well	T. 6 S., R. 17 E., Sec. 24, NW1/4SW1/4	chemical/ biological	public health
Bonita Creek	T. 5 S., R. 27 E., Sec. 3, SW1/4SE1/4	chemical/ biological	Unique Waters
Bonita Creek	T. 5 S., R. 27 E., Sec. 36, SE1/4NW1/4	chemical/ biological	Unique Waters
Bonita Creek	T. 6 S., R. 28 E., Sec. 16, NE1/4SW1/4	chemical/ biological	Unique Waters
San Pedro River	T. 23 S., R. 22 E., Sec. 9, SE1/4SE1/4	chem/biological/ bacteriological	public health/ data base
San Pedro River	T. 20 S., R. 21 E., Sec. 3, SW1/4NW1/4	chem/biological/ bacteriological	public health/ data base
Hereford Well	T. 23 S., R. 22 E., Sec. 10, SE1/4SW1/4	chem/biological/ bacteriological	public health
Hereford Well	T. 23 S., R. 22 E., Sec. 16, NW1/4SW1/4	chem/biological/ bacteriological	public health
Boquillas Ranch Well	T. 20 S., R. 21 E., Sec. 15, SE1/4NE1/4	chemical/ biological	public health
San Pedro House Well	T. 22 S., R. 22 E., Sec. 6, SE1/4NE1/4	chemical/ biological	public health
Fairbank Well	T. 20 S., R. 21 E., Sec. 3, SW1/4NE1/4	chem/biological/ bacteriological	public health
Fairbank Well	T. 20 S., R. 21 E., Sec. 3, NW1/4SE1/4	chem/biological/ bacteriological	public health
Redfield Canyon	T. 11 S., R. 20 E., Sec. 32, NW1/4SW1/4	chemical/ biological	Unique Waters
Bass Canyon	T. 12 S., R. 20 E., Sec. 6, SE1/4NE1/4	chemical/ biological	Unique Waters
Hot Springs Canyon	T. 12 S., R. 20 E., Sec. 32, SE1/4SE1/4	chemical/ biological	Unique Waters
Hot Well	T. 10 S., R. 28 E., Sec. 36, NE1/4NE1/4	chemical/ biological	public health

## Appendix 10

### Reasonably Foreseeable Development for Leasable Minerals Activities

The only leasable minerals with potential for significant development during the life of this plan are oil and gas and geothermal energy. No significant reserves of other leasable minerals, such as coal, helium, potassium, phosphate or sodium are known to occur within the District.

One factor that affects future development is the availability of lands for exploration and development. Under current management practices (Alternative D), the only constraints on public lands (other than wilderness areas) are a No Surface Occupancy stipulation for several riparian zones in the District. This stipulation would have relatively minor impacts on future development because these riparian zones represent narrow tracts of land (up to one-quarter mile on each side of the riparian zone) that can still be reached by the drill bit by using standard directional drilling practices. The preferred alternative (Alternative A) would expand the use of the No Surface Occupancy stipulations to include several Areas of Critical Environmental Concern, more riparian zones, three archaeological sites, one lambing area, and four administrative sites. All of these except the Areas of Critical Environmental Concern represent small tracts of land that probably would have little or no impact on future leasable activities. The Areas of Critical Environmental Concern that would have this stipulation are Gila Box, Bear Springs Badlands, Guadalupe Canyon, Bowie Mountain and Eagle Creek Bat Cave.

Another factor that affects future development is the potential for leasable minerals. With two exceptions, potential for oil and gas and geothermal energy throughout the District is none, low or unknown. None of these resources have been commercially produced in the District, so any ratings of moderate or high potential would be speculative at best. Several portions of the District have been classified as being "prospectively valuable" for oil and gas or geothermal energy but these classifications are based on geologic conditions rather than any actual discoveries or production. Thus, these areas are given a low potential rating, and the rest of the district is given a none or unknown potential rating.

The exceptions are for geothermal energy resources in the Clifton area (classified as "prospectively valuable"). This area contains the only two Known Geothermal Resource Areas in the state, the Clifton and the Gillard. Although there has been no commercial production from these areas and the Bureau has no active geothermal leases in the District, these Known Geothermal Resource Areas contain the hottest springs in the state. Federal lands near the Clifton geothermal area are subject to standard lease conditions but the Gillard geothermal area is in the Gila Box Area of Critical Environmental Concern, subject to the No Surface Occupancy stipulation. Due to the lack of any production, these Known Geothermal Resource Areas are given a moderate potential rating.

Since no oil and gas or geothermal energy has been produced from within the District, the degree of surface disturbance occurring as a result of field development is difficult to determine. In order to assess the cumulative environmental effects of issuing leases, several assumptions will be made concerning both hypothetical exploration and development of these resources in the District. These assumptions are as follows:

1. With the exception of wilderness areas and designated National Conservation Areas, unleased areas would continue to be available for leases.
2. Geologic history, source rock, reservoir rock, thermal maturation, sealing and trapping are assumed to all be appropriate for hydrocarbon origination, migration, accumulation and preservation in the sedimentary rocks at depths within the district. This is especially true for the Pedregosa basin, located in the southeastern portion of the District (see Greenwood, et al., 1977).
3. Any economically recoverable oil and gas accumulations or geothermal resources occurring under leased lands will be developed.
4. Exploration would continue at the same rate it has since exploration began in 1910.

5. For this analysis, let's assume that an oil and gas field will be developed.
6. Disturbance associated with each well pad and access would average 8 acres.
7. Reclamation of disturbed areas would be successful, and all reclamation would commence immediately following cessation of exploration operations or depletion of the resource. Reclamation, consisting of reshaping the surface, soil stabilization and reestablishment of vegetation would be completed within 10 years.
8. Laws and regulations concerning the protection of other resource values including cultural resources and threatened or endangered plant and animal species would be complied with and would be effective.

Based on the above assumptions, one oil and gas exploration well would be drilled on the average of every one and one-half years in the District. This would result in approximately 10 exploration wells being drilled over the life of the plan. Surface disturbance resulting from this exploration would total approximately 80 acres. Assuming that no production would be established from any of these exploratory wells, reclamation would begin immediately following exploration operations. Reclamation would be successful and all disturbed areas would be fully reclaimed within 10 years of exploration operations.

For the purpose of this analysis, it is assumed that one oil or gas field would be developed over the life of the plan. Assuming a field size of 3,500 acres and an average well spacing of 80 acres, approximately 44 wells would be required to develop the hypothetical field. Assuming 8 acres disturbed per well, approximately 350 acres would be disturbed through field development.

# Appendix 11

## Mineral Potential Classification System\*

### Level of Potential

- O The geologic environment, the inferred geologic processes and the lack of mineral occurrences do not indicate potential for accumulation of mineral resources.
- L The geologic environment and the inferred geologic processes indicate low potential for accumulation and preservation of mineral resources.
- M The geologic environment, the inferred geologic processes and the reported occurrences or valid geochemical/geophysical anomaly indicate moderate potential for accumulation and preservation of mineral resources.
- H The geologic environment, the inferred geologic processes, the reported mineral occurrences and/or valid geochemical/geophysical anomaly and the known mines or deposits indicate high potential for accumulation of mineral resources. The known mines and deposits do not have to be within the area that is being classified but have to be within the same type of geologic environment.

### Level of Certainty

- A The available data are insufficient and/or cannot be considered as direct or indirect evidence to support or refute the possible existence of mineral resources within the respective area.
- B The available data provide indirect evidence to support or refute the possible existence of mineral resources.
- C The available data provide direct evidence but is quantitatively minimal to support or refute the possible existence of mineral resources.
- D The available data provide abundant direct and indirect evidence to support or refute the possible existence of mineral resources.

*\* As used in this classification, 'potential' refers to potential for the presence (occurrence) of a concentration of one or more energy and/or mineral resources. It does not refer to or imply potential for development and/or extraction of the mineral resource(s). It does not imply that the potential concentration is or may be economical.*

## Appendix 12

# Cultural Resource Management Objectives and Use Categories

### Cultural Resource Management Objectives

All cultural resource properties, both known and projected to be present, will be managed under each alternative according to the management objectives established for the property. The management objectives are determined by the type of values (scientific, public use) held by the property. A site may have more than one management objective assigned and the objectives do not have to be fully compatible. The management objectives established for a given site may be changed as new data is acquired or management goals change. The following management objectives were established for the RMP.

1. **Manage for Information Potential.** Cultural resources included under this objective are capable of contributing useful scientific, historic or management information. This information potential is to be protected to the extent needed, by physical or administrative means, until the potential has been realized through appropriate study.
2. **Manage for Public Values.** Cultural resources included under this objective possess identified socio-cultural, education, recreation or other public values. Their locations are to be managed in a manner that gives adequate consideration to these values.
3. **Manage for Conservation.** Cultural resources included under this objective have overriding scientific or historic importance. They are to be managed to maintain them in their present condition and to protect them from potential conflicting land or resource uses.

### Cultural Resource Use Categories

All cultural properties will be allocated to uses. A cultural property should generally be allocated to a single use-the primary intended use-and management prescriptions formed to allow non-conflicting uses. Use allocation will be deferred to Cultural Resource Management Plans. The following are the Bureau's Cultural Resource Use Categories.

- A. **Scientific Use** is a category that applies to any cultural property determined to be suitable for consideration as the subject of scientific or historic study utilizing current research techniques. This includes studies resulting in its physical alteration and signifies that the property need not be conserved in the face of an appropriate research or data recovery (mitigation) proposal. (Management Objective: Manage for Information Potential.)
- B. **Management Use** is a category that may be applied to any cultural property considered most useful for controlled experimental study resulting in its physical alteration. This is conducted by BLM or other entities concerned with the management of cultural properties. Expenditure of cultural properties or cultural resource data may be justified for purposes of obtaining specific information ultimately aiding in the management of other cultural properties. Experimental study may be aimed toward a better understanding of kinds and rates of natural or human-caused deterioration, effectiveness of protection measures and similar lines of inquiry. (Management Objective: Manage for Information Potential.)
- C. **Public Use** is a category that may be applied to any cultural property found to be appropriate for consideration as an interpretive exhibit-in-place, a subject of supervised participation in scientific or historic study, or related education and recreation uses by members of the general public. (Management Objective: Manage for Public Values.)

- D. Socio-cultural Use is a category to be applied to any cultural resource that is perceived by a specified social and/or cultural group as having attributes contributing to maintaining the heritage or existence of that group. This use category signifies that the cultural resource is to be managed in a way that takes those attributes into account, as applicable. (Management Objective: Manage for Public Values.)
- E. Conservation for Future Use is a category reserved for cultural resources that are unusual because they are scarce; have research potential that surpasses the current state-of-the-art; or are of singular historic importance, architectural interest or comparable reasons. Therefore, they are not currently appropriate for consideration as the subject of scientific or historic study resulting in their physical alteration. They are considered worthy of segregation from other land or resource uses threatening the maintenance of their present condition and will remain in this use category until the following provisions are met in the future. (Management Objective: Manage for Conservation.)
1. No other property exists that could yield the information required to meet the priority regional (southeast Arizona) research objectives.
  2. All properties of this type allocated to public use have been developed to their greatest capacity for public use and no other property exists that could meet a high public need and demand for public use.
  3. The change in allocation to another use is determined by the District Manager to be the best use of the property at the time to meet the District's and the Bureau's cultural resource management goals.
  4. Another property has been discovered that would be as suitable for allocation to conservation use and it will be so allocated.
  5. The property was allocated to conservation use because its research potential surpassed the current state of the art and research methodologies have developed to the point where the property's research values can now be appropriately recovered.
- F. Discharged Use means either: (1) that a cultural resource that previously qualified for assignment to any of the categories defined above no longer possesses the qualifying characteristics for that use or for assignment to an alternative use . or (2) that a cultural property's scientific use potential was so slight that it was exhausted at the time the property was recorded and no alternative use is appropriate \*\*. Allocation to discharged use also means that records pertaining to the property represent its only remaining importance and that its location no longer presents a management constraint for competing land uses.

*\* A small, shallow rock-shelter could be fully excavated, thereby realizing its scientific use potential, or it could be completely looted, destroying its potential. Knowledge that once existed is still important and it would continue to be represented in the inventory records.*

*\*\* A small lithic scatter could be sufficiently recorded on discovery that no further field study could be needed. Because field inspection and recording of individual cultural properties must precede the recommendation and allocation, classes of unrecorded cultural properties may not be allocated to discharged use in advance of discovery.*

# Appendix 13

## Desert Tortoise Categorization Criteria

These are goals and criteria for three categories of desert tortoise habitat areas. The criteria are ranked by importance to the categorization process, with Criterion 1 being the most important.

Items	Category I Habitat Areas	Category II Habitat Areas	Category III Habitat Areas
Category Goals	Maintain stable, viable populations & protect existing tortoise habitat values; increase populations, where possible.	Maintain stable, viable populations & halt further declines in tortoise habitat values.	Limit tortoise habitat and population declines to the extent possible by mitigating impacts.
Criterion 1	Habitat area essential to maintenance of large, viable populations.	Habitat area may be essential to maintenance of viable populations.	Habitat area not essential to maintenance of viable populations.
Criterion 2	Conflicts resolvable.	Most conflicts resolvable	Most conflicts not resolvable.
Criterion 3	Medium to high density or low density contiguous with medium or high density.	Medium to high density or low density contiguous with medium or high density.	Low to medium density not contiguous with medium or high density.
Criterion 4	Increasing, stable or decreasing population.	Stable or decreasing population.	Stable or decreasing population.

Source: Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan.