

**DRAFT**



**Master Plan**

**for**

**Buenos Aires National Wildlife Refuge**

**Sasabe, Arizona**

Prepared by:  
U.S. Fish and Wildlife Service  
Region 2  
Albuquerque, New Mexico  
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## DATA SHEET

Buenos Aires National Wildlife Refuge  
P.O. Box 109  
Sasabe, Arizona 85633

General: Established in 1985, this 112,000 acre refuge provides habitat for the endangered masked bobwhite. The refuge protects and restores Sonoran savannah grassland and the full complement of diverse wildlife species naturally found in the area.

Location: Located in southeastern Arizona, refuge headquarters is 56 miles southeast of Tucson and 6 miles north of Sasabe. Pima County had a population of 630,000 in 1984, and of that Tucson had 93%, or 580,000, of the total; Sasabe's population is approximately 50.

Elevation and Climate: Elevations on the refuge range from 3,000 to 4,800 feet. The semi-arid climate is characterized by low precipitation (summer rainstorms and gentler winter storms), low humidity, and high summer temperatures (from a low of 12F in winter to 105F in summer).

Hours of Duty: Monday - Friday, 7:00am to 3:30pm, with one-half hour for lunch.

Travel: Occasional travel requires some overnight trips. State driver's license and Government Operator's ID card required.

Housing: On-refuge housing available for most staff; may be required for the assistant manager, outdoor recreation planner, and for biologist. Houses fully equipped with modern conveniences. Limited housing available in Sasabe and Arivaca.

Schools: Grades 1 through 7 in Sasabe; 8th through post graduate work available in Tucson. Bus service to Tucson high school from Highway 286 at headquarters entrance. Two year colleges also available in Tucson.

Shopping and Medical Facilities: Very limited medical care available weekly in Arivaca. Limited grocery and necessities shopping in Sasabe and Arivaca. Full service medical care and shopping in Tucson.

Churches: Arivaca has a Catholic and a Baptist church. All denominations available in Tucson.

## REFUGE DESCRIPTION

### LOCATION OF REFUGE

Buenos Aires National Wildlife Refuge (NWR) is located in the southeastern quadrant of the state of Arizona, bordered on the south by Mexico. The refuge is in the Altar Valley, in south central Pima County. The north refuge boundary is about 45 miles southeast of Tucson, Arizona, and the refuge headquarters is about 56 miles from Tucson. The nearest town, Sasabe, is at the southern boundary of the refuge.

### PURPOSE OF ACQUISITION

The refuge was purchased to establish and manage populations of the endangered masked bobwhite. The masked bobwhite was extirpated from this part of Arizona--the only place in the United States it **was** historically found--due probably to a combination of poor grazing practices and drought.

The 1977 Recovery Plan for the Masked Bobwhite recommended purchase of an area to be devoted to management of the masked bobwhite and described habitat comparable to that found at Buenos Aires Ranch. A study done on the Buenos Aires Ranch found that quail reintroduced to the area in earlier years were successfully reproducing. When the ranch was put on the market in 1982, therefore, Region 2 of the Fish and Wildlife Service recommended to Congress that the area be purchased. Congress approved \$5,000,000 in 1983 for the purchase of the central part of the ranch. The ranch owner would only sell the entire ranch. A revised 1984 version of the Masked Bobwhite Recovery Plan specifically recommended purchase of the Buenos Aires Ranch. Accordingly, in 1984 Congress approved an additional \$4,000,000, for a total of \$9,000,000, to effect the purchase. The Fish and Wildlife Service approved the purchase in September of 1984. Secretary of the Interior Hodel approved the purchase in February, 1985 and the transaction was completed on August 11, 1985.

### TOPOGRAPHY AND SOILS

The Altar Valley is a broad, north trending basin bounded on the east and west by rugged mountains which rise abruptly from the desert floor. The local topography ranges from steep ridges **descending** to nearly level terrace tops, which in turn drop to large, sloping washes. Elevations range from 3,000 to 4,800 feet. Soils in the valley belong to the White House-Bernardino-Caralampi Association, comprised of soils of more than 60 inches depth. The rock outcrops and ridges have shallow to very shallow soils of the Rock-Outcrop-Lampshire-Cellar Association.

## MINERAL, OIL, AND GAS RESOURCES

Producible minerals in the area include copper, lead, zinc, gold, and silver. Some Federal reserved mineral rights exist beneath portions of the refuge and Federal oil and gas leases are in effect in these areas. The FWS does not control subsurface mineral rights on any portion of the refuge.

## CLIMATE

The climate of the area is semi-arid, characterized by low precipitation, low humidity, and high summer temperatures. In the Altar Valley, rainfall varies from approximately 12 inches in the central valley to 20 inches on some of the higher slopes. There are typically 2 rainy seasons: summer rainstorms are generally local and torrential; winter storms are typically regional, gentle, and of longer duration. From year to year and locality to locality, there is a wide range in precipitation. Temperatures range from extremes of 12 F in the winter to 105 F in the summer, with an average monthly mean temperature of 63 F.

## WATER RESOURCES

### Surface

Rainfall in the Altar Valley at times produces substantial runoff. For example, in September, 1962, Altar Wash just north of the refuge flowed an estimated 40,000 acre feet of water in 36 hours. Runoff is captured in dammed and diked stock ponds scattered throughout the refuge. Most stored water is lost through evaporation, however, making this an uncertain, sporadic resource. In areas where impervious layers--clay or bedrock--are near the surface, springs, marshes, and short sections of perennial stream are found.

### Subsurface

Water-bearing layers of permeable materials are believed to be interconnected throughout the area of the refuge, forming a single aquifer. The depth is perhaps 1,000 feet. This aquifer is capable of storing and yielding large amounts of ground water. Below 1,000 feet water may be confined beneath less permeable materials which might also be tapped.

Recharge to this aquifer is probably low; most ground water probably underflows north to the neighboring Avra Valley before it sinks into the aquifer. A feasibility study for development of water resources done for the Buenos Aires Ranch in 1975 estimated that deep wells (1,500 - 2,500 feet) in the valley should produce 250 to 1,000 gallons per minute. On the pediment shelf of the valley, shallower wells (500-700 feet) might produce 10-100 gallons per minute. Properly located mountain wells might produce 50 gallons per minute maximum.



## AIR QUALITY

Buenos Aires NWR is designated a Class II area according to guidelines provided in the Clean Air Act. Class II areas may be subjected to considerable air pollution from outside sources. Currently air quality in the vicinity ~~is~~ good. Dust from unpaved roads can be a significant short term problem during high wind periods. The refuge is not currently affected by air pollution from Tucson or other urban areas.

## BIOLOGICAL RESOURCES

### Vegetation

What was once Sonoran savanna grassland is now semidesert grassland in the southern Altar valley. A feature which had a dramatic ~~impact~~ upon the flora of the valley is the formation of the Brawley Arroyo and subsequent lowering of the base level of the entire valley by 20 feet. When George Roskruge first surveyed the valley in 1886, he found no evidence of gullies in the valley floor. The axial stream was a floodplain varying from 1/4 to 1/2 mile wide and well covered with tall grass. The road from Robles Ranch to Altar, Sonora followed the valley bottom; the arroyo most likely originated along this road. By 1923, the arroyo varied from 2 to 6 feet deep from Pozo Nuevo almost to Agvil Ranch. By 1937, it was up to 20 feet deep and in places 600 feet wide. Presently the depth is still 20 feet, but in places it is over 1400 feet wide.

Starting in 1920, the stage was set for large scale increases in the large shrubs in the valley. The mechanism for spread was cattle, horses, and erosion, as the very hard seeds of mesquite, retama, and palo verde need abrasion or scarification before they can germinate. Mesquite, retama, and palo verde were present in the Altar Valley in pre-settlement times. When the first settlers arrived, mesquite was well established in the canyons of the Babaquivari range and occurred as scattered individuals on the granite and schist pediment of the ~~Sasabe~~ flat and, elsewhere in the valley, only in the swales and bottoms.

Burroweed and snakeweed were indigenous to at least the northern one-third of the valley prior to settlement. Both are relatively short lived with an average lifespan of about 15-20 years for burroweed and perhaps 10-15 years for snakeweed. The dense, thriving understories of both plants that currently exist in the valley at elevations below 3500 feet need adequate reproduction to maintain the stands. The spread and thickening of these two species ~~is~~ very simply due to past, continuous grazing whereby forage species were slowly removed and these species were able to occupy the vacant space left. The incidence of fire, which might have played a role in the control of mesquite, snakeweed, and other shrubs, was greatly reduced by anti-fire campaigns.

Introduction of non-native plant species began with filaree, probably first brought in with the California sheep in the late 1800's. Johnson grass and bermuda grasses were planted in the Brawley bottom before the turn of the century. Fourwing **saltbush**, a native shrub, was probably always present in the northeastern part of the valley, but ranchers along the Brawley, north of the Buenos Aires, brought in seed from the Red Rock area and planted it in the valley bottom where some tremendous stands exist today. Boers and Wilman's lovegrasses were first introduced in the 60's. Introductions of many other perennials, biennials, and annual plant species occurred, most notably Lehmann's lovegrass. Lehmann's lovegrass was probably introduced into the valley in the late 1950's and early 1960's when SCS range technicians distributed seed. By SCS records, over 70,000 acres of rangeland in the valley have been seeded with Lehmann's lovegrass at least a portion of the seed mixtures. Lehmann's is now the dominant perennial grass on over 60,000 acres in the watershed of the Brawley Wash.

Diversity in the grasslands of the Buenos Aires probably varied tremendously from one site to another. The pediment soils, and included alluvium, which make up the southernmost part of the ranch (from San Luis across the headquarters to the Los Encinos Wash), was a diverse grassland. This diversity is due to two factors. The first is the range of soil depth from 1 inch to 2 feet over the schist and granite bedrock. The second is the effect of aspect. This area is well dissected and has quite a bit of topography with all aspects being well represented. The plant communities of these rolling pediments are further diversified by frequent, small areas of rock outcrop and the presence or absence of carbonates. The main floodplains of the large tributaries to the Brawley and the Brawley bottom were the least diverse plant communities prior to arroyo formation. These areas are much more diverse in grass species today as the arroyos have drained some areas while other areas still flood. The valley side drainages are more complex than the large bottoms.

The broad level plains and terraces that comprise the remainder of the uplands on the refuge were less diverse because they lacked aspects, but variation in soil surface textures, presence or not of subsurface clay horizons, and the variation in depth to those horizons when present all lend diversity to the plant communities. Although an individual site in this region may be dominated by only a few species, the sites are well mixed on the landscape in most areas and thus there is quite a variety of dominant grasses.

#### Wildlife-Terrestrial

The refuge is capable of supporting a wide variety of animals common to the area. The Refuge Output List on page shows the more **important** wildlife species, including all rare and endangered wildlife occurring on Buenos Aires NWR. Among the mammals found on the refuge are two species of deer; mule deer are found in the bottomlands and whitetailed deer in the San Luis range and other refuge uplands. Pronghorn antelope probably once occurred in the Altar Valley and two rare bats are found on Buenos Aires. Over 25 species

of rodents and 15 species of reptiles are documented as inhabiting the refuge, including the rare **Gila** monster and desert tortoise, among other rare species.

#### Wildlife-Avian

The refuge has an outstanding variety of bird life, with over 175 species of birds documented from the refuge. Upland game birds include 4 species of quail: Gambels; Montezuma; scaled; and, of course, masked bobwhite; and both mourning and whitewinged doves. A great variety of year round resident, winter migrant, and summer resident raptors may be found on the refuge. The refuge lakes and ponds attract waterfowl, shore, and wading birds in the winter and during migration periods. A casual day of bird-watching on the refuge will usually produce a list of 70-80 species.

#### Wildlife-Threatened or Endangered

Species federally listed as threatened or endangered are occasionally sighted on the refuge. Verified and unverified sightings in recent years include the peregrine falcon, bald eagle, masked bobwhite, and jaguar. The aplomado falcon may historically have occurred on the refuge.

### HUMAN HISTORY AND CULTURAL RESOURCES

#### Early History and Cultures

The early prehistoric era in the Altar Valley is essentially unknown due to a lack of archeological research in the area.

At the beginning of the historic era in the region we find the Upper Pima, a term used by the Spanish for the Pima, the **Sobaipuri**, the Papago, and other Piman-speaking groups directly related to the Pima Indians of today. The Upper Pimans were the resident groups at the time of Spanish contact, although incursions by Apache raiders at about this time or soon after had already begun to impact the Piman settlement of the region. The early written history of the Pimans is closely associated with the life of the Italian born, Jesuit missionary Eusebio Kino. Arivaca, east of the Buenos Aires, was the site of a Pima village and visita until 1751. By the 1700s, the Pimans began to abandon the area and move north into the Gila and Tucson basins.

Exactly when the nomadic, Athabaskan-speaking Apache began depredations in southeastern Arizona is a matter of debate. What is certain is that by the mid 1700s, the presence of these people everywhere in the region was a major obstacle to Spanish colonial efforts. Certainly the presence of any Pima or Papago settlements like Arivaca would have attracted Apache raiders. By 1860, southeast Arizona was the exclusive domain of the Apache.

## Historic Events

Don Pedro Aguirre, son of a Chihuahuan hacendado who moved to the New Mexico territory in 1852, founded the famous Buenos Aires Ranch not far from the scene of his brother Epifanio's murder by an Apache ambush in 1870 (Sheridan, 1984). The Aguirres became a major ranching family, among those prominent stockraisers who reoccupied Arizona ranges following the Gadsden Purchase in 1854. The Buenos Aires has been operated as a cattle ranch since territorial times. Originally, the property consisted of at least six smaller ranches. Over the years, these were assembled into the property as it currently exists today (Dietrich and Cave, 1984)

In 1885, Colonel W. S. Sturges bought the La Osa Cattle Company which encompassed the current Buenos Aires Ranch. In the early 1920's, the Gill Family purchased the Buenos Aires Ranch and operated it under that name. The ranch changed hands to the Dobson Family in the late 1950's. J. R. Norton Company bought the ranch in the 1960's. Pruett-Wray Cattle Company, later known as the Victorio Company, bought the ranch in 1972. In 1982, the ranch was purchased by American Breco Company.

The ranch has been a working cattle ranch through all its previous owners. During the Gill ownership it was also a center for breeding and raising of recognized sires and dams of the American Quarterhorse Association.

The present border town of Sasabe adjoining the south end of the Buenos Aires Ranch was earlier known as La Osa, then as Sasabe in 1905. Sasabe took shape as a private development under Carlos Escalante, who settled there in 1916 and created the small community which the Escalante family sold in 1978. Sasabe has been a port of entry since 1916.

## SOCIOECONOMIC SETTING

The total population in Pima County was 602,000 in 1984, with Tucson accounting for 580,000 of the total. The towns closest to Buenos Aires refuge are Sasabe, Three Points, and Arivaca. Sasabe's estimated population is 50. Sasabe is approximately 456 acres with a post office, school, general store, bakery, cantina, church and about 20 houses. There is some employment in Sasabe from the importation of adobe bricks from the adjacent village of Sasabe, Sonora. Three Points is smaller and Arivaca is about the same size as Sasabe.

Total employment in Pima County for June 1983 was 225,300. The service sector provided the largest source of employment--20 percent. Wholesale and retail trade and Government both were next at 19 percent. Agriculture provides 14 percent of the county's employment.

The median family income for Pima County was \$23,975 in 1982, as compared to \$24,000 for the state of Arizona. Tucson had a lower median income with \$21,950. The average annual wage payments to employees in the State was \$16,001 in 1982, with employees in the Agriculture and Forestry industry receiving an average of \$10,277.

## PLANNING CONSIDERATIONS

Federal laws and FWS policy stipulate what types of activities may claim the time and money available to refuges. Plans developed for larger areas--national flyway plans, regional resource plans, etc.--may in part set priorities, objectives, and specify certain **strategies** for a given refuge. Below is guidance which shaped the Buenos Aires Master Plan.

### ACTS OF CONGRESS

#### National Wildlife Refuge System Administration Act of 1966, as Amended (16 U.S.C. 668dd-668ee).

This act **is** sometimes referred to as the "Organic Act" for the National Wildlife Refuge System. The act covers wildlife refuges; areas for the protection and conservation of fish and wildlife which are threatened with extinction; wildlife ranges; game ranges; wildlife management areas; and waterfowl production areas. The Secretary of the Interior is authorized to permit any use of these areas, provided the use is compatible with the purposes for which the area was established. This "compatibility test" guided master plan decisions regarding public uses.

#### Fish and Wildlife Act of 1956, as Amended (16 U.S.C. 742a-742j)

This act authorized the Secretary to take whatever steps are required for the development, advancement, management, conservation, and protection of fish and wildlife resources. This includes, but is not limited to, research; development of existing facilities; and acquisition by purchase, or exchange of land and water **interests**. Therefore, this act empowers management decisions made in the master plan for Buenos Aires NWR.

#### Endangered Species Act of 1973, as Amended (16 U.S.C. 1531-1543)

This act provides the basis for the establishment and management of Buenos Aires NWR to conserve rare wildlife species such as the masked bobwhite. It provides for the conservation of threatened and endangered species of fish, wildlife, and plants. Conservation may be by Federal actions and by encouraging the establishment of State programs. The act provides for the determination and listing of endangered and threatened species, and the designation of critical habitats.

#### Refuge Recreation Act of 1962, as Amended (16 U.S.C. 460K-460K-4)

This act authorized the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when these uses do not interfere with the areas' primary purpose. It also authorized the construction and maintenance of recreational facilities and the acquisition of limited acreages of land for recreational use. The charging of fees for public use is also authorized. Buenos **Aires** NWR's primary purpose is to

preserve and protect the masked bobwhite; public uses and facilities proposed in the master plan must not interfere with this mission. This act thus reinforces the "compatibility test" noted above and empowers public use management decisions made for Buenos Aires NWR.

Migratory Bird Treaty Act of 1918, as Amended (16 U.S.C. 703-711)

This act provides the basis for setting and enforcing hunting seasons and regulations for Buenos Aires NWR. It also authorizes the Secretary to close areas, Federal or non-federal, to the hunting of migratory birds. Therefore, if hunting on Buenos Aires unduly interferes with achieving higher priority refuge objectives, it could be eliminated.

National Historic Preservation Act of 1966, as Amended (16 U.S.C. 470).

This act directs Federal agencies to take into consideration the effect of any Federal or Federally assisted, licensed, or permitted project on significant scientific, prehistoric or archeological properties. This requires the FWS to survey areas of the refuge planned for development which might destroy or disturb scientific or archeologic sites. It requires formal consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation, and provides the basis for developing objectives for Buenos Aires' archeological and scientific sites.

For a comprehensive list of policies, laws and treaties relating to fish and wildlife, please refer to "Selected List of Federal Laws and Treaties Related to Sport Fish and Wildlife" published by the Office of Legislative Services, and "A Compilation of Federal Laws Relating to Conservation and Development of Our Nation's Fish and Wildlife Resources, Environmental Quality, and Oceanography" published by U.S. Government Printing Office.

POLICY GUIDELINES

Mission Statement of the U.S. Fish and Wildlife Service

The mission of the U.S. Fish and Wildlife Service is to provide the federal leadership to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of people.

Mission Statement of the National Wildlife Refuge System

In support of the Fish and Wildlife Service mission, the special mission of the National Wildlife Refuge System is "to provide, preserve, restore and manage a national network of lands and waters sufficient in size, diversity and location to meet society's needs for areas where the widest possible spectrum of benefits associated with wildlife and wildlands is enhanced and made available.

#### Four Objectives of the National Wildlife Refuge System

These broad objectives provided direct guidance in setting the goals and objectives of Buenos Aires NWR. Refer to page , "Refuge Outputs, **Goals,** and Objectives", to compare the refuge-specific goals and objectives to the four system-wide objectives listed below.

1. To preserve, restore and enhance in their natural ecosystems all species of animals and plants that are endangered or threatened with becoming endangered on lands of the Refuge System.
2. To perpetuate the migratory bird resource for the benefit of people.
3. To preserve the natural diversity and abundance of mammals and non-migratory birds on refuge lands.
4. To provide understanding and appreciation of fish and wildlife ecology and people's role in this environment, and to provide visitors at Service installations with high quality, safe, wholesome and enjoyable recreational experiences oriented towards wildlife.

#### RELATIONSHIP TO OTHER PLANS

##### Masked Bobwhite Quail Recovery Plan

This is a plan developed by an advisory team made up of specialists from different agencies and organizations. It describes general strategies which, if implemented, will allow the species to recover to the point that it can be removed from the list of endangered or threatened species. The master plan team reviewed the Masked Bobwhite Quail Recovery Plan and agreed that it provided very general guidance for the refuge. The recommended actions included:

- o permanently protect masked bobwhite habitat in the Altar Valley
- o develop and implement a habitat protection plan to create or maintain optimum habitat
- o control livestock use
- o as necessary restrict trespass, hunting, and collecting
- o maintain and increase the carrying capacity of the habitat
- o monitor the numbers of quail and the condition of their habitat
- o make releases of bobwhite as needed to produce self-sustaining populations

- o maintain a viable captive flock at suitable facilities
- o conduct studies on bobwhite life history, population dynamics, and habitat utilization
- o conduct an information and education program to gain support for restoration of the masked bobwhite



## ADMINISTRATIVE CONSIDERATIONS

The Buenos Aires National Wildlife Refuge was acquired under the Endangered Species Conservation Act of 1969. **This** law authorized the expenditure of funds for habitat acquisition. The money for the acquisition came from the Land and Water Conservation Fund.

The Refuge is approximately 112,000 acres, of which 21,281 acres are held in fee simple title. The remainder are owned by other entities (noted below). The following leases, rights of way, and agreements affect the use of refuge lands:

### Deed Restrictions

The former owners reserve all interest in the oil, gas, and other minerals, with rights of surface entry as set forth under the rules and regulations of Section 29.32, Title 50 of the Code of Federal Regulations.

### Inholdings

There are four (4) private inholdings totaling approximately 1300 acres on the Refuge. The locations of the inholdings are:

1. Four hundred eighty acres in range 9E, Township 19S, Sections 22 and 23
2. Forty acres in Range 8E, Township 22S, Section 23
3. Twenty acres in Range 9E, Township 23S, Section 6
4. Seven hundred sixty acres in Range 9E, Township 19S, Sections 2 and 3 (El Cazador)

Each inholder has a verbal approval to use refuge roads for access.

### State of Arizona

The refuge has five leases totaling 90,197.66 acres from the Arizona Land Department:

1. Lease #00298 is a commercial lease for 7.00 acres for refuge housing at Bailey Wash in Range 8E, Township ~~21S~~, Section 16.
2. Lease #23017 is a commercial lease for a 5.52 acre airstrip, approximately 1/4 mile northeast of the main refuge entrance in Range 8E, Township 21S, Section 21.
3. Lease #00502 is a grazing lease for 90, 105.14 acres.

4. Lease #00502-02 is a commercial lease for 20.00 acres in Range 9E, Township 21S, Section 4. This is the Figueroa Camp, a group of buildings north of the Arivaca Road.
5. Lease 1/01100 is a grazing lease for 60 acres in Range 8E, Township 22S, Section 20.

#### Arizona Highway Department

Arizona Highway Department has a 100.00 foot right-of-way (ROW) along State Highway 286.

#### Military Operation Area

The refuge south of the Arivaca road has been designated as a Military Operation Area (MOA) by the Davis-Monthan Air Force Base. No private aircraft are permitted to fly between 100-10,000 feet without prior permission from Davis-Monthan. The military reserves this zone for overflights.

#### International Boundary and Water Commission

The International Boundary and Water Commission maintains a 60 foot reserve zone and two boundary markers along approximately 7 miles of the southern boundary of the refuge.

#### Pima County

Pima County has a centerline 60.00 foot ROW for Arivaca Road #150. The road is used year round by significant numbers of people.

Pima County has reserved the rights of first refusal to the U.S. Fish and Wildlife Service for the rental of a mobile home located along route 286. The home is occupied by a refuge employee.

Pima County, including the entire refuge, is part of a water management area. No wells or other water related practices may be conducted without prior approval from the Pima County Board of Supervisors.

#### Trico Electric Cooperative, Inc.

Trico Electric Cooperative has an easement for an electric transmission and distribution system over Section 27, Township 21 South, Range 8 East.

#### Mountain States Telephone and Telegraph Co

Mountain States Telephone and Telegraph Company has an easement for telephone and telegraph lines over Section 11 and 15 of Township 19 south, Range 9 East.

#### Cooper-Walls Bee Permit

The Buenos Aires NWR issued a Special Use Permit to Mr. Cooper and Mr Walls for 600 hives for a three year period.

#### Davis-La Osa Easement

The refuge is subject to a perpetual non-exclusive 20 foot access easement to William C. Davis, Sr., and Francis I. Davis of the La Osa Ranch. The point of access is subject to change at the **discretion** of the refuge manager. As a condition of this easement, the Buenos Aires NWR has exclusive right to use a water well located on the Davis property, provided that this useage is for livestock purposes. The Buenos Aires NWR shall further have the right to enter upon the Davis property at all reasonable times to inspect and maintain pumping equipment, water storage tanks, pipelines and associated equipment relating to the well.

#### Garcia Cemetery

A one acre reservation has been granted to the Garcia family for a cemetery. The plot has approximately 20 burial sites and it is maintained by the Garcia family from Tucson. It is located in the NE 1/4 SW 1/4 of Section 30, Range 9E, Township 22S.

#### Historic Places

There are several known sites on the refuge with potential for inclusion to the National Register of Historic Places. The sites identified to date are: Pozo Nuevo School House, Garcia House, Old Sasabe Jail House, Historic Mesquite Corrals, and Aguirre House.

## GOALS, RATIONALES, AND PROBLEMS

### MASKED BOBWHITE

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**GOAL:** Maintain, improve, and where feasible increase masked bobwhite habitat. Support the masked bobwhite recovery plan, which aims towards **delisting**, by establishing a self-sustaining population of bobwhite. Develop and manage all existing and potential masked bobwhite habitat.

**RATIONALE:** The refuge may succeed in providing the only habitat in the United States for the masked bobwhite quail and in supporting the only United States populations of this rare bird. The potential for self-sustaining, wild populations on the refuge looks good. These birds are highly valued by wildlife enthusiasts, especially birders and hunters.

**PROBLEMS:** Lack of knowledge about **this** quail and its habitat requirements and ecosystem changes, including the spread of Lehman's lovegrass on the refuge, pose a threat to this diversity-dependent bird.

### OTHER ENDANGERED SPECIES AND EXTIRPATED ENDANGERED SPECIES

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**GOAL:** Protect and provide habitat for other rare plants and animals identified as currently existing, or at one time occurring, on the refuge. Protect all species having legal status which are found on the refuge. Where feasible and reasonable, reintroduce rare species which have been extirpated from the refuge.

**RATIONALE:** All Federal endangered and threatened species existing on the refuge are an important and precious resource which should be vigorously protected and allowed to flourish in as natural conditions as possible. Three such plant and animal species have been identified. Furthermore, as refuge lands are restored to a natural condition, several species which may have once used the refuge as part of their range might be reintroduced. The most likely candidates are pronghorns (either the mexicana subspecies or the endangered sonoriensis) and aplomado falcons. According to local sources, mexican wolves and jaguar occasionally range north into the area of the refuge; management for these animals should be considered. Ocelot may move onto Buenos Aires as their habitat in Mexico diminishes. If the refuge can provide sufficient habitat to support these species and if these reintroductions at Buenos Aires Refuge are in the best interests of the public, they will be pursued.

**PROBLEMS:** The size of the refuge makes it difficult to find existing rare species. Lack of knowledge about their life histories, former distributions, and habitat requirements make positive management for them difficult. The size of the refuge and patchwork ownership also present difficulties in the enforcement of protective laws.

## SPECIES OF SPECIAL EMPHASIS

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**GOAL:** Support national goals, objectives, and strategies for candidate species and for national species of special emphasis. Devote special management attention to all refuge species which are formally designated by supporting regional and state goals, objectives, and/or strategies for these species.

**RATIONALE:** Species of special emphasis have been identified as being significant on a local, state, or national scale. Refuge strategies supporting the objectives for these animals should be developed, where possible.

**PROBLEMS:** The problems vary depending upon which species is being considered and probably include every problem listed in this paper.

## DIVERSITY:

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**GOAL:** Ensure that habitat diversity is maintained. Restore native habitats to the extent possible.

**RATIONALE:** The refuge is diverse within its boundaries and provides an important contrast to commercially grazed areas. The potential exists to enhance refuge diversity through restoring native habitats, riparian and wetland management, farming, etc

**PROBLEMS:** The spread of snake weed, mesquite, Lehmann's lovegrass etc., into native grass stands reduces diversity of grasses needed by the bobwhite and other wildlife. Mesquite has proven persistent, but controllable in other areas of the southwest; lovegrass has so far been invincible. Snake weed can be controlled by burning and may be shortlived. There is the potential to do practical research for control methods on these species, and to explore economical means of restoring native grasses or grassland diversity via grazing, burning, clearing, reseeding, etc. Such research would be oriented towards information needed to improve management of the refuge and its wildlife, and would be in keeping with FWS policies regarding control methods.

There are some areas of the refuge where erosion--gullies or sheet erosion--is underway. Proper land management should aim to restore these areas.

The limited riparian development on the refuge could be increased through control of grazing and through planting native trees.

Management to make optimal use of refuge waters may allow development of new impoundments for marshes and moist soil management.

There may be rare plant species on the refuge which are indicators of disturbed areas or successional changes. These plants and their habitat should be identified and management undertaken to reverse detrimental trends or restore habitat.

#### WATERFOWL AND SHORE-, MARSH- AND WATERBIRDS

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**GOAL:** Manage these species to contribute to the refuge's overall diversity goal. Provide as much habitat as possible for these species given limited water resources. For waterfowl, provide a range of degree of protection-- from hunted, to open for viewing, to **closed--so** that these birds always have a sanctuary area.

**RATIONALE:** The potential exists to expand waterfowl and shore-, marsh-, and **waterbird** habitat by flooding additional lands for marshes. Moist soil management could be undertaken for these and other **species**.

**PROBLEMS:** Southeastern Arizona is an arid environment which has never been attractive to significant numbers of waterfowl. This raises questions with respect to how much of the refuge's resources should be devoted to managing these birds, and placement and general design of any added wetlands, etc. Drought is a natural feature of the southeastern Arizona climate; prolonged drought could eliminate the refuge's ability to provide wetlands for these birds for the duration of the drought.

#### OTHER MIGRATORY BIRDS - RAPTORS

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**GOAL:** Manage these species to contribute to the refuge's overall diversity goal. Protect and enhance habitat for these birds. Manage the refuge in such a way as to maintain or increase habitat diversity.

**RATIONALE:** By managing for diverse habitat types, a greater range of bird species can be attracted to and supported on the refuge.

**PROBLEMS:** There are no problems associated with this goal, beyond the general limits imposed by the potential of the existing habitat and refuge funds and staff time.

#### RESIDENT GAME AND PREDATORS/FURBEARERS

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**GOAL:** In keeping with management for habitat diversity for the masked bobwhite, and in cooperation with the State of Arizona, maintain (and **if** desirable increase) healthy populations of these species.

**RATIONALE:** Species listed by state and federal agencies as "small game" and "big game" are interesting and valuable species whether or not they are hunted. Buenos Aires NWR habitat currently supports and, therefore, should continue to support these animals.

**PROBLEMS:** Problems associated with management for these animals include determining carrying capacity for their habitat, and determining an appropriate balance between management efforts for these species and other refuge programs.

## FISHERIES

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**GOAL: NATIVE FISHES:** There are no native fishes which were historically found on the refuge; thus, no formal fisheries goal will be set. The refuge may support the endangered fishes program by supplying ponds for grow-out of rare fishes to be stocked into other areas of Arizona or in some other fashion. This will be an administrative arrangement and is not addressed here.

**RATIONALE:** The refuge has diverse natural and man-made waters, including intermittent streams, marshes, and stock tanks. Natural waters could support native fish species adapted to the vagaries of aquatic ecosystems in arid regions. There are no known native sport fishes which would survive in stock ponds at Buenos Aires. Stock ponds could also be used to rear native fishes for introduction to other sites in Arizona.

**PROBLEMS:** If non-native sport fishes were stocked in some ponds, flooding might carry them to natural waters where they could disrupt and out-compete native fish populations. If non-native fish are allowed to exist on the refuge, there is always the danger of a refuge visitor transporting non-native fish from one water to another. Most refuge waters currently host introduced, non-native fishes (mosquito fish, fathead minnows, and bullhead catfish) which could decimate any native fishes introduced to the refuge. Any sport fisheries on the refuge would have to be a put and take operation, which is against FWS policy. Thus no sport fishery is possible.

## SPECIAL STATUS LANDS

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**GOAL:** As appropriate, designate and protect natural areas from disturbance by human activities. Manage these lands in accordance with national guidelines for research natural areas.

**RATIONALE:** This large, diverse refuge can and should accommodate a range of land uses. Selected areas on the refuge should be left unmanaged and natural successional changes allowed. These areas will provide a baseline with which to compare managed and trafficked areas.

**PROBLEMS:** Devoting adequate staff time to patrol natural areas and to monitor habitat and species changes can be problematic. Candidate areas need to be identified and evaluated.

## CULTURAL RESOURCES

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**GOAL:** Preserve, research, and interpret historic and archeologic sites.

**RATIONALE:** As a federal land management agency, the Fish and Wildlife Service is mandated to identify, preserve and protect archeological and historic values on all national wildlife refuges.

**PROBLEMS:** Due to the lack of prior research in the area, the archeological and historic values on the Buenos Aires refuge are essentially unknown. It is anticipated that numerous sites occur on the refuge, some of which may be

nationally significant. Through the management activities of the Fish and Wildlife Service, a representative sample of **these** sites will gradually be identified.

#### PUBLIC USE--INTERPRETATION

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**GOAL:** Increase visitors' understanding of the endangered quail and its relationship to Sonoran savanna grasslands, the history of human activities in the arid southwest, etc. Increase visitors' understanding of the refuge system and Buenos Aires' role **in** this system.

**RATIONALE:** The refuge has great potential for a wide variety of public uses. This is due to its proximity to Tucson, the attraction provided by a rare bird found only in this spot, the refuge's proximity to the Patagonia-Sonoita Bird Sanctuary, and the unique numbers and diversity of birds and wildlife to be found **in** the area and especially on the refuge. An interpreted auto tour route, conducted tours, interpreted trails, a road system, visitors' center, photo blinds, and environmental education sites are all potential developments. Interpretation themes would include the endangered quail and its habitat, the Sonoran savannah grassland ecosystem, historic ranching operations, and refuge management.

**PROBLEMS:** Problems associated with public use will probably include illegal camping, trespass, lost visitors, safety concerns, conflicts between different user groups, human disturbance to wildlife, arson and accidental fires. The proper amount of refuge resources to apply to public use, as opposed to wildlife management, must be addressed.

#### PUBLIC USE--RECREATION

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**GOAL:** Provide quality wildlife-oriented recreation. Provide opportunities unique to southeastern Arizona and in keeping with the policies of the Fish and Wildlife Service.

**RATIONALE:** The refuge currently offers uninterpreted roads and trails for wildlife observation and hunting for big game and upland game birds.

**PROBLEMS:** The problems listed above apply to recreational and consumptive public uses as well. Illegal camping and disturbances by hunters are foreseen, as these were serious problems to the ranch operations which preceded the refuge.

#### ECONOMIC USES

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**GOAL:** Allow controlled economic uses of the refuge in cases where they either aid wildlife management or cause no undue disturbances to wildlife or refuge operations.

**RATIONALE:** Grazing is one economic use which is a possibility for the Buenos Aires rangelands. There is the potential to allow permittees to graze parts of the refuge as an economic use, if that can be done while protecting the interests of the masked bobwhite and other wildlife. There are many



questions regarding the type and amount of grazing which the refuge could allow, or indeed whether any grazing would be compatible with the primary purposes of the refuge. The influence of grazing on vegetation changes is debated, but could be deleterious to masked bobwhite habitat. The mere presence of cattle (trampling, noise), may be disruptive to quail and other wildlife. How to design and manage grazing to achieve given habitat objectives is unclear. Wood cutting, mining, fur trapping, and beekeeping are potential uses. Economic use of the refuge could make a positive contribution to the local economy.

PROBLEMS: Many of these activities are potentially disruptive to wildlife, **wildlands**, and the scenic nature of Buenos Aires refuge. Through proper management and location of economic activities, some or all of these uses may be feasible.

## WILDLIFE ANALYSIS

There was very little ~~analysis~~ of wildlife species population dynamics or other wildlife related topics of concern due to lack of data. The data available came from Arizona Game and Fish wildlife distribution surveys, literature searches, and discussions with biologists who are familiar with the area. Most of this concerned the habitat requirements and life histories of the different species. This information is documented on the Objective Documentation Records for each species (beginning on page ) and on habitat maps for major species.

## PRELIMINARY FISHERIES SURVEY OF AQUATIC HABITATS

Native fishes were historically absent from the refuge, with even the perennial Arivaca Creek being fishless. Non-native fishes have, however, been widely introduced in stock-watering tanks throughout Arizona, and are known from the area.

The possibility that existing tanks could be used for supplemental grow-out habitats for recovery efforts of endangered fishes prompted a survey of aquatic habitats in 1985. A summary of collections from the survey is in Table 1. A total of five species of fishes was obtained, all non-native:

- fathead minnow
- black bullhead catfish
- yellow bullhead catfish
- largemouth bass
- mosquitofish

None of these fishes is desirable on the refuge, other than the mosquito-fish, which serves a local function of pest (mosquito) control. That role can readily be duplicated by use of native and endangered Sonoran (Gila) topminnow and desert pupfish in smaller tanks. Larger habitats seem suitable for rearing of razorback sucker. Stocking of these last three species in the upper Santa Cruz drainage, technically outside their native ranges but in the Gila drainage from which they were widely taken in the past, is justified for production toward recovery, by a need for additional refugium space and research animals, and due to drainage ~~relations~~ that preclude escape other than into long reaches of dry stream bed.

## PUBLIC USE DEMAND ANALYSIS

### INTRODUCTION

The results of this informal demand analysis indicate that Buenos Aires National Wildlife Refuge (NWR) can expect significant demands for public activities on the refuge. In general, it is assumed that the public would respond enthusiastically at Buenos Aires NWR to any activities normally offered on national wildlife refuges. This conclusion was derived by reviewing state and area population trends, the characteristics of the refuge and the type of use opportunities ~~it~~ might offer, other recreation opportunities in the vicinity of the refuge, and use figures from similar facilities in Arizona and New Mexico.

### POPULATION TRENDS

The location of Buenos Aires NWR makes it a potentially popular refuge. Arizona is rated third ~~in~~ the United States for percent of growth over the last 10 years. The state and the city of Tucson are thriving, leading the nation in growth of employment and personal income. These factors indicate rapidly increasing numbers of people in the area who may wish to participate in outdoor and wildlife-oriented recreation.

### REFUGE RECREATION OPPORTUNITIES OR POTENTIAL

The refuge has something unique to offer in the masked bobwhite. Bird enthusiasts who travel to southeastern Arizona from all over the nation and the world for the opportunity to view species of birds not found anywhere else in the United States will probably make Buenos Aires NWR one of their stops. Arizona residents will be attracted by the opportunity to view diverse concentrations of wildlife supported by the refuge lands. The scenery of the Altar Valley and the historic features on the refuge will also make Buenos ~~Aires~~ NWR an interesting and rewarding destination.

Buenos Aires NWR offers the opportunity for birding, wildlife and **wildlands** observation, hiking, photography, hunting resident game and waterfowl, camping, etc. Warm water fishing is not possible as it would require a put-and-take program, which is against FWS policy.

### OTHER RECREATION OPPORTUNITIES IN THE VICINITY OF THE REFUGE

The southeastern quadrant of the state of Arizona boasts 10 state parks, 20 state wildlife management areas, 6 national monuments, 1 national historic site and 1 national memorial, portions of the Tonto, Apache-Sitgreaves, and Coronado National Forests, 1 BLM primitive area and 4 BLM recreation sites, and 7 national wilderness areas and 3 national primitive areas. But, what is apparently lacking in southeastern Arizona are areas devoted to interpreting wildlife in its native habitat, and which discuss management activ-

ities aimed at supporting wildlife and habitat. This is the niche which national wildlife refuges normally fill in a state, as state wildlife agencies rarely have the resources to develop these kinds of interpretive programs for non-game species. Buenos Aires NWR's extensive grasslands ecosystem, managed not for cattle but for wildlife, is well suited to this task.

#### USE FIGURES FROM SIMILAR AREAS

There are no areas in Arizona which are similar enough to Buenos Aires NWR in location and character to provide much insight into potential visitation at the refuge. State game areas typically are not equipped to keep reliable use figures, nor are these areas typically set up for the nonhunting public. Southeastern Arizona's natural areas generally provide limited or no facilities for the public. "Nature preserves", such as those administered by The Nature Conservancy, are small areas representing a specific ecosystem (such as riparian cottonwood forest) and generally not open to public use. For this reason, Bosque del Apache NWR, in New Mexico, probably can give us the best picture of what the potential demand for activities at Buenos Aires could become.

#### Bosque del Apache

Bosque del Apache and Buenos Aires NWRs have much in common. New Mexico and Arizona are both sparsely populated, arid states experiencing rapid growth. Bosque del Apache refuge is similarly situated to Buenos Aires NWR, being located about 1 1/2 hours south of Albuquerque; New Mexico's largest city with approximately 400,000 residents. New Mexico also offers numerous outdoor recreation opportunities on a variety of public lands. Bosque del Apache NWR, like Buenos Aires NWR, offers abundant, diverse wildlife, including that associated with wetlands and riparian areas. Both refuges have an endangered bird (Bosque del Apache has the whooping crane) as a "special draw."

Bosque del Apache offers a variety of activities similar to those Buenos Aires NWR may potentially offer with several exceptions. Buenos Aires NWR will not be able to match Bosque del Apache's waterfowl hunting and fishing opportunities, but Buenos Aires NWR may attract larger numbers of serious birders than Bosque del Apache. The Bosque del Apache public include avid birders hoping to view a whooping crane, sightseeing tourists, naturalists, photographers, and sportspeople. The refuge also draws repeated visits from Albuquerqueans and other locals enjoying a day outing. The most significant difference between the two refuges is that Bosque del Apache hosts dramatic flocks of waterfowl which in turn attract large crowds of visitors to view the spectacular evening flights of snow geese, cranes, and other waterfowl. There will be no equally dramatic and dependable draw at Buenos Aires NWR.

In 1984, Bosque del Apache NWR received 77,291 visits. (Less than one percent of these are hunters.) Approximately 65 percent of these visits occur during November, December, January, and February, when the refuge

hosts large concentrations of migrating and wintering waterfowl. The refuge's visitation has more than doubled in the last 10 years, growing from 32,800 in 1974 to 77,300 in 1984, a 58 percent increase. This increase probably reflects the growing interest of the public in wildlife-oriented recreation as well as the improved facilities at **Bosque** del Apache which attracts more people.

Once the Arizona refuge has developed facilities and the refuge becomes known to Arizonans, birders, refuge enthusiasts, and so on, it is estimated that Buenos Aires NWR would receive perhaps 50 percent of Bosque del Apache's visitation within perhaps 10 years (or within 5 years of developing facilities similar to those at Bosque del Apache, most importantly a tour loop with interpretive signs which will take the public past wetlands and a variety of other habitat types, and an interpretive center). That would mean that in 1995 Buenos Aires NWR would receive approximately 39,000 visits, excluding hunters and trappers. (In the same year, Bosque's visitation will probably be over 100,000 if the 58 percent rate of increase continues.) This assumes that approximately 5 years will be required for Buenos Aires NWR to develop **facilities** for the public.

Other New Mexico and Arizona Refuges

For comparison, the 1983 total visitation figures for Arizona and New Mexico refuges which allow public use are listed below:

Bitter Lake NWR, Semi-Urban Wetlands, Medium Scenic Quality .....	33,746
Bosque del Apache NWR, Rural Wetlands, Medium Scenic Quality, Special Draws: Deer, Geese, Whooping Crane	..... 77,291
Cabeza Prieta NWR, Arizona Desert, High Scenic Quality.....	6,063
Cibola NWR, Colorado River, Low Scenic Quality.....	45,831
Havasu NWR, Colorado River, High Scenic, Special Draws: Water-based Recreation, The Gorge.....	304,125
Imperial NWR, Colorado River, Medium Scenic Quality.....	45,593
Kofa NWR, Arizona Desert, High Scenic Quality, Special Draw: Rockhounding.....	50,900
Las Vegas NWR, New Mexico Grasslands, Low Scenic Quality.....	46,425
Maxwell NWR, New Mexico Grasslands, Low Scenic Quality.....	12,477

These figures reinforce the 39,000 estimate for Buenos Aires NWR, that figure being comparable figures for refuges in Arizona and New Mexico.

Arizona Natural Areas

The Nature Conservancy (TNC) keeps visitation figures for its natural areas in Arizona which allow public use:

Ramsey Canyon, Riparian Forest, Public Use Facilities.....	16,000
Patagonia-Sonoita, Cottonwood-Willow Forest.....	8,000
Canelo Hills,	2,000
Muleshoe, New Area, _____	1,000

It is difficult to say how these areas compare to Buenos Aires NWR and its attractiveness to the public. The TNC areas are small, generally a single habitat type (riparian) which is very attractive to desert dwellers, and most offer only two activities, birding and wildlife/wildlands observation. No single area on Buenos Aires NWR may be as appealing as TNC's areas but the refuge will offer a wider variety of activities.

Forest Service Areas

Annual use figures from a few specific areas within Coronado National Forest in Arizona are presented for comparison, below. These figures are for use days, as many forest visitors may stay for more than 1 day when visiting a campground or backpacking, etc.

Santa Rita, Dispersed Use, Mountains Approximately 30 miles Southeast of Tucson.....	23,000
Santa Rita, Developed Use (Campgrounds, Picnic Areas, etc.).....	5,200
Madera Canyon, Campground in Santa Ritas.....	18,500
Chirichuahuas, Dispersed Use, Special Draw: Birding.....	60,200
Chirichuahuas Wilderness, Dispersed Use.....	10,700

DEMAND FOR GIVEN ACTIVITIES

The public use figures for activities at Bosque del Apache NWR were used to determine an estimate of the numbers of visitors who might participate in a given activity at Buenos Aires NWR.

Visitor Contact Center: 80 percent of total visitation = visits  
1/2 hour/visit

Tour Route, Interpretive: Total visitation - 3.2 = cars  
2 hours/visit

Foot Trails, Interpretive: 10 percent of total visitation = hikers  
length of hike depends on trail

Wildlife/wildlands Observation, Foot: 17 percent of total visit =  
hikers .75 hours/hike  
(this refers to walking in uninterpreted areas and wilderness hiking)

Photography: 33 percent of total visitation = hobby and professional  
photography -- 2 hours/photo session

Applying the above formulas to the estimate for Buenos Aires' total visitation, the following figures for yearly participation in the specific activities are:

Visitor Contact Center: 31,200 visits per year

Tour Route: 12,080 cars per year

Foot Trails: 3,870 hikers on interpreted trails per year

W/W Observation, Foot: 6,570 hikers in uninterpreted areas per year

Photography: 12,760 photographers per year

There are no hunter use figures specific to the former Buenos Aires Ranch for resident game. Buenos Aires refuge is included in parts of three Arizona hunting units. Mule and whitetailed deer hunting records are available only for Unit 36B, which includes a major part of the refuge. In the 1984/85 and 1985/86 general gun mule deer seasons, 1594 and 1715 hunter days were recorded, respectively. Based on these incomplete data, it is estimated that approximately 1500 mule deer hunter days are provided annually by the refuge.

A lesser number of hunters (perhaps up to 500 hunter days) pursue white-tailed deer on the mountainous portions of the old Buenos Aires Ranch (primarily Forest Service lands). Only 20 hunters were observed hunting quail on the open portion of Buenos Aires refuge in the 1985/86 season. No other records of use are available. Based on general observations and conversations with hunters, it is estimated that some 100 hunter days were spent hunting predators/furbearers, and another 50 hunter days were spent hunting rabbits. An estimated 400 hunter days were spent javelina hunting. Therefore, a rough estimate of resident game hunter use for Buenos Aires Ranch (including mule deer and whitetailed deer hunting on the Forest Service lands of the Ranch) would be 2,570 hunter days annually.

Records for migratory bird hunting are sporadic and incomplete. It is estimated that probably no more than 30 visitors (for 4 hours each = 120 AH) hunted doves and no more than 50 hunters (for 3 hours each = 150 AH) participated in waterfowl hunting. Many of these visits represented repeat trips by the same user.

Total refuge hunter and trapper days, therefore, total approximately 2,650 in 1985/86. Over time, it is expected that this number will increase dramatically for several years as a result of hunters desiring to hunt on a refuge; by 1995 numbers will have returned to just slightly above the current figure. This prediction is based on the assumption that hunting numbers are based on hunter success, which in turn is based on the abundance of target species and the difficulty of terrain in a given area. Some increase in abundance and the attraction of hunting on a refuge are expected to result in a small increase in hunter use in 10 years.

#### CONCLUSION

The comparisons above seem to indicate that 39,000 non-hunting annual visitors within 10 years is a reasonable estimate for Buenos Aires NWR. Approximately 2,650 hunter and trapper days were estimated for 1985 and in 10 years a small **increase** to **approximately** 3,000 hunter days is predicted. Total visitation in 1995 is predicted to be approximately 42,000.



## LONG RANGE MANAGEMENT STRATEGY

### INTRODUCTION

What follows is a summary of the major developments and strategies planned for Buenos Aires NWR. This summary is intended to provide a holistic view of refuge programs. More detailed explanations of the master plan's objectives and management strategies can be found in the Objective Documentation Records. It should be stressed that the strategies in this master plan assume Fish & Wildlife Service management control over state lands.

There is currently a lack of basic information about this new refuge, such as the carrying capacity of existing habitat for various species. There is also controversy as to the type and characteristics of the original grassland community found in the Altar Valley. As a result, this master plan is by necessity experimental, and research is emphasized. The strategies of this plan frequently stipulate gathering data which will be **used** in the future to refine our objectives and management. Limited manipulations are called for. Management experiments are stipulated; these experiments will show which approaches would be successful in achieving refuge goals and objectives in the future. In addition, public use facility development and habitat alterations are phased so that the impacts of initial construction on wildlife and habitat can be evaluated before more extensive developments are installed.

Two 5-year phases are described. The developments stipulated for each phase are realistic given the expected staff and dollar resources of the refuge. Should funding or other limits hamper the development of refuge programs in the proposed time frame, these phases will nevertheless guide the order and logic of refuge development.

This master plan provides broad guidance for refuge management. In the future, detailed management plans will also be developed. Management plans (such as fire management, public use management, wetlands management, etc.) specify locations, timing, staff, equipment, and methods and materials, required. Management plans are developed in consultation with appropriate experts and approved by the Refuges and Wildlife Division of the U.S. Fish and Wildlife Service.

### Synopsis of the Master Plan

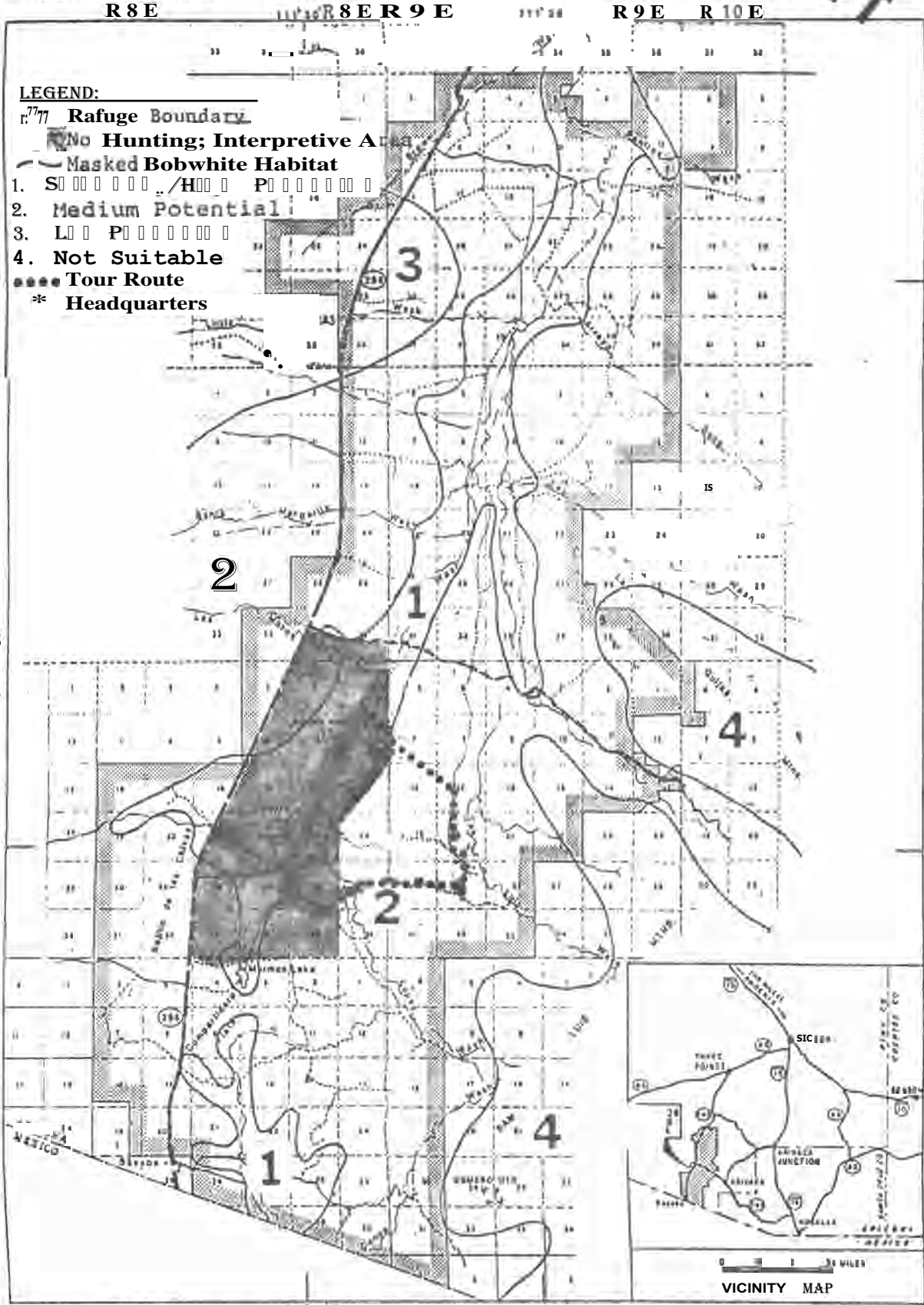
The main thrust of the Buenos Aires master plan is management for the masked bobwhite. Management for diversity and public use will also be important refuge programs. The long term aim of this plan is to restore the Sonoran savanna grassland which once occurred on the refuge. This is an ambitious goal given the limited knowledge of the features of the Sonoran savanna grassland in the Altar Valley. Nevertheless, this goal provides important guidance. The restored ecosystem will provide a stable and diverse home for masked bobwhite, waterfowl, and a variety of other animals. Wildlife

# MASTER PLAN MAP BUENOS AIRES NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
**R 8 E**

PIMA COUNTY, ARIZONA

UNITED STATES  
FISH AND WILDLIFE SERVICE



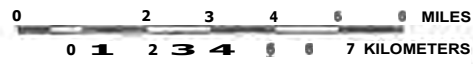
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U.S.G.S. QUADRANGLES, G.I.O.  
PLATS, AND SURVEYS BY F.W.B..

**GILA AND SALT RIVER PRINCIPAL MERIDIAN**



ALBUQUERQUE, NEW MEXICO JULY 1988



DECLINATION  
1979

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species extirpated from the area will be reintroduced, if possible, in an attempt to recreate the full complement of wildlife species naturally found in the Sonoran savanna grassland.

This master plan intends to balance the needs of diverse wildlife species with a strong emphasis on management for masked bobwhite. A basic assumption of this plan is that Buenos Aires NWR is large and rich enough to supply the needs of a large, stable population of masked bobwhite while enhancing habitat for other wildlife. (This assumption will be tested--see Masked Bobwhite below.)

The proximity of the refuge to Tucson, Arizonans' avid participation in outdoor activities, the beauty of the refuge, and the importance of educating the public regarding the refuge system and the endangered species program all make Buenos Aires a logical site for developing quality activities for the public. It has been evident from the beginning that the FWS is committed to developing public use at this refuge. Nevertheless, only activities which are compatible with the refuge's wildlife programs may be allowed. Public activities will be phased and studied to ensure that public uses of the refuge will not jeopardize the masked bobwhite recovery effort.

Visitor safety and monitoring of visitors are important concerns. Control of access points would help alleviate the problem. However, it is the FWS's intention to allow traditional uses and maintain access to most areas favored by traditional users. Off-road vehicle use will not be allowed. Vehicles will not be allowed to travel in washes.

If the FWS is to develop a quality public use program and at the same time adequately protect natural resources, FWS control of lands now owned by the state of Arizona will be necessary. As mentioned above, this master plan assumes FWS control of all refuge lands through means agreed upon with the State of Arizona.

## HABITAT MANAGEMENT

### Grasslands Management

Masked bobwhite quail are considered indicator species of Sonoran savanna grasslands. The historic presence of masked bobwhite on Buenos Aires NWR therefore indicates that the refuge's natural ecosystem was once Sonoran savanna grassland, now altered to semidesert grassland. The central aim of this plan is to manage refuge grasslands so that they gradually regain the characteristics of Sonoran savanna grassland and are thus able to naturally support masked bobwhite and the full complement of wildlife normally associated with Sonoran savanna grassland.

Sonoran savanna grassland is characterized in Arizona by perennial grasses with a 10% overstory cover of scattered trees and shrubs. Associated surface water consists of cienegas (in areas with sufficient runoff) and perennial and ephemeral streams. The semidesert grassland now found on the refuge consists of annual and introduced grasses which appear to outcompete

the native perennial grasses in many locations, sub-shrubs associated with disturbed grasslands such as burro weed, snake weed, and dense mesquite stands in some areas. Arroyos and sheet erosion have altered the soils and topography of the refuge to the point that restoring Sonoran savanna grassland is a very long term and in some sites probably an impossible task. Therefore interim management strategies for supplying the masked bobwhite habitat needs are necessary.

Current knowlege of masked bobwhite habitat needs indicate that diversity of grasses and forbs with good escape and nesting cover are important factors. Perhaps the tall, dense grasses of Sonoran savanna grassland provided the cover needed by this bird, or perhaps coveys clustered around the scattered savannah trees and shrubs. The areas of the refuge currently used by the masked bobwhite are those having a diverse understory near mesquite or other shrubs with limbs close to the ground. Therefore immediate management will be aimed at increasing grass and forb diversity and providing escape cover in areas of the refuge which lack one or both of these habitat factors.

Fire and grazing appear to be potentially effective tools for germinating dormant seeds and disrupting grass stands to make room for different species. Existing research to determine their effectiveness in achieving the refuge's aims is incomplete and therefore inconclusive. The refuge will design management studies which will answer the questions about if and how these techniques can be used to achieve management aims (see "Grazing Management" and "Fire Management" below). Other techniques having more limited applications which may also be explored include discing, plowing, and other mechanical means of disturbing the soil. Creating brush piles, half-cutting mesquite to create low hanging limbs, planting shrubs, and thinning shrubs (where stands are too dense to allow sufficient understory development) appear to be the most likely short term means of providing cover for masked bobwhite.

The main tasks which must be accomplished in order to restore something more closely resembling Sonoran savanna grassland to Buenos Aires NWR are slowing runoff to halt sheet erosion and gullyng, halting or slowing the spread of non-native grasses and sub-shrubs, controlling the spread of mesquite, and assisting the recovery of native perennial grasses. The most promising means of achieving this will be explored, including: again, fire and grazing to discourage invading plant species and encourage diverse native grasses; reseeding native perennial grasses in limited areas to halt erosion and to provide seed stock for subsequent natural dispersion; planting riparian areas with cottonwoods, willows, etc, to slow gullyng and provide diversity; installing check dams to slow runoff and aggrade arroyos; building spreader dikes to slow runoff and encourage infiltration; and thinning mesquite.

These experiments will begin in Phase 1 and may continue through Phase 2. At any point a technique is proven to be beneficial to masked bobwhites it may be applied on a larger scale with less stringent controls and monitoring requirements than are normally applied to experiments. Detailed management plans will clarify how and where techniques will be applied. All refuge management plans will undergo Section 7 review to ensure that all refuge

activities are compatible with the masked bobwhite objective. Cooperation with neighbors within the watershed who are concerned with long term improvement of their lands will be necessary to restore Buenos Aires NWR. Erosion, particularly, is a problem which must be addressed by the entire watershed. Eventually, if experimentation discovers effective management tools, the scattered cover and native grasses characteristic of Sonoran savanna grassland will become the principal habitat on the refuge. Surface water runoff will be slowed once vegetation recovers. More water will then infiltrate the soil and will be released slowly and continuously, perhaps creating perennial flow in several areas where **flows** are now ephemeral. Water will not run down deeply cut washes, but will meander across the bottomlands and restore marshy areas. The spread of mesquite and other exotics may be slowed or halted by **fires**, and the entire area may become a stable, diverse, naturally self-regulating ecosystem able to support masked bobwhite and all the wildlife naturally associated with Sonoran savanna grassland.

#### Grazing Management

Properly managed, grazing is a useful habitat management tool for many types of wildlife. The ability to manage grazing to achieve given habitat objectives at Buenos Aires NWR must be explored. There is the potential to allow permittees to graze parts of the refuge if grazing is shown to be a beneficial tool for management of the masked bobwhite and other wildlife.

Therefore, in Phase 1, a research program will be conducted to determine whether grazing is a useful tool for management of the Sonoran savanna grassland ecosystem and its wildlife, especially the masked bobwhite. The refuge manager, in consultation with range and wildlife experts, will design an experimental grazing plan. The research plan will undergo Section 7 consultation. The refuge manager may choose to contract for grazing on a small scale and according to the research design. The refuge will negotiate with neighboring ranchers for a permit(s) based on fair market value. The special use permit(s) will stipulate that if evidence of damage to the masked bobwhite population is detected, the leasee may be required to remove all cattle from the refuge immediately. Once the results of the grazing experiments are thoroughly evaluated, if the results show benefits for the bobwhite, use of grazing as a management tool would be initiated, probably in Phase 2. Again, the refuge manager would contract with neighboring ranchers at fair market value and the design of the grazing plan would be stipulated in the contract.

#### Fire Management

The role of natural fires in maintaining Sonoran savanna grassland is uncertain. Grasslands normally require periodic disruption via some natural mechanism to remain vigorous and free from invading shrubby plants. Since there were no ungulates feeding on historic grasslands in Arizona, it seems likely that fires maintained Arizona's Sonoran savanna grassland. In any case, fire is known to be an effective means of controlling young mesquite, snake and burro weed, and of encouraging grass and forb diversity.

The refuge will experiment with fire as a management tool on Buenos Aires NWR. Natural, accidental, and arson fires will occur on Buenos Aires NWR. A fire management plan will stipulate in what areas fires will be suppressed and in what areas fires will be allowed to burn for grasslands management. The management plan will also prescribe experimental, controlled fires in specified areas on the refuge designed to achieve management aims. All areas of the refuge which experience burns will be studied to determine short and long term effects, and whether the aims of the prescribed burns were indeed achieved. Of particular interest will be the effects of fire on Lehman's lovegrass. Eventually the refuge should be able to write a fire management plan which combines "let burn" areas, prescribed burns, and firebreaks to effect a fire frequency in each habitat type of the refuge which will help produce optimal wildlife conditions.

### Forest Management

Forest management on Buenos Aires NWR includes scrub species such as mesquite and riparian species such as cottonwood and willow. The only wooded area currently found on the refuge, other than mesquite and scrub bosques, is along a section of Arivaca Creek having perennial flow. As mentioned above under grasslands management, mesquite management will consist of thinning existing bosques which are too dense for masked bobwhite, leaving some dense mesquite stands for those species requiring such areas, **perhaps** planting mesquite and other shrubs in areas lacking cover, thinning mesquite as it spreads, and limiting the spread of mesquite into open grassland. Forest management on Buenos Aires NWR will include encouraging the development of additional riparian bosques along ditches, canals, and marshy bottoms through planting of cuttings or other means. This will not only increase diversity and edge effect, but will also aid in slowing and healing erosion in arroyos.

### Marsh and Water

This desert refuge has limited water resources, but a little surface water in arid grasslands greatly increases wildlife and plant diversity. In many years, runoff alone creates substantial water **surface** area at Aguirre and Mormon Lakes. These two lakes and numerous other stock ponds attract ducks, geese, and a variety of shore-, marsh-, and wading birds. Many water-dependent birds using refuge stock ponds are considered "species of special emphasis" for the refuge because they are listed by the state or federal governments as being rare or threatened with serious population reductions. Rehabilitating and adding islands and canals to Aguirre Lake will **increase** the attractiveness of this pond to diverse birds. Rehabilitation of Grebe Pond (an old irrigation pond) will include pumping water to maintain a water depth sufficient to attract diving ducks in years when natural runoff would fail to provide adequate water for divers. Mormon Lake will be maintained and supplied via surface runoff. Moist soil management may be used to produce green browse for ducks, geese, and other wildlife.

### Cropland Management

Buenos Aires NWR is a very minor migration stop-over point for waterfowl. It would be unnatural to try to develop the refuge into anything other than that. Therefore no attempt will be made via planting crops to attract birds which would not otherwise stop at Buenos Aires NWR, nor will any effort be made to overwinter birds or encourage them to nest on the refuge. There is a small area between the headquarters and Aquirre Lake which was recently farmed and is currently inhabited by plants associated with disturbed land. This will be farmed to encourage birds and animals to come to the area so that the public may view them. The farmed area will remain very small. No pesticides will be used in the area. Relatively nonmanipulative methods will be used--for example, rather than seeding row crops the area may simply be disced in an irregular pattern to encourage diverse forb growth.

### Uplands Management

The refuge's uplands are steep, rocky slopes. There will be little or no habitat manipulation in the uplands. Refuge management in these areas will consist of protecting the erodable slopes from overuse by hikers, prohibiting off road vehicle use, and censusing wildlife and rare plant populations in the uplands.

## POPULATION MANAGEMENT

### Masked Bobwhite

The intention of this master plan is to strongly emphasize production of masked bobwhite on Buenos Aires refuge until a self-sustaining population has been established. Efforts will focus on reintroducing birds into a wide variety of habitats and on experimental habitat manipulations aimed to improve potential habitat for the bobwhite. Released captive-reared birds will help us better identify what constitutes masked bobwhite habitat as we monitor their movements and study their habits.

Until more is known about the needs of this bird and its relationship to its habitat in Arizona making it possible to predict interactions, developments for other refuge programs will be very carefully scrutinized to determine effects on the masked bobwhite. A very small percentage of prime masked bobwhite habitat may overlap with other wildlife programs and public uses. Less than 1% of land within the "suitable/high potential" habitat is taken by ranch roads and buildings; these will be used for refuge operations and public activities. The use of this small percentage of habitat is in no way considered a threat to the re-establishment of a masked bobwhite population.

The maximum possible number of masked bobwhite will be supported by the refuge, within common sense limits. Once the over-riding objective of securely establishing masked bobwhite has been reached, hopefully in Phase 1 of the plan, the refuge will progress to a more balanced program. Areas of

the refuge having very low potential for the masked bobwhite would be devoted to other species. Public use of the refuge is expected to grow gradually, allowing effects on the bobwhite to be evaluated. Only public uses which are compatible with the masked bobwhite objective will be allowed on the refuge. Based on studies and experience with other quail, it is unlikely that foot or auto traffic of the type proposed will have any negative effect on the bird.

All bobwhite habitat manipulations must be considered experimental. Research on the masked bobwhite and habitat manipulation will be a refuge emphasis for some years to come (See Grasslands Management, above). Habitat manipulations will be concentrated in suitable/high potential and medium potential masked bobwhite habitat. These manipulations--experimental and/or proven--will continue throughout Phases 1 and 2, concentrating first on the most beneficial techniques and the most promising areas.

No predator control for masked bobwhite will be done unless efforts to establish the bird appear to be seriously hampered by predation. (Commercial and recreational trapping of the refuge will be controlled so that it may provide some benefit to the quail.) Quail hunting will be eliminated on the entire refuge, both to protect the bird and to protect hunters from the severe consequences of accidentally taking an endangered species.

#### Other Endangered Species and Species of Special Emphasis

Habitat for endangered or threatened animals (other than the masked bobwhite) which are found on, or were extirpated from, the refuge will be preserved. The bald eagle and peregrine falcon will benefit from increased habitat and prey diversity promoted by the plan. In Phase 1, all locations of rare plants will be protected as necessary to avoid destructive habitat changes or loss of individual plants.

Reintroductions of extirpated species will be done only if they are determined to be compatible with the refuge's masked bobwhite objective. Reintroduction of the aplomado falcon seems a possibility and would require no extensive habitat alterations. Introductions of Mexican wolves or ocelots are less likely, as the refuge is marginally suited for these two species. Once the masked bobwhite is securely established, if the recovery teams for the wolf or ocelot were to recommend Buenos Aires refuge as a reintroduction site for either animal, the proposal would be carefully evaluated.

There are 36 species of special emphasis known to occur on Buenos Aires. This includes two mammals (the pronghorn antelope and the antelope jack-rabbit), 5 reptiles (the Gila monster, vine snake, desert tortoise, western box and yellow mud turtles), 3 plants and 30 species of birds (including mourning and white winged doves), most of which are either waterbirds rare to the desert or Mexican vagrants and peripherals. That these animals and birds are formally recognized as deserving management effort justifies the refuge's strong emphasis on its diversity goal, and the management of marshlands, forest and croplands described above. Grasslands management aimed at providing for masked bobwhite will also support a number of these species.



The refuge must be studied to see if it will support pronghorn antelope and to determine which subspecies is best suited ecologically to Buenos Aires NWR. The refuge would require special fencing and crossings to allow pronghorns to travel the interior of the refuge while stopping them from wandering onto roads. Some habitat management for **pronghorns**, such as burning, might be required. If needed, the refuge will control coyotes for two months shortly before and during antelope fawning, for several years. Reintroduction of the pronghorn on the refuge would require special cooperation with the state of Arizona to procure animals. An interagency release team will be formed in the first year of the master plan to conduct necessary studies and, if appropriate, to develop a release plan. If feasible, antelope reintroduction is a high priority of this master plan.

For the remainder of these species, the only management required is population monitoring. Such monitoring might indicate that habitat alterations should be initiated. At that point the master plan would be revised to include additional strategies.

#### Resident Game, Fisheries, Predators and Furbearers

Mule deer, white tailed deer, and javelina are the big game animals found on Buenos Aires. Mountain lions, which may occasionally forage on the refuge, and pronghorns are also considered big game. Refuge staff will play a supportive role to the state in censusing these species and their habitats, making recommendations to the state on the structure of hunts. The refuge will also assist the state in checking, monitoring, directing and educating hunters using refuge lands. Limited habitat management, such as controlled burns, may be done for deer. These activities will be undertaken as time devoted to higher priority species allows, throughout Phases 1 and 2.

Montezuma, scaled and Gambels quail, and jack and cottontail rabbits are the upland game found on Buenos Aires refuge. (Doves are considered migratory birds and are included above under **species** of special emphasis.) These animals appear to be thriving now and no special habitat manipulations are proposed for them.

The waters on the refuge will support only a very limited fisheries program. No native fish are believed to have existed on Buenos Aires, which historically had no perennial water bodies. The refuge is in a drainage which did support native fishes. The refuge may potentially support the Endangered Species program for rare desert fishes in various ways, for example, by allowing certain ponds to be used for rearing fish to stocking size or by providing refugium for native species. As long as these proposals are in keeping with the objectives and strategies outlined in this plan, they may be considered by the refuge manager and the parent Refuge Division of the FWS.

It is clear that a quality sport fishery could not be maintained on the refuge without a put and take program, which is against FWS policy for refuges. Therefore, there will be no sport fishery program on Buenos Aires NWR.

Coyote, fox, bobcat, skunk, badger, ringtail, and coati mundi are the predators and furbears found on the refuge. Predators and furbearers contribute to the refuge's diversity goal, as well as to the enjoyment of the public in viewing wildlife. Therefore the refuge will maintain healthy populations of the representative assemblage of predators.

#### PUBLIC USE MANAGEMENT

Uses encouraged on the refuge will be activities not offered by other entities in the area and will include those uses traditionally offered by national wildlife refuges. In keeping with the recovery plan for the masked bobwhite, interpretive efforts will focus on the reason for the masked bobwhite's endangered status, the **history** of the southeastern Arizona grasslands, and refuge efforts to re-establish a masked bobwhite population in the Altar Valley. Birding will probably be the most highly sought activity at Buenos Aires NWR. Prime birding areas will be preserved and open to the public. Normal refuge offerings such as auto tour routes, foot trails, interpretation, photography, etc., will also support birding. These activities will be concentrated near (but not limited to) the refuge headquarters, where developments will create the greatest diversity and concentration of wildlife. Hunting and trapping will occur outside of the primary public use area. The area closed to all hunting will be **approximately** 10 percent of the refuge. The hunting program at Buenos Aires NWR is designed so that there will be no reduction in total hunter use days from the time when the refuge was a ranch, although the seasons, areas open to hunting, and species hunted will change somewhat.

Demand for nonconsumptive public uses will be moderate. Based on estimates of demand for wildlife and **wildlands** related activities, this plan aims to accommodate roughly 39,000 visitors annually within the 10 year planning time frame. This would average to over 100 visitors every day of the year.

Compared with other rural southwestern refuges this is an average number of visitors. The refuge's summer visitors will be primarily birders; winter visitors will be a more diverse group of sightseers, hunters, and wildlife enthusiasts. Developments to accommodate this level of visitation will be relatively modest. Because demand can only be estimated, the master plan phases allow the FWS to expand facilities as public visitation grows. Experience will show where to expand activities and where a modest offering will suffice. The scenic quality and abundant wildlife of the refuge guarantee a quality experience for these visitors if the refuge provides a few facilities and well conceived information about refuge programs.

#### Interpretation

The refuge's interpretive program will be the core the public use program. The message to be conveyed at Buenos Aires includes management efforts for the masked bobwhite and other wildlife, the history of the masked bobwhite and the reason for its endangered status, and the history of the refuge as a former ranch. A full time outdoor recreation planner will coordinate the

public use program, including the staffing of the visitor center and volunteer help with the public use program. A tour loop with scenic turn-outs and interpretive signs, and one or more interpretive trails will be provided. These activities are explained in more detail below.

This plan assumes that volunteer help will significantly augment the refuge's ability to offer interpretive programs to the public. Tucson, and Arizona in general, have a high percentage of retirees and others who are known for being willing and able volunteers. Trained volunteers might regularly conduct tours--auto and walking--of the refuge. **Volunteers** might be stationed at the major overlooks during peak use periods to provide visitors with **information** which augments that provided by interpretive signs. Volunteers may periodically survey visitors as they enter the refuge and/or the visitors' center to determine the preferences, needs, and **interests** of the public. This **information** would be used to shape the refuge's public use program as it expands. Efforts to develop a viable volunteer program will be an early, important task of the refuge.

The bulk of the development for, and public use of, the refuge will be in the central, headquarters/Aguirre Lake portion of the refuge. This section of the refuge (bounded by State Highway 286 on the west, Arivaca Road on the north, the short tour loop road on the east, and a line drawn just north of Mormon Lake to the northern boundary of the Forest Service's Canoa Allotment, on the south--see the master plan map) will be closed to all hunting, primarily for safety reasons. A visitors center will be located **in** the remodeled **Aguirre** House at headquarters. Exhibits, pamphlets, maps, etc. will explain important aspects of the volunteer will be in the center to answer questions and help orient visitors. From the Center, visitors may embark on the tour route or interpretive trails.

From the center, the Phase 1 tour loop will travel past **Aguirre** Lake along a ridge, to Round Hill, and then circle east back to the center. The Phase 2 loop will proceed from Round Hill farther north and east to San Luis Road, then returning to the center. Scenic overlooks along both tour loops will have interpretive signs explaining the masked bobwhite program, the value of ponds and marshy areas in arid lands, and ranch history. A segment of the Phase 1 route traverses masked bobwhite habitat. The effects of visitation and traffic on the bobwhites will be studied. Seasonal closings of the tour route might be necessary to protect these birds from disturbance at critical times. The Phase 2 segment of the tour loop will be in an area open to hunting--for safety, this section of the loop will be closed to the public during the five major hunt opening weekends each year.

An interpretive walking trail developed in Phase 1 will loop around a part of the Aguirre Lake complex. At least part of the trail will be handicapped accessible. The trail will traverse the most diverse portion of the refuge. Interpretive signs or pamphlets will explain key features of the refuge's wildlife program and history.

Conducted refuge tours, refuge programs, and public appearances allow more thorough explanations of refuge activities and objectives than interpretive signs and exhibits provide. Refuge staff and/or trained volunteers will

conduct both walking and auto tours of the refuge. Talks, slide shows, etc. given at the refuge will be emphasized; the Phase 2 objective is 100 programs per year. Public appearances are programs given off refuge; the Phase 2 objective is to respond to all requests for programs.

Typically, environmental education programs are unsuccessful at refuges as remote from schools as Buenos Aires. Therefore, there will be no provision for this activity in this plan. If demand for environmental education develops in the future, the refuge will attempt to accommodate this activity. The master plan would then be **revised** to include an objective and strategies for this use.

### Recreation

Recreational activities will include birding, **wildlife/wildlands** observation via car or hiking, photography, hunting, camping, trapping, and horseriding. Fishing will not be provided, as refuge waters would not support a self-sustained sport fisheries; it is against FWS policy for refuges to conduct put-and-take sport fisheries. Hobby collecting of plants or other refuge resources will not be allowed.

Throughout the time frame of this master plan, the public will be allowed to travel on any refuge road not specifically closed to public entry. This plan directs the refuge manager to maintain or improve public access to those areas of the refuge traditionally used **in** the past by hunters. (Buenos Aires Ranch under Victorio Company generally discouraged access except by licensed hunters.) The refuge will allow access to most areas likely to be attractive to birders and other visitors. Temporary closure of roads may be necessary during times of high fire danger, to protect roads during wet weather, or perhaps to protect wildlife during specific seasons. Even with some closures, the result will be greatly improved access for the public to refuge lands.

During both phases, visitors will be allowed to hike any refuge trail not posted closed. The intent is to allow the public access to most areas of the refuge. Only areas extremely vulnerable to damage or areas being used for sensitive research would be closed to foot travel. Many trails will lead to prime birding spots.

Photo blinds will be provided to those obtaining refuge permission. In Phase 1 at least 1 photo blind will be constructed in waterbird habitat. By the end of Phase 2, additional blinds in waterbird habitat as well as blinds in masked bobwhite habitat will be added. Horseback riding--whether commercial tours or private individuals and groups--will be allowed anywhere on the refuge north of Arivaca Road, and on a designated trail south of Arivaca Road. Riders wishing to visit other areas south of Arivaca Road on horseback will be required to obtain permission to do so. Camping while hunting is a traditional use of the former ranch which will be allowed to continue as long as no significant problems arise associated with this activity. The refuge will provide camping opportunities to the general public whereas Buenos Aires Ranch permitted only hunters to camp on what **is** now the refuge.

## Hunting

Mule and whitetailed deer, javelina, waterfowl, doves, rabbits, feral hogs, predators, furbearers, and mountain lions will continue to be hunted on the refuge. Hunts will be structured in keeping with **state** regulations, with the exception of mountain lions, predators, and furbearers, which may only be taken during the period the refuge is open for other game. That is, the refuge will be hunted from September 1 through the end of javelina season and will be closed to all hunting at other times of the year. Feral hogs may be taken during deer and **javelina** seasons.

Pronghorns, if they are successfully re-introduced to the refuge, will be a big game animal. A. a. mexicana would not be hunted until the refuges population had grown to sufficient numbers to support a hunt. A. a. sonoriensis could not be hunted until the sub-species' status were changed. *The endangered*

Effective in the fall of 1987, the entire refuge will be closed to quail hunting to protect bobwhites and to protect hunters from the serious consequences of the accidental taking of an endangered species. It might be possible some day to open parts or all of the refuge to quail hunting, but that possibility is beyond the ten year time frame of this master plan. A major traditional waterfowl and dove hunting site, Aguirre Lake, will be closed to waterfowl hunting, along with perhaps 10 minor ephemeral stock ponds in the proposed closed area. The primary public use area will be closed to all hunting--see the master plan map. Mormon Lake will remain open to waterfowl and dove hunting, as will most of the 100 stock ponds on the refuge. A few individual ponds might be closed if some particularly important and sensitive resource were threatened by activities associated with hunting. The Buenos Aires NWR be designated a special hunting unit, so that take of refuge animals can be better managed.

## Trapping, Collecting, and Gold Panning

Beginning in Phase 1, trapping will be allowed in accordance with state regulations. Trapping will be controlled by special use permits to eliminate conflicts between trappers, and between trappers and critical resources. No hobby collecting of plants or animals will be permitted. Scientific collecting will be permitted with a special use permit. No hobby gold panning will be allowed.

## ADMINISTRATION

### Cultural Resources

There have been no formal archeological site surveys on Buenos Aires NWR. The region immediately surrounding the refuge has also received little attention. Due to current budgetary constraints, the Fish and Wildlife Service is unfortunately unable to conduct extensive surveys of the refuge. Rather, localized surveys will be conducted where construction of roads,

buildings, or other facilities is planned. If significant archeological or historic resources are identified as a result of these site-specific surveys, appropriate action will be taken to assure their preservation or to mitigate the impacts of the proposed construction on those **resources**. Should significant sites be discovered by any means, the refuge will take steps to assure their protection from destructive actions.

The ranch has a well known history and several structures with historic value. These include the Garcia House and **Lopes** Ranch House, with unconfirmed original construction dates between the late 1880's to early 1900's. Other important historic structures include the Jail House, the Stables, and the Pozo Nuevo School House. The jail will be preserved and the public will be invited to view this building. The old mesquite headquarters corral will be on an interpretive trail and will initiate explanation of the former ranche's role in national quarterhorse breeding. All of the historic structures on the ranch will be accorded preservation consideration in compliance with national legislation and **FWS** policy.

#### Special Status Lands

There are no areas on the refuge which meet the requirements for inclusion in the nation's wilderness system. There are no known areas on the refuge sufficiently unique or vital to warrant their designation as national Research Natural Areas. If any entity nominates an area for such designation, the FWS will review the proposal and recommend appropriate action. The refuge may administratively close certain areas to public entry and/or manipulative management techniques, for example, to protect rare plants, particularly sensitive riparian habitat, or an area the refuge wishes to use as a control for baseline information on the succession of the ecosystem if left undisturbed.

#### Mineral, Oil, and Gas Resources, and Economic Uses

Buenos Aires NWR will accommodate compatible, limited economic uses of the refuge. Commercial and activities on the refuge must be compatible with the wildlife objectives of this plan. Wherever possible, economic activities on the refuge will be directed so as to become management tools in achieving objectives. All economic uses will require special use permits.

The FWS does not control subsurface mineral rights on any portion of the refuge. Development of mineral resources by owners or leaseholders must be allowed. Exploration for and extraction of mineral and energy resources would be subject to standard FWS policy. The FWS will work closely with any mineral explorers and/or developers to reduce potential negative impacts on refuge programs from their activities. Beekeeping will be allowed outside of the main public use area. Wood cutting will be allowed to the extent that it serves as a management tool for the restoration of Sonoran savanna grasslands and management of masked bobwhite habitat. Wood cutting would be con-

### Staffing Pattern

A staffing pattern which would assure that the master plan could be achieved (assuming adequate construction funds) within the 10 year planning horizon would be:

- Refuge Manager
- Assistant Manager
- Biologist
- Refuge Manager Trainee/Range Conservationist
- Outdoor Recreation Planner
- Clerk
- Assistant Clerk, part time
- 4 Maintenance Workers

Important skills which should be represented are wildlife biology, forestry, and range management. Up to four members of the staff will have law enforcement training and federal enforcement authority.

### FACILITY DEVELOPMENT AND MANAGEMENT

Developments required to implement this master plan are relatively modest. The bulk of these developments would be required to support the wildlife program. The rehabilitation of the **Aquirre** Lake-Grebe Pond-old farm complex into a rich aquatic habitat will be a relatively major expense of this plan, but will cost as little as \$20,000 - \$30,000 since the refuge will use existing maintenance personnel and equipment. Check dams and other structures built to aggrade Brawley Wash are the other largest single expense foreseen. If grazing does prove to be a management tool or acceptable economic use of the refuge, few or no new ranching facilities would be required. The refuge may choose to improve several roads to enhance year round access on major routes inside the refuge, but this expense might be offset by abandoning equal lengths of road and thus reducing maintenance costs.

The second largest expense associated with the master plan is the major remodeling required to use the old ranch house as a visitors' center. Small **segments** of road would be built for the tour loop and the entire tour loop will be improved to permit all-weather travel. Design and construction of interpretive signs and exhibits are standard **costs** associated with beginning an interpretive program at a new refuge. Building of trails, photoblinds and other facilities to support public use of the refuge are minor projects which might easily be constructed via youth programs or volunteer labor.

# Goals, Outputs, and Objectives

## Figure

GOAL STATEMENT	OUTPUT		CURRENT LEVEL				OBJECTIVE (10 YEAR)			
	Code	Category	UD/AN	Avg. No.	Avg. Days	Peak	UD/AN	Avg. No.	Avg. Days	Peak
Establish a self-sustaining population of masked bobwhite. Develop and manage all habitat and potential masked bobwhite habitat. To the extent possible, restore the Sonoran savannah grassland ecosystem.	701 2895	Masked Bobwhite Maintenance	62,000 UD	170	365	850	273,750 UD	750	365	1,250
Protect and provide habitat for other rare plants and animals currently existing, or at one time occurring, on the refuge. If feasible, reintroduce rare species which have been extirpated from the refuge.	701 3561	Partridge falcon Maintenance			*		Maintain	at carrying capacity.		
	701 3521	Bald Eagle Maint.			*		Maintain	at carrying capacity.		
	701	Nichol Turk's Head Cactus Maintenance					Document, monitor populations	Identify potential habitat.		
	704 3590	Aplomado Falcon Maintenance					Meet recovery plan objectives	Enhance public enjoyment, education.		
	730 8600	Pronghorn Antelope Maintenance	0	0	0		54,750 UD	150	365	250
Devote special management attention to all formally designated refuge species by supporting national, regional, and state goals, objectives, and/or strategies for these species.	724	Dabbling Ducks Plaint	126,000 UD	1,050	120	10,000	330,000 UD	2,750	120	10,000
	724	Diving Ducks Plaint.	31,200 UD	260	120	500	66,000 UD	550	120	1,000
	724	Crane Maintenance	42 UD	3	14	6	9,000 UD	100	90	200
	724	Peripheral Birds Maintenance	*	*	*	*	Maintain	at carrying capacity.		
	724	Other Birds Maint.			*		Maintain	at carrying capacity.		
	740	Reptiles/Amphibians Maintenance	*		*		Maintain	at carrying capacity.		
	730	Other Mammals Maint.		*		*	Maintain	at carrying capacity.		
	XXX	Plants Maintenance			*		Maintain	at carrying capacity.		
Ensure that habitat diversity is maintained or increased, and restore native habitats to the extent possible. Manage all wildlife species naturally occurring on the refuge to contribute to the refuge's diversity. Maintain healthy populations of these species.	724 2930	Scaled								
	2950	Gambel's								
	2960	Montezuma Quail Maintenance					Maintain	at carrying capacity.		
	730 8540	Mule Deer Maintenance	40,150 UD	110	365	140	62,050 UD	170	365	200
	730 8530	Mule Deer Maint.	292,000 UD	800	365	1,360	365,000 UD	1,000	365	1,500
	730 8001	Javelina Maintenance				*	Maintain	at carrying capacity.		
	730 8460	Mountain Lion Maint.	*	*			Maintain	at carrying capacity.		
	712, 713, 720, 721, 723	Other Waterfowl Maintenance					Maintain	at carrying capacity.		
	723	Raptors Maintenance	*				Maintain	at carrying capacity.		
	072	Rabbits Maintenance					Maintain	at carrying capacity.		
730	Predators/Scavengers Maintenance		*	*		Maintain	at carrying capacity.			

\* Note: See Objective Documentation Record for explanation of current and objective levels.



## Goals, Outputs, and Objectives

GOAL STATEMENT	OUTPUT		CURRENT LEVEL				OBJECTIVE (10 YEAR)				
	Code	Category	UD/AH	Avg. No.	Avg. Days	Peak	UD/AH	Avg. No.	Avg. Days	Peak	
Preserve, research, and interpret historic and archeologic sites.	631, 633, 634	Archeologic and Historic Sites	*		*	*				Preserve in place.	
Encourage management oriented research.	511--516	Refuge Studies	*		*					Contact research organizations.	
Increase visitors' understanding of the endangered quail & its relationship to Sonoran savanna grassland, the history of human activities in the arid southwest, and Buenos Aires NWR's role in the National Wildlife Refuge System.	040	Visitor Contact Station	150 AN	2 (0.25 hrs)	300	50	16,200 AN	90 (0.5 hrs)	360	500	
	051, 052	Interpretive Exhibits/Demonstrations	*		*					Provide Interpretive signs.	
	021	Auto Tour Route Self-guided	0	0	0	0	78,000 AN	100 (2 hours)	360	200	
	011	Foot Trails -- Self-guided	0	0	0	0	9,655 AN	27 (1 hour)	365	100	
	012, 022, 060	Other On-Refuge Interpretive Programs	250 AN	25 (1 hour)	10 programs	50	5,000 AN	25 (1 hoer) programs	200	100	
	502, 503, 504	New Releases, Appearances, Services	*	*	*						Provide information to media as needed.
	570	Other Cooperative Programs				*					Provide educational materials.
Provide quality wildlife-oriented recreation. Provide opportunities unique to southern Arizona.	321, 322	Wildlife/Wildlands Observation--Foot and Auto	7,300 AH	10 (2 hours)	365	100	12,410 AN	17 (2 hours)	365	100	
	330	Photography	*			*				Encourage wildlife photography.	
	204	Migratory Bird Hunting	270 AN	1 (3 hours)	90	10	540 AH	2 (3 hours)	90	10	
	212, 214, 215, 216	Hunting Resident Game	6,000 AH	22 (3 hours)	90	n/a	6,000 AN	22 (3 hours)	90	250	
	217	Trapping	240 AH	4 (1 hour)	60	8	540 AN	9 (1 hour)	60	10	
	300	Wildlife-Oriented Camping	9,000 AN	10 (10 hours)	90	100	13,000 AN	7.5 (10 hours)	200	30	
	460	Other Non-Wildlife Recreation		*		*					Allow horseback riding.

Objective Documentation Record

Output: 701 2895 MASKED BOBWHITE MAINTENANCE

Objective:

To establish a "self-sustaining" population as defined by the recovery plan. To exceed the recovery plan's objective for a single population. (NOTE: Recovery plan calls for 3 populations.)

Current (1985) Level:

UD/AH: 62,050 UD	Ave. No.:	170	Ave. Days: 365
	<b>Peak:</b>	850	

Objective Level:

UD/AH: 273,750 UD	Ave. No.:	750	Ave. Days: 365
	Peak:	1,250	

Production History:

The masked bobwhite (*Colinus virginianus ridgwayi*) was first described in 1884 by Herbert Brown. With the destruction of its native grassland habitat by range cattle, the bobwhite was extirpated from Arizona by 1900. By 1937 the plight of the remaining population in Mexico prompted efforts to re-establish the bird in the United States.

Attempts at restoration proved unsuccessful, and by 1950 the masked bobwhite was reported to be almost extinct in the wild. A 1964 "rediscovery" of masked bobwhite in Sonora revived interest in the bird and prompted additional attempts at restoration. These attempts were also unsuccessful and the masked bobwhite was among the fauna originally listed in the Federal Register after the passage of the Endangered Species Act of 1969.

Searches for suitable release sites within the historic range of the masked bobwhite, which included the Altar Valley, began in 1969. Experimental releases made by the U.S. Fish & Wildlife Service, from 1975-1979, led to the re-establishment of a sizeable population on the privately-owned Buenos Aires Ranch. In 1977 natural reproduction of reintroduced masked bobwhite was confirmed at this location. At its peak in 1979, this population consisted of at least 74 calling males. However, two dry summers coupled with excessive cattle grazing subsequently caused a drastic reduction in this population. cursory investigations in 1982 and 1983 confirmed only a few birds remaining in the area. In 1985, additional summer surveys failed to reveal evidence of existing masked bobwhite on the Buenos Aires Ranch. On August 1, 1985, the U.S. Fish & Wildlife Service purchased the Buenos Aires Ranch for inclusion into the National Wildlife Refuge System. Three months later, a wild adult male masked bobwhite was seen at the refuge headquarters, indicating some survival of the population thought to have been lost.

#### Rationale for Objective:

Masked bobwhite habitat in Sonora is relatively open, subtropic, summer-active, savanna grassland within dry-tropic scrub. The scrub components are characteristic of Sinaloan thornscrub and Sonoran desertscrub. At the extreme northern edge of the masked bobwhite range, these components include a mixture of Sonoran species and dry tropic species of warm temperate semidesert grassland. The potential for abundant grass cover is seasonal in this Sonoran savanna grassland, as is the potential for a variety of summer-active forb and weed species.

Historically the Altar Valley of Arizona was a northern most representative of the Sonoran savanna grassland. In the vicinity of the refuge, this community has since been altered to a semidesert grassland, characterized by a perennial grass-scrub dominated landscape (See "Refuge Description"). Here, masked bobwhites are associated with mesquite-grass bottomlands and broad level plains. Recent investigations of reintroduced masked bobwhite in the Altar Valley revealed that the quail almost exclusively used the bottomlands of the main and side drainages of intermittent washes. Within this general habitat type, the bobwhite had a specific range of preferences for overstory shrub cover and grass-forb density and diversity.

Preliminary studies showed that habitat factors important to survival and successful reproduction of migratory bird wildlife on the refuge include:

1. A minimum of 15-30% overstory cover of shrubs and brush-piles.
2. A high diversity of grasses and forbs, with a minimum of 18-20 species.
3. A minimum standing grass crop of 397 lb./ac. and 12-15% grass cover.
4. A minimum standing forb crop of 265 lb./ac. and 10-15% cover.

It is important to note that our knowledge of masked bobwhite ecology remains limited and that these criteria represent preliminary data that will be refined through further study.

#### Definitions:

The estimated quality and extent of bobwhite habitat on the refuge is currently rated as follows:

1. Suitable and high potential habitat (SHPH): Areas that currently support or which are probably suitable for masked bobwhite, and lack none or one of the necessary habitat factors (25% of total).

2. Medium potential habitat (MPH): Areas not currently suitable for masked bobwhite, lacking in 2 or more of the necessary habitat factors (65% of total).
3. Low potential habitat (LPH): Areas requiring major revegetational efforts to be suitable for masked bobwhite; not expected to recover in the near future (5% of total).
4. Not suitable habitat (NSH): Areas that never will be suitable for masked bobwhite (5% of total).

The endangered status of this species constitutes the demand. The current use figures are based on the first year's release of 850 birds and assumes a 20% survival rate, which is normal for wild quail. The objective is based on the recovery plan's definition of a **stable**, self-sustaining population. The recovery plan calls for a "self-sustaining" population, defined as an annual average of 200 calling males which, without supplementation, has maintained its numbers for at least 5 years (or one wet/dry cycle) and has never fallen below 100 calling males (or 250 birds). The averaging period will not begin until the year following the last release. If one assumes the population consists of 60% males (Rosene, 1969), the actual population would be 2.5 times the number of calling males.

The major constraints to meeting the demand and objective include the degree to which the habitat requirements of this species can be met or reconstructed on the refuge, and the ability of propagated masked bobwhites to survive and populate the area. All reasonable efforts will be made to overcome these constraints.

The masked bobwhite is the highest priority output on Buenos Aires NWR. Management for no other output, wildlife or public use will be allowed to unduly hinder efforts to recover this bird. In order to support the recovery plan's educational programs, a representative portion of bobwhite habitat will be made available to the public for viewing. Public use within critical bobwhite areas will be limited to those uses that will have minimal impact on bobwhite. Some trade-offs **involving** potential bobwhite habitat for other wildlife outputs and public uses will include very limited road and trail construction. All trade-offs will be carefully considered and weighed against any resulting negative effects upon the overall bobwhite population.

#### Strategy for Accomplishing Objective:

1. Bobwhite reintroductions and follow-up--phase 1:

Reintroduction efforts will focus on the chick adoption method using wild Texas bobwhites as foster-parents. Additional adoption experiments using scaled quail, retrapped masked bobwhites, or wild masked

bobwhites as foster parents will be conducted on a limited basis. Releases will continue through 1988 within all available habitat on the refuge, beginning with the best suitable and progressing to the least, until all potential areas are considered to have been adequately stocked. Supplemental releases of wild stock from Mexico will be made when feasible.

Systematic follow-up studies will be conducted during late autumn with trained bird dogs and during the summer by conducting call-count routes. Radio telemetry and other research aimed at increasing knowledge of bobwhite ecological requirements will be implemented.

## 2. Bobwhite management--phase 1:

Control of specific predator species will be considered if they are found to significantly hinder recovery efforts. During the establishment period, quail hunting on the refuge will be limited or entirely closed for the protection of both the bobwhite and the quail hunter. Law enforcement and hunter contacts will be increased to aid public awareness of masked bobwhite. Public education programs will also be implemented.

## 3. Habitat management--phases 1 and 2:

Habitat management and experimental manipulations will be conducted on a limited basis. A variety of management techniques can be applied for the purpose of increasing shrub cover, grass/forb diversity, and bottomland stabilization. Examples of techniques to be explored:

### Shrub cover:

Brush piling  
Native shrub planting  
Mesquite half-cutting

### Diversity:

Burning  
Grazing  
Planting  
Water diversion

Guidelines for planting and reseeding will include:


- A. Emphasis will be on restoring native plants and reconstructive ecology.
- B. Seeds and plants will be gathered from the local area when possible.
- C. Plantings will be tested for benefits to masked bobwhites.
- D. The refuge may introduce critically important exotic plants if bobwhites do not respond to above methods.

# BUENOS AIRES NATIONAL WILDLIFE REFUGE

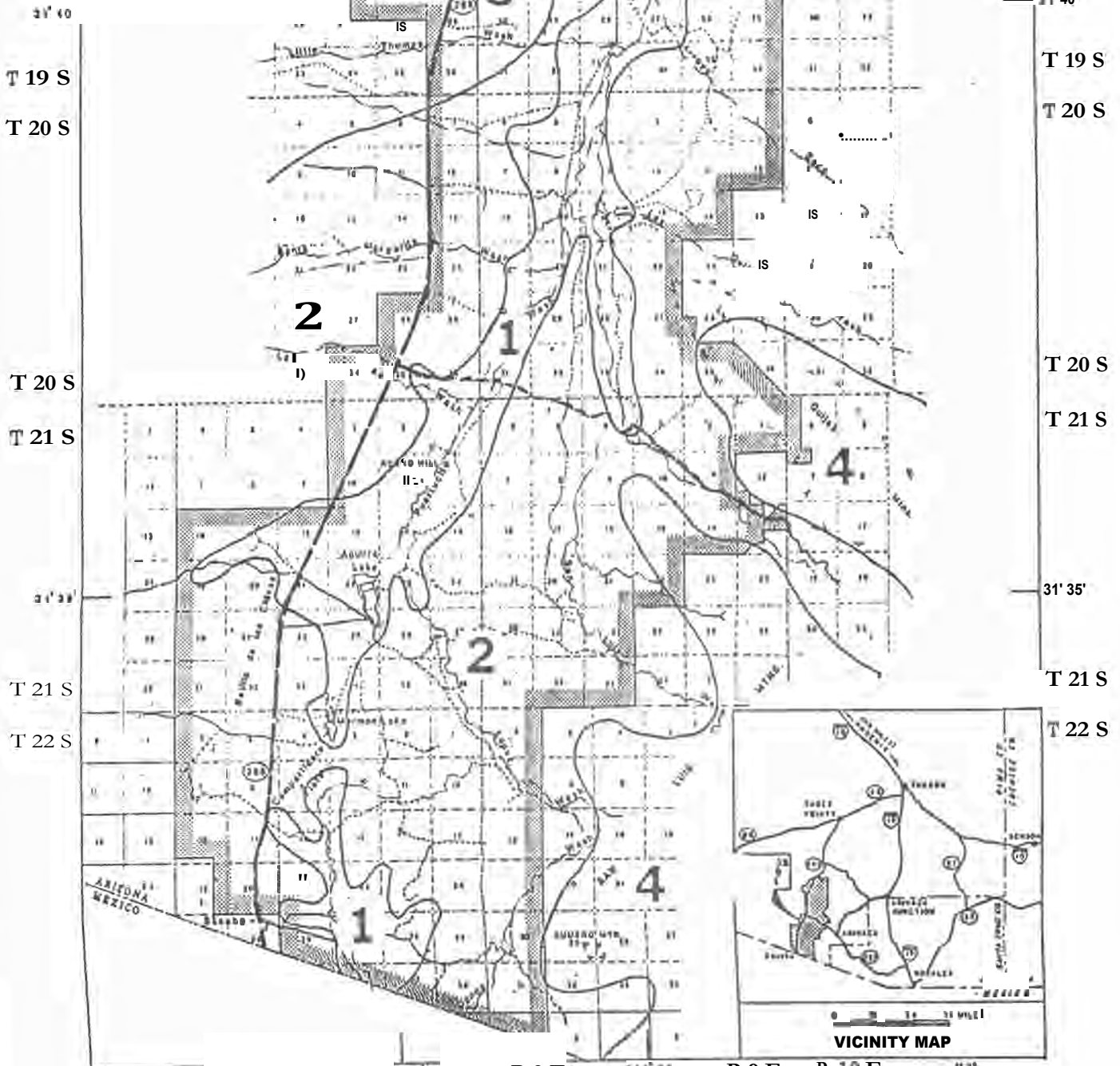
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
R 8 E

PIMA COUNTY, ARIZONA

UNITED STATES  
FISH AND WILDLIFE SERVICE

**LEGEND**  
 REFUGE BOUNDARY  
 MASKED BOBWHITE HABITAT

1. Suitable / High Potential
2. Medium Potential
3. Low Potential
4. Not Suitable



R 8 E      R 9 E      R 10 E  
 GILA AND SALT RIVER PRINCIPAL MERIDIAN  
 COMPILED IN REALTY FROM U.S.G.S. QUADRANGLES, O.L.O. PLATS, AND SURVEYS BY F.W.R.

ALBUQUERQUE, NEW MEXICO    JULY 1988

MEAN DECLINATION 1978  
 2R ARIZ. 1038 410

## Objective Documentation Record

Output: XXX      NICHOL TURK'S HEAD CACTUS MAINTENANCE

### Objective:

To determine if suitable habitat exists on the refuge. To document and monitor any established populations. To identify areas of potential habitat on the refuge.

No numerical objective can be set at this time due to lack of data. If this plant is found on the refuge, a numerical objective will be set.

### Production History:

### Rational for Objective:

This cactus generally occurs on limestone slopes in desert hills between 2400-3600 feet elevation within the paloverde-saguaro (mixed cactus) community and may occur on the refuge. Primary threats to this species appear to be exploitation by cactus collectors and habitat destruction from off-road vehicular activities. The endangered status of this plant constitutes the demand for it. Demand is contingent on the presence of suitable habitat. No trade-offs are foreseen for this species in the management of the Buenos Aires NWR.

### Strategy for Accomplishing Objective:

Thoroughly inventory refuge properties. This species should receive high priority in such activities. If this plant is found on the refuge, all locations should be protected until further guidance is available in a revised recovery plan.

Phase 1.

## Objective Documentation Record

Output: 704 3590      APLOMADO FALCON MAINTENANCE

### Objective:

Based on findings by the recovery effort, to restore an historic species indigenous to the Sonoran savannah grassland ecosystem. To meet recovery plan objectives, if they include use of Buenos Aires NWR. To enhance public viewing enjoyment and education.

No numerical objective will be set at this time. Numerical objectives may be set, based upon the recommendation of the recovery effort.

### Production History:

The northern race of the aplomado falcon may or may not have been non-migratory. It occurred in southeastern Arizona, southern New Mexico, southern Texas, much of Mexico, and the western coast of Guatemala. Primarily as a result of habitat modification, it is now extirpated as a breeding species in the U.S. and is known to nest only in parts of eastern Mexico. There are no records documenting this species in the Altar Valley. The refuge is considered to be within possible historic range and to offer potential habitat for introduction of captive bred aplomados.

### Rational for Objective:

The aplomado favors open yucca savannah with adequate prey. The endangered status of this species constitutes the demand. The availability of suitable habitat on the refuge and the ability of release stock to survive and reproduce are the primary constraints. What trade-offs or conflict resolution might be required are unknown at this time.

### Strategy for Accomplishing Objective:

Improve habitat for grassland and aquatic prey species. Maintain tall, scattered mesquite trees. Conserve established corvid and raptor sticknest sites. Cooperate with the recovery effort as requested. If Buenos Aires is recommended as a reintroduction site, evaluate possible conflicts with other outputs.

Phase 2, depending on the recovery plan schedule.



## Objective Documentation Record

Output: 730 8600      PROGNHORN ANTELOPE SPECIES OF SPECIAL EMPHASIS  
MAINTENANCE

### Objective:

To reintroduce a self-sustaining population of pronghorn antelope of sufficient size to allow public use opportunities on the refuge.

Current Level:

<b>UD/AH:</b>	0	Ave. No.:	0	Ave. Days:	0
		Peak:	0		

Objective Level:

UD/AH:	54,750 UD	Ave. No.:	150	Ave. Days:	365
		Peak:	250		

### Production History:

The Altar Valley was once inhabited by a large herd of antelope. When early explorer Raphael Pampelly crossed Arizona in June, 1861, he reported "great herds of bounding antelope" in the Altar Valley (Wallace, 1965). Mr. Manuel King, owner of the Anvil Ranch and resident in the Altar Valley in 1885, reported up to 200 animals in a herd. The last band he recalled seeing was in 1906. It had approximately 30 members. Only occasional groups were seen after that and none have been seen since 1933 (Arrington, 1942). The reason for decline has been attributed to poaching, competition from domestic cattle and horses, and overhunting.

In 1945, the Arizona Game & Fish Department reintroduced antelope to the area using Antilocapra mexicana americana. This herd slowly dwindled to a few animals reported on the north end of the refuge in 1977 (Vensel, 1977). Recent sightings of three or less antelope have been reported east of Arivaca.

The pronghorn subspecies native to the Altar Valley is uncertain. Two subspecies of pronghorn are possible candidates for reintroduction, A.a mexicana and A.a sonoriensis. It is possible that an intermediate form may have inhabited the Altar Valley. The eastern extent of the range of sonoriensis is questionable. The present range of sonoriensis is known to be west of the Baboquivari Range within the Sonoran Desert habitat. The Altar Valley is a semidesert grassland probably more typical of mexicana habitat to the east. Further study of which subspecies should be reintroduced to the refuge is therefore necessary.

#### Rationale for Objective:

Pronghorns generally require open, expansive terrain. They depend on their remarkable eyesight for protection against humans and predators. Quality and quantity of vegetation appear to be major factors affecting pronghorn densities. Research on northern ranges specifies habitat factors which are important to pronghorn production and survival. Habitat criteria for Buenos Aires may, however, be quite different. Water can be a critical requirement during dry seasons. Adequate cover during the fawning season is critical for fawn survival. Barriers such as pasture and highway fences impede the movement of antelope and restrict their range. Other limiting factors include predators (such as coyote, bobcat, and eagles), livestock diseases, and poaching.

Restoration of a species that historically occurred on the refuge, and providing for public uses such as hunting, viewing enjoyment, and education constitute the demand for this output and justify making pronghorns a refuge species of special emphasis. Numerical objectives will be determined in cooperation with the study team. The objective figures given above represent a herd size sufficient to be self-sustaining, given natural predation, and to afford public use opportunities. Habitat management strategies will be compatible with masked bobwhite objectives; no trade-offs with bobwhites or other endangered species are foreseen. Public use may have to be limited in critical portions of the antelope range during fawning periods. The availability of suitable release stock and its ability to adapt and reproduce successfully on the refuge are primary constraints.

#### Strategy for Accomplishing Objective:

Because the pronghorn is a large, highly visible species native to the refuge, it has been termed a "refuge species of special emphasis" and is considered a high priority output for Buenos Aires. Therefore, a study team, having members from the refuge and Arizona Game and Fish Department, will be formed as soon as possible after approval of the master plan.

The team will:

- o Determine which subspecies of antelope is most appropriate for release onto the refuge.
- o Conduct a feasibility study to determine the extent and quality of potential antelope habitat on the refuge.
- o Estimate antelope carrying capacity.
- o Develop a release plan.
- o Negotiate for release stock.

If the release proves feasible, the refuge , in concert with Arizona Game and Fish Department, will carry **out** the release plan. Actions which may be required or considered include:

- Modify existing pasture **fences** to meet antelope requirements, for example remove or elevate bottom wires to a minimum of 16 inches, and remove stays.
- Implement coyote control measures one month prior to and during fawning.
- On-going monitoring.
- Habitat manipulations recommended by the release plan.
- Consider selective harvest of antelope.

Phase 1.

# BUENOS AIRES NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR

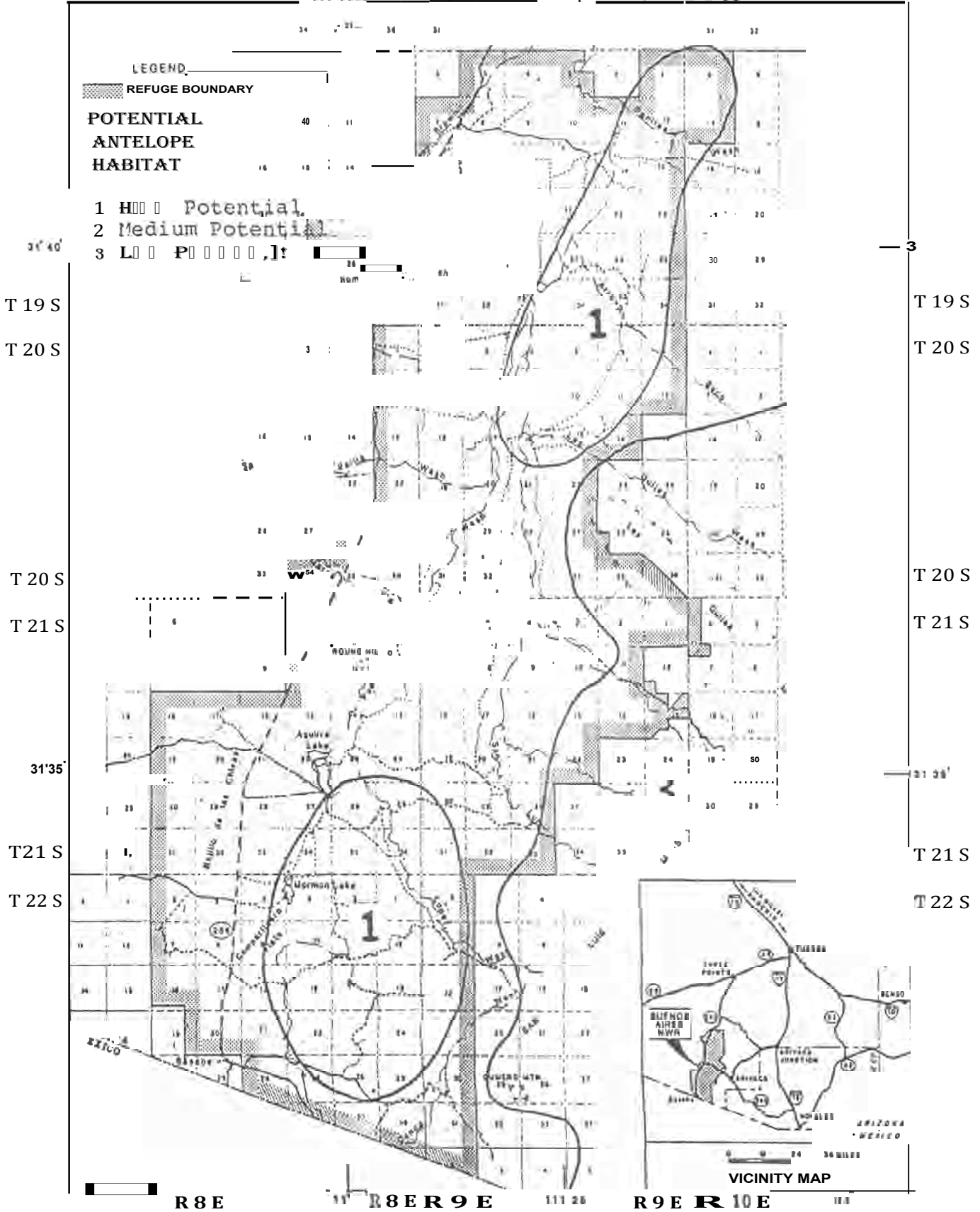
PIMA COUNTY, ARIZONA

UNITED STATES  
FISH AND WILDLIFE SERVICE

R 8 E

R 8 E R 9 E

R 9 E R 10 E



**LEGEND**  
 REFUGE BOUNDARY  
**POTENTIAL ANTELOPE HABITAT**  
 1 High Potential  
 2 Medium Potential  
 3 Low Potential



COMPILED IN REALTY FROM  
U.S.G.S. QUADRANGLES, G.L.O.  
PLATE AND SURVEYS BY F.W.H.

GILA AND SALT RIVER PRINCIPAL MERIDIAN

0 1 34.13 4 5 9 MILES

ALBUQUERQUE, NEW MEXICO JULY 1888

0 1 2 3 4 5 1 KILOMETERS

MEAN DECLINATION  
1970

2R ARIZ. 1038 410

## Objective Documentation Record

Output: 724 DABBING DUCKS SPECIES OF SPECIAL EMPHASIS MAINTENANCE

### Objective:

To provide habitat for dabbling ducks. To support the refuge diversity goal and provide public viewing enjoyment.

#### Current Level:

UD/AH: 126,000 UD	Ave. No.: 1,050	Ave. Days: 120
	Peak: 10,000	

#### Objective Level:

UD/AH: 330,000 UD	Ave. No.: 2,750	Ave. Days: 120
	Peak: 10,000	

### Production History:

The refuge is located along the eastern extension of the Pacific Flyway. Ducks common to the flyway are winter visitors to the refuge. Diversity and abundance of ducks using the refuge is dependent on availability of open water. During periods of high rainfall, runoff fills the refuge's numerous ponds and marsh areas providing approximately 200 acres of surface water; refuge dabbling ducks generally peak at 10,000 birds. Peak numbers occur in September migration and numbers gradually diminish as migration proceeds and as available natural aquatic plants and open water become less available. Pintails, green-wing, cinnamon teal, shovelers and mallards are the most common refuge species. The mallards, wood ducks, and black bellied whistling ducks are national species of special emphasis. The only dabbling species that nests on the refuge is the black bellied whistling duck.

### Rationale for Objective:

Dabbling ducks are typically birds of fresh, shallow marshes and rivers. Their diet consists largely of grains and aquatic vegetation.

Mallards and wood ducks are **FWS** national species of special emphasis; black bellied whistling ducks are listed by Arizona. There is no demand from the flyway or FWS regional resource plans to support these birds on the refuge. Refuge goals for diversity and public desire to view or hunt these birds constitutes the demand. Several species are formally designated as deserving special management efforts in some areas of the flyway but Buenos Aires is not included. Dabblers are therefore refuge species of special emphasis.

As with the other waterfowl, the current level and objective level are based on refuge observations of average and flood years, respectively. The lack of available water in a naturally arid environment is an

overall constraint, but in most years the refuge will be able to meet its objective. A small amount of potential masked bobwhite habitat may be devoted to wetlands management. The amount of habitat, dollars, and staff time devoted to waterfowl will not be allowed to jeopardize refuge objectives for endangered species. The amount of bottomland considered for wetlands management will not jeopardize masked bobwhite recovery.

Strategy for Accomplishing Objective:

Improve water retention capabilities of existing impoundments to increase amount and duration of available habitat. Increase water retention capabilities of existing water impoundments by cleaning out silt and fortifying dams and outlets. Limited pumping may be necessary to maintain surface water during dry seasons. Create islands and a network of canals in Aguirre Lake. Plant appropriate natural food crops in old farm area. Manage all waterfowl food planting in keeping with preferred natural wetlands management techniques. Provide nest boxes for black bellied whistling ducks; no other ducks will be encouraged to nest or overwinter on the refuge. Eventually, when staff time and funds permit, one or more ponds north of Arivaca Road will be improved to provide dependable winter wetland habitat for dabblers and other waterbirds.

Phase 1 and 2.

Objective Documentation Record

Output: 724 DIVING DUCKS SPECIES OF SPECIAL EMPHASIS MAINTENANCE

Objective:

To provide limited habitat for diving ducks. To support the FWS national strategies, the refuge's diversity goal, and provide for public viewing opportunities and enjoyment.

Current Level:

UD/AH: 31,200 UD	Ave. No.:	260	Ave. Days: 120
	Peak:	500	

Objective Level:

UD/AH: 66,000 UD	Ave. No.:	550	Ave. Days: 120
	Peak:	1,000	

Production History:

Diving ducks (including canvasbacks, redheads, ruddy ducks, lesser scalp, and ringnecked ducks) use refuge ponds and marshes for resting. Canvasbacks and redheads are the two most common diving species using the refuge. Ruddy ducks are expected to nest on the refuge.

Rational for Objective:

As their name implies, diving ducks are adapted to foraging in deep water. Deep water impoundments containing a diverse aquaculture of plant and animal life are preferred by these species. The diets of diving ducks include fish, shellfish, mollusks, and aquatic plants.

Canvasbacks and redhead ducks are FWS national species of special emphasis. However, there is no demand from the flyway or FWS regional resource plans to support these birds on the refuge. The FWS policy which supports diversity and public desire to view or hunt these birds constitutes the demand, and justifies making these birds refuge species of special emphasis. The lack of deep water on the refuge during migration will limit divers. A small amount of potential masked bobwhite habitat will be devoted to waterfowl management. The amount of habitat, dollars, and staff time devoted to waterfowl will not be allowed to jeopardize refuge objectives for endangered species. The amount of bottomland considered for wetlands management will not jeopardize masked bobwhite recovery. As with geese, the current and objective levels are based on observations of diving duck use during average conditions and during the 1983 floods, respectively.

Strategy for Accomplishing Objective:

Without supplemental pumping, few impoundments on the refuge can maintain sufficient water depths for diving ducks year round. Grebe Pond will occasionally be an exception, depending on the amount of summer runoff.

The refuge will increase the depth of Grebe Pond and maintain an adequate water level, supplementing summer runoff with limited pumping as needed. No management will be done to encourage these species to nest or overwinter on the refuge; ruddy ducks may nest without special provisions.

Phase 1.



## Objective Documentation Record

Output: 724 GEESE SPECIES OF SPECIAL EMPHASIS MAINTENANCE

### Objective:

To provide habitat for geese incidental to management for other water-fowl species more adapted to the habitat found on the refuge. To support FWS national strategies, the refuge's diversity goal, and to provide the public with increased opportunity to view species that are generally uncommon to the arid southwest.

#### Current Level:

UD/AH: 42 UD	Ave. No.: 3	Ave. Days: 14
	Peak: 6	

#### Objective Level:

UD/AH: 9,000 UD	Ave. No.: 100	Ave. Days: 90
	Peak: 200	

### Production History:

The Altar Valley has never been a major migration route for geese. The refuge ponds and marshes provide marginal habitat for small numbers of snow, white-fronted and Canada geese. Generally the birds observed on the refuge consist of small family groups that use the larger bodies of open water for rest during their migration flights into Mexico. Goose use on the Buenos Aires NWR is correlated to adequate water in Aguirre and Mormon Lakes. During flood conditions in 1983, approximately 300 geese used the newly flooded fields throughout most of the winter. There are no agricultural crops grown on or in the vicinity of the refuge to encourage prolonged periods of use. Geese are not expected to nest on the refuge.

### Rational for Objective:

For roost sites, geese prefer large bodies of open water which provide good visibility against predators (humans included). They require a nearby foraging area that also provides good visibility and offers such favored foods as grain, sorghum, corn and soybeans.

Canada, snow, and whitefronted geese are all FWS National Species of Special Emphasis. However, there is no demand from the flyway or FWS regional resource plans to support these birds on the refuge. FWS policy, which supports diversity and public desire to view or hunt these birds, constitutes the demand and justifies making geese refuge species of special emphasis. The lack of nearby grain fields and the limited amount of surface water on the refuge are major constraints to this output. Current goose use is based on observations when water is generally lacking and no food is available. The objective level is

based on observations when water levels were high (1983) and the season of use assumes a small food plot to hold geese. Management for geese on Buenos Aires is low priority. Management for other wildlife outputs will take precedence but may provide incidental benefit to the geese.

Strategy for Accomplishing Objective:

Water bodies on the refuge will attract geese to Buenos Aires. Moist soil management or a small planted area in the old farm near **Aquirre** Lake will encourage them to remain awhile. No attempt will be made to winter geese or encourage them to nest at Buenos Aires.

Phase 1 or 2.

## Objective Documentation Record

Output: See Below

Objective:

To maintain these species at carrying capacity, given the habitat changes resulting from management undertaken for higher priority species.

Rationale for Objective:

All of these species have been designated as deserving of management attention either through the Endangered Species Act, via listing by the State, via FWS national and regional resource plans, or because they are of special **importance** at Buenos Aires NWR. Only limited management efforts will be devoted to these species, either because a given population would not benefit appreciably from refuge management or because management activities for other species will incidentally benefit these animals

The following outputs are listed in priority order:

Output: 701 3561 PEREGRINE FALCON MAINTENANCE

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Production History:

This raptor (***Falco peregrinus***) is irregularly sighted on the refuge. There are historic and recent nesting records in the mountains around Altar Valley. The refuge provides foraging habitat for both nesting and migrating peregrines. No nesting habitat is available on the refuge.

Rationale for Objective:

The endangered status of this species constitutes the demand. Sightings of two birds in 1985 indicated that perhaps two pair territories are possible on the refuge once the prey base increases. No conflicts or constraints to meet demand are foreseen. The endangered status of the peregrine gives **it** a high priority in any potential conflict of needs with other refuge outputs. However, there are potential conflicts between bobwhites and peregrines which would in most cases be resolved in favor of the bobwhites. No management for other outputs will be allowed to degrade peregrine habitat.

Strategy for Accomplishing Objective:

Improving grassland and aquatic habitats for other outputs will increase populations of prey species used by peregrines, and thus increase foraging opportunities. Peregrines' use of the refuge will be monitored incidental to normal refuge activities.

Output 701 3521 BALD EAGLE MAINTENANCE

Production History:

Bald eagles (Haliaeetus leucocephalus) are very irregularly sighted on the refuge during winter.

Rationale for Objective:

The lack of suitable aquatic habitat with large available fish limits the use of the refuge by bald eagles, although the presence of waterfowl somewhat offsets this. No nesting habitat is available. The endangered status of this species constitutes the demand. No constraints to meeting the objective are foreseen. The endangered status of bald eagles give them priority in most conflicts of needs. Management for other outputs will not be allowed to degrade bald eagle habitat.

Strategy for Accomplishing Objective:

Improving aquatic habitat will increase prey populations (waterfowl) used by bald eagles, thus increasing foraging opportunities for this species. Bald eagles will be counted incidentally to censusing for other species.

Output: 724 PERIPHERAL BIRD SPECIES OF SPECIAL INTEREST MAINTENANCEProduction History:

A variety of bird species reaching their northernmost distribution limits in southern Arizona occur on or near the refuge as local, sparse residents or transients. Such species include the caracara, gray hawk, black shouldered kite, tropical kingbird, rose throated beccard, thick-billed kingbird, northern beardless tyrannulet, kiskadee flycatcher, least grebe, and green kingfisher.

Rationale for Objective:

These species largely depend on riparian, wetland or grassland habitats, with the exception of the caracara which normally occurs in the Sonoran desertscrub community. All occur too sporadically to allow numeric objectives to be established for the refuge. However, restoration of riparian, grassland, and marshland habitats will encourage these species. The species included in this group are formally designated as meriting special management. No constraints or conflicts are foreseen.

Strategy For Accomplishing Objective:

Monitor these species incidental to other refuge activities. Identify key habitats on the refuge that are important to each of these species. Restore riparian, grassland and marshland habitats to encourage these species in concert with masked bobwhite. Implement management programs designed to minimize conflicts between recreationists observing or studying these species and other refuge visitors.

Output: 724 OTHER BIRD SPECIES OF SPECIAL EMPHASIS MAINTENANCE

Production History:

Many "other bird" species of special emphasis are known to occur on or around the refuge:

Breeding Species: golden eagle, mourning dove, and white-winged dove (all NSSEs) Swainson's hawk, western yellow-billed cuckoo (both C2's)

Wintering Species: ferruginous hawk (C2) baird's Sparrow, Sprague's pipit (ASL)

Migrant Species: osprey (NSSE), long-billed curlew, western snowy plover, white-faced ibis (all C2s)

Vagrants: brown pelican, sandhill crane (NSSEs), California black rail (C2)

The great diversity of habitats available on the refuge makes it an especially valuable resource for migrating songbirds. Though reliable lists are available only for recent years and from a few observers, about 150 songbird species have been recorded on the refuge. Of these, probably about one-third occur only as migrants. Many of these species are under stress from tropical deforestation and adequate habitat along their migration route is essential for their continued success. A number of **songbird species** occur on or near the refuge as winter residents. Many of these are grassland birds, including the two state-listed species noted above, Baird's sparrow and Sprague's pipit.

Rationale for Objective:

The special status of these species constitutes the demand. No constraints are foreseen. No significant conflicts are foreseen.

Strategy for Accomplishing Objective:

Identify areas and habitats on the refuge that are important to these species. Monitor and document occurrences of these species on or near the refuge through Christmas bird counts, breeding censuses, and other incidental sightings.

Output: 740 REPTILE AND AMPHIBIAN SPECIES OF SPECIAL EMPHASIS MAINTENANCEProduction History:

## Reptiles:

The refuge provides habitat for a large variety of reptiles. Some of the more unique or rare species include: the Gila monster (Heloderma suspectum), possibly the vine snake (Oxybelis aeneus), desert tortoise (Gopherus agassizi), box turtle (Terrapene ornata), and yellow mud turtle (Kinosternon flavescens). Because of their limited range in the U.S. or Arizona, these species have been designated as follows:

Gila monster (CC2)	vine snake (ASL)
desert tortoise (CC2)	yellow mud turtle (CC3)
	box turtle (ASL)

## Amphibians:

Recent surveys of refuge ponds indicate the presence of tiger salamanders (Ambystoma tigrinum, cf. mavortium) and ranid frogs (Rana spp.). The salamanders probably represent an introduced population and specimens are now being evaluated at Arizona State University. The bullfrog (Rana catesbeiana), has been introduced to the refuge and the leopard frog (R. pipiens) is a native. Although surveys are not yet complete, a number of arid-land amphibians also should be present, including some species that occur in the U.S. or Arizona only in the vicinity of the refuge (marked with an asterisk below): narrow-mouthed toad\* (Gastrophryne olivacea), Sonoran green toad\* (Bufo retiformis), Colorado River toad (B. alvarius), red-spotted toad (B. punctatus), Great Plains toad (B. cognatus), possibly Woodhouse's toad (B. Woodhousei), Western and Couch's spadefoot toads (Scaphiophus hammondi s. couchi), canyon tree frog (Hyla arenicolor), burrowing tree frog\* (Pternohyla fodiens), western barking frog\* (Hylactophryne augusti), and perhaps Tarahumara frog\* (Rana tarahumarae). The following have been formally designated:

Sonoran green toad (CC2)	Tarahumara frog (ASL, CCl)
burrowing tree frog (ASL)	narrow-mouthed toad (ASL)

Rationale for Objective:

The limited range and distribution of these species within the U.S., and their formal designations, constitutes the demand for preserving existing habitats and populations. Unique populations of some species may be jeopardized by lack of water, indiscriminate collecting, habitat destruction (in mining), or introduction of exotic species. Management strategies for endangered fishes and amphibians may conflict. These conflicts will be resolved on a case by case basis. Wetlands management will increase habitat for some of these species.

Strategies for Accomplishing Objective:

Survey and monitor all species of special emphasis. Maintain a number of smaller tanks free of potential competitors and predators such as fishes.

Output: 730 MAMMAL SPECIES OF SPECIAL EMPHASIS MAINTENANCEProduction History:

The antelope jackrabbit and pronghorn antelope are both mammal species of special interest (RSSE). See separate ODRs for these two species.

The pocketed free-tailed bat (Tadarida femorosacca) is an ASL species and is found from high mountains to low deserts in southern Arizona.

The Underwood's Mastiff bat (Eumops underwoodi) is a C2 species and is known from only one locality in the United States, which is on the refuge. This species occurs on the refuge in the summer to breed and winters in Mexico.

Rationale for Objective:

The pocketed free-tailed bat is a colonial bat often congregating in large numbers in caves. This bat feeds on night-flying insects, especially small moths. This species is known to occur on the refuge during the summer months where it breeds then returns to winter in Mexico. The Underwood's mastiff bat inhabits areas with high rocky cliffs near larger bodies of open water at edges of the desert. This large bat feeds entirely on nightflying insects. Day roosts are in small colonies (50-60 individuals) in rock crevices high above a canyon floor. Although few, if any, areas of the refuge provide day roost habitat, the larger bodies of water available do provide suitable foraging habitat for this species.

The formal status of these species coasstitutes the demand. It is possible that these species could be found roosting in refuge facilities (barns, houses, etc.) causing some conflicts.

Strategy for Accomplishing Objective:

Monitor and document occurrences of these species. Provide foraging habitat. Protect and preserve all day roost sites found on the refuge.



Output: XXX PLANTS SPECIES OF SPECIAL EMPHASIS MAINTENANCE

Sheer's Strong-spined Cory Cactus--Coryphantha scheeri var. robustispina  
Santa Cruz Striped Agave--Agave parviflora  
Needle-spine Pineapple Cactus--Neolloydia erectocentra var. erectocentra

Production History:

Rationale for Objective:

Coryphantha Scheeri var. robustispina is a candidate category one species and is protected under the Arizona Native Plant Law. Threats to this species include collection and habitat degradation.

Agave parviflora is a candidate category two species. The primary threat to this species appears to be collecting for the cactus and succulent trade. Mining related roadways have had impact on several populations. This species is protected under the Arizona Nature Plant Law.

Neolloydia erectocentra var. erectocentra is a candidate category 2 species and is protected under Arizona Native Plant Law. Threats to this plant include trampling by cattle and ingestion by rodents. The greatest threat to its continued existence, other than total habitat destruction which is extremely unlikely, is collection by succulent fanciers. Surface mining could disrupt habitat needed by the pineapple cactus. Prescribed burns and wildfires could threaten the cactus' habitat.

The demand for these plants reside in their status as Category 1 and 2 species under the Endangered Species Act. The practical constraints of staff, time and dollars limit our ability to manage these plant species. Demand is contingent on the presence of the species on the

refuge. No conflicts are foreseen with the possible exception of burning on Neolloydia; burning will not be allowed to negatively impact existing populations of Neolloydia on the refuge.

Strategy for Accomplishing Objective:

Known population(s) of these plants will be surveyed and mapped. Potential habitat will be surveyed and any populations discovered will be mapped. The refuge will not allow collection of these species from land under their management. The refuge will protect and conserve populations found on the Buenos Aires. If management activities for higher priority species are planned in the future which might effect any of these plants, the refuge staff will discuss the activities with FWS Endangered species botanists. The reduction of excessive grazing, general improvement of habitat conditions, and control of public access that will occur under normal management operations will help ensure survival of these plants on Buenos Aires NWR.

OUTPUT: 730 ANTELOPE JACKRABBIT SPECIES OF SPECIAL EMPHASIS MAINTENANCEProduction History:

Unlike the blacktailed jackrabbit (Lepus californicus), which occurs throughout the southwest, the antelope jackrabbit (Lepus alleni) is restricted to the central third of the southern half of Arizona. Although populations fluctuate greatly, it is relatively common on the refuge. Current distribution of this species is refuge-wide, however, little is known of its seasonal movements.

Rationale for Objective:

The largest member of the rabbit family, the antelope jackrabbit is found primarily in the semi-desert grassland and is considered an indicator species of this unique biotic community. For this reason it is a refuge species of special emphasis. Habitat quality is a major limiting factor for this species. Because of its limited range in Arizona and its present unprotected status, this species may require special management consideration in the future. Refuge goals to promote diversity and preserve wildlife native to the desert grassland ecosystem constitute the demand for this animal. This is currently a low priority wildlife output. Management for higher priority species will take precedence over the needs of this animal unless or until its status changes.

Strategy for Accomplishing Objective:

Monitor incidental to normal refuge activities.

Output: 724 QUAIL PRODUCTION AND MAINTENANCE

2938 SCALED QUAIL  
2950 GAMBEL'S QUAIL  
2960 MONTEZUMA QUAIL

Production History:

Presently scaled quail (**Callipepla squamata**) are the most abundant and wide-spread quail species on the refuge. Gambel's quail (**Lophortyx gambelii**) are also common. Montezuma quail (**Cyrtonyx montezumae**) are normally restricted to the higher elevations of the refuge but in wet years have been found near the refuge headquarters. For each species, population numbers vary according to the amount and timing of rainfall.

Rationale for Objective:

Scaled quail prefer open grass-shrub habitat typical of the semidesert grassland. Gambels are restricted to drainages affording dense overstory vegetation such as mesquite, hackberry, wolfberry and catclaw which typify the desert thornscrub habitat type. Montezuma quail prefer grasslands associated with the Madrean oak woodland and adjacent semidesert grasslands as on the refuge.

These birds contribute to the refuge's diversity goal and provide public viewing and education. No constraints to meeting the objective and demand are seen. Scaled and Gambel's quail may compete with bobwhite for certain high quality habitats during critical periods. Habitat management will be directed toward favoring bobwhite where feasible, thus decreasing the potential of competition between these species. This will not jeopardize scaled or Gambel's quail populations. No other trade-offs are foreseen.

Strategy for Accomplishing Objective:

Monitor populations in conjunction with bobwhite surveys. Use these quail species as indicators of habitat dynamics relative to bobwhite. In 1987, quail hunting will be closed on the entire refuge until a masked bobwhite population has been established (see Masked Bobwhite ODR). Quail hunting may be reopened in the future.

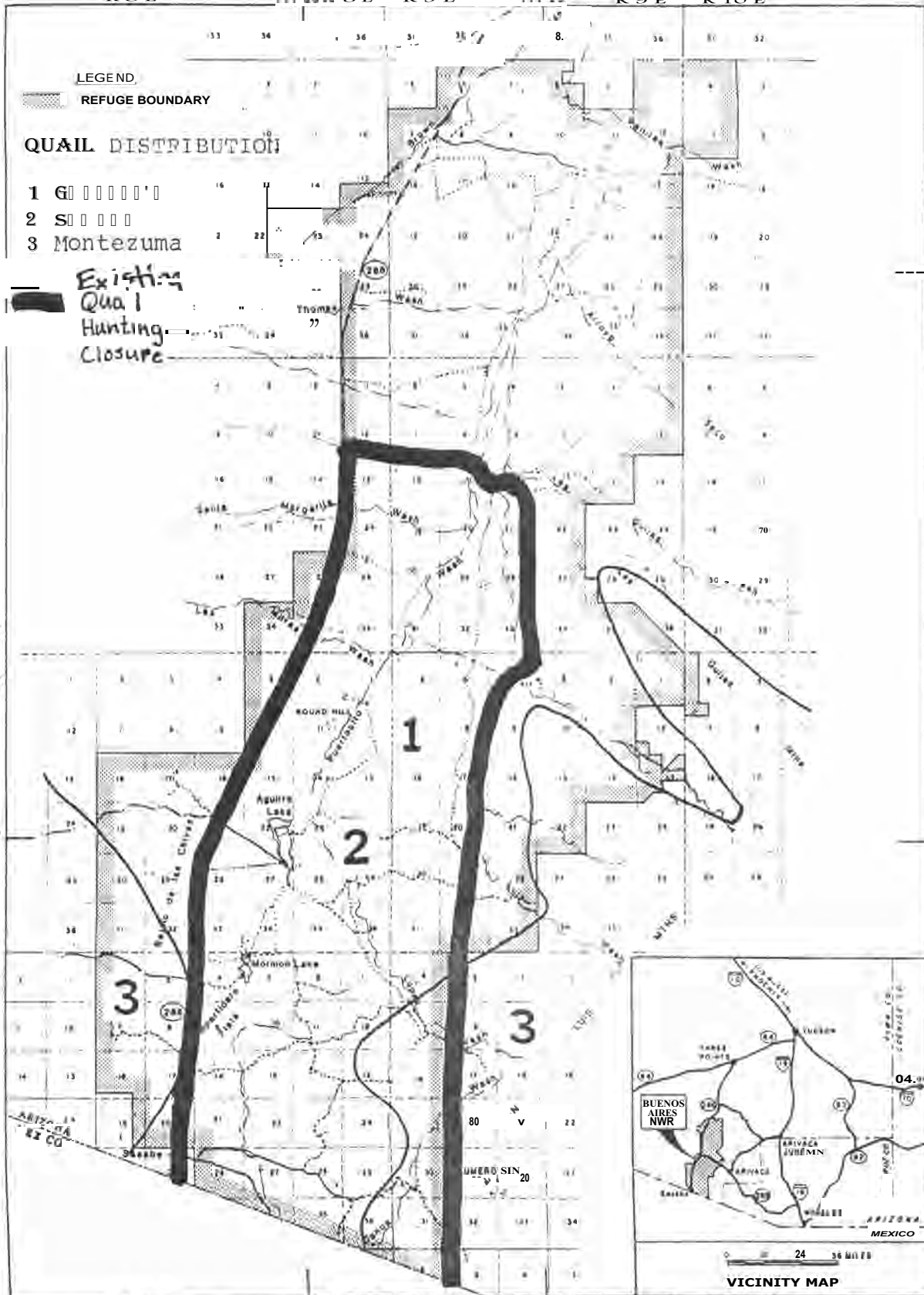
# BUENOS AIRES NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR

PIMA COUNTY, ARIZONA

UNITED STATES  
FISH AND WILDLIFE SERVICE

R 9 E      111° 30' R 9 E      R 9 E      111° 25' R 9 E      R 10 E



R 9 E      111° 30' R 9 E      R 9 E      111° 25' R 9 E      R 10 E

COMPILED IN REALTY FROM U.S.G.S. QUADRANGLES, G.L.O. PLATS, AND SURVEYS BY F.W.B.

GILA AND SALT PRINCIPAL MERIDIAN

0 1 2 3 4 5 6 7 MILES

0 1 2 3 4 5 6 7 KILOMETERS

MEAN DECLINATION

ALBUQUERQUE, NEW MEXICO JULY 1965

2R ARIZ. 1038 410

Output: 730 8001 JAVELINA MAINTENANCE

Production History:

This species (Tayassu tajacu) occurs throughout the Altar Valley and is considered common on the refuge. Like the mule deer, javelina have probably benefited from recent efforts to improve rangeland conditions by former ranch owners. Javelina populations on the refuge appear to be increasing. Arizona Game & Fish Department (AGFD) surveys indicate that high density javelina areas average 3-4 animals per section, medium density areas average 1-3 ~~animals~~ per section, and low density areas average less than 1 animal per section. (See javelina distribution map.) Estimated average herd sizes on or near the refuge consist of 10-12 animals per herd in high density areas. ~~Herds~~ of 7-10 are found in medium density areas. Herds consisting of less than 7 animals are considered in poor condition. Most of the population monitoring by AGFD is conducted in the surrounding mountains. Little data has been collected in the lower elevations of the refuge.

The javelina is a game species managed by the AGFD. Portions of game management units 36A, 36B, and 36C within the refuge boundary are presently open to javelina hunting for a total of 14 days a year. The number of javelina harvested on the refuge **is** unknown.

Rationale for Objective:

Javelina are well adapted to a variety of desert environments, especially the semi-desert grassland that characterizes the refuge. Javelina favor a diversity of plant life, food, cover and water. The refuge wildlife diversity goal constitutes the demand for ~~javelina~~. This output is a relatively low priority. No significant trade-offs on conflicts are foreseen.

Current use is based on AGFD figures showing that Buenos Aires NWR has 16 sections with 3-4 ~~javelina~~ per section and 164 sections of 1-3 javelina per section; in each case the more conservative figure was used for the current average number and the higher figure for the current peak, giving a total current average of 200 javelina. Improved habitat and less competition from other uses may result in the 164 medium density sections upgrading to two animals per section plus 4 per section in the 16 high density sections for an average number of 400 ~~javelina~~.

Strategy for Accomplishing Objective:

Maintain healthy productive herds averaging 10+ animals per herd and an average 3+ animals per section. Do not fall below an average of 7 animals per herd or less than 1.5 animals per section. Establish refuge survey routes to supplement AGFD information. Make management recommendations to **AGFD**.

It is impossible to regulate the number of javelina hunters using the refuge within Units 36A and 36B. Now that the area is identified as a refuge, it could attract unmanagable numbers of hunters that traditionally were randomized throughout. Therefore, establish the refuge as a separate management unit for the purpose of better controlling the number of javelina harvested.

# BUENOS AIRES NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR

PIMA COUNTY, ARIZONA

UNITED STATES  
FISH AND WILDLIFE SERVICE

R 8 E

111° 20' R 8 E R 9 E

111° 20'

R 9 E

R 10 E

**LEGEND**

 REFUGE BOUNDARY

**JAVELINA DENSITY**

1 High Density

2 Medium Density

31 40'

T 19 S

T 20 S

31 40'

T 19 S

T 20 S

**36A**

**36C**

**1**

**2**

T 20 S

T 21 S

T 20 S

T 21 S

31 36'

T 21 S

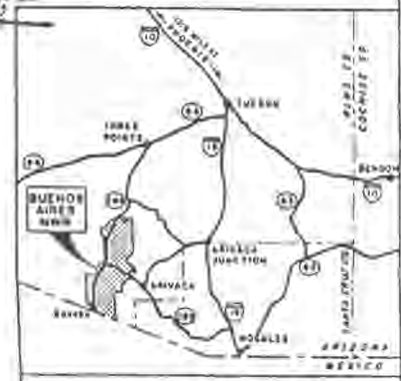
T 22 S

31 35'

T 21 S

T 22 S

**36B**



0 4 8 MILES

**VICINITY MAP**

R 8 E

111° 20' R 8 E R 9 E

111

R 9 E

R 10 E

COMPILED IN REALTY FROM  
U.S.G.S. QUADRANGLES. 0.1.0.  
PLATS. AND SURVEYS BY F.W.S..

**GILA AND SALT RIVER PRINCIPAL MERIDIAN**

0 1 4.323 4 6 8 MILES

ALBUQUERQUE. NEW MEXICO JULY 1988

0 1 2 3 4 0 6 7 KILOMETERS



MEAN  
1979

2R ARIZ. 1038 410



Output: 730 8460 MOUNTAIN LION MAINTENANCE

Production History:

The mountain lion (*Felis concolor*) is a common, though seldom observed, inhabitant of the mountain ranges surrounding the refuge. Although little of the refuge is considered to be prime lion habitat, an estimated 10 to 15 lions/year use the refuge in conjunction with their foraging and territorial movements. The refuge offers only a portion of the habitat required for lion-foraging range. Nevertheless, the refuge is important to lions in that it produces numerous deer, their primary prey; lion activity is probably concentrated in high density mule deer and whitetail areas (see deer ODR). Evidence of lion use of the refuge includes sightings, tracks and deer kills found recently in the foothills of the Pozo Verde, San Luis, Las Guijas, Cerro Colorado and Baboquivari Mountains.

Rationale for Objective:

The lion is a beneficial and necessary regulator of healthy, productive deer populations. Furthermore, lions contribute to diversity and public enjoyment. The major constraint to mountain lions on the refuge is limited habitat. Proposed high density public use areas may impact normal or current lion foraging range. A current use figure of perhaps three lions is based on one lion per twenty sections found in habitat roughly equivalent to that of Buenos Aires National Wildlife Refuge. Higher prey populations may result in a small **increase**.

Strategy for Accomplishing the Objective:

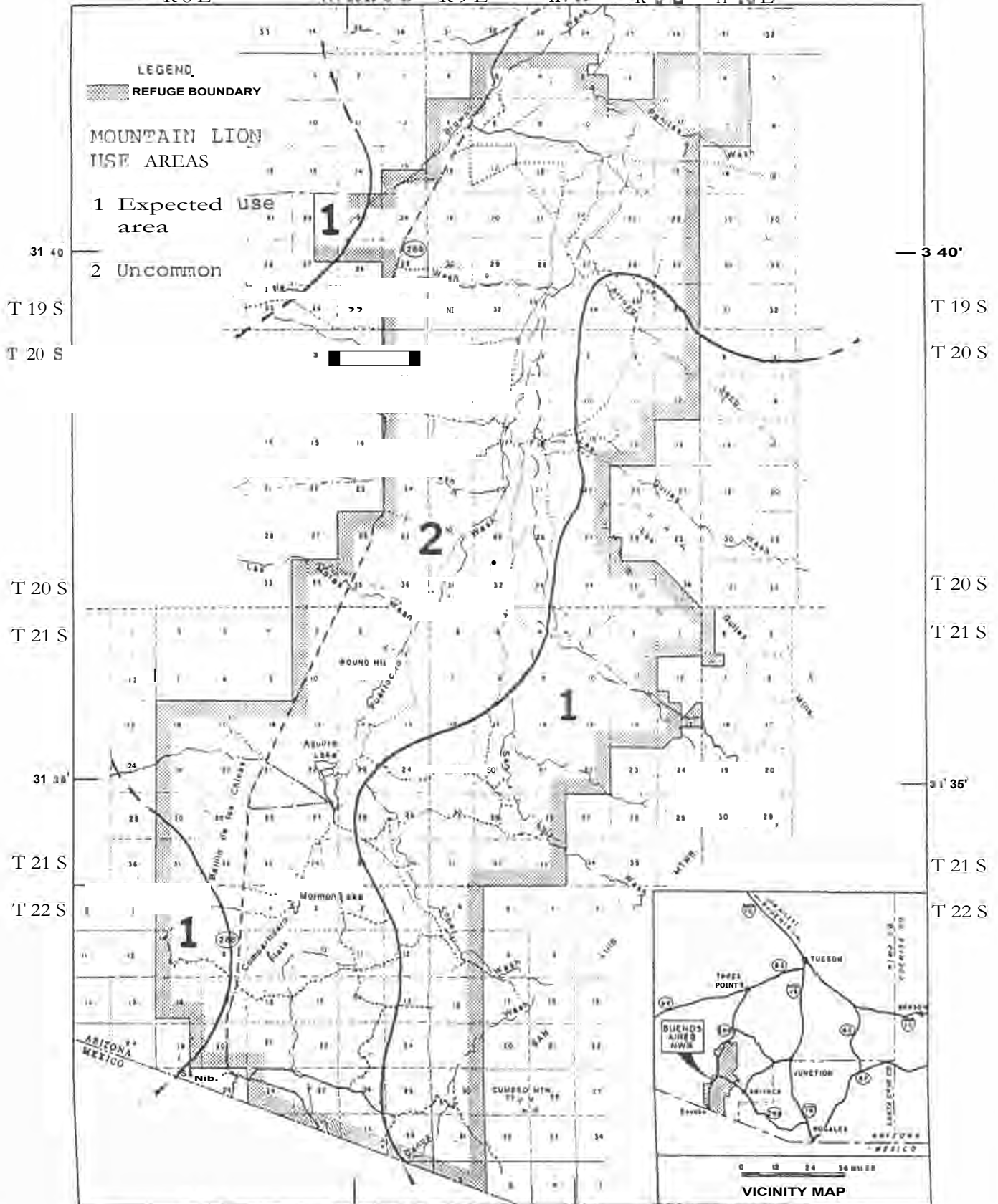
Manage for healthy prey populations including deer, javelina, and antelope. Monitor occurrence and use of the refuge by lion as indicated by sightings, tracks or evidence of predation.

# BUENOS AIRES NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
R 8 E

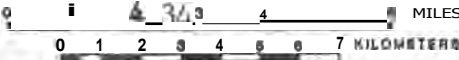
PIMA COUNTY, ARIZONA

UNITED STATES  
FISH AND WILDLIFE SERVICE



R 8 E R 8 E R 9 E R 9 E R 10 E  
COMPILED IN REALTY FROM U.S.G.S. QUADRANGLES, G.S.O. PLATS. AND SURVEYS BY F.W.B.  
GILA AND SALT RIVER PRINCIPAL MERIDIAN

ALBUQUERQUE, NEW MEXICO JULY 1955



DECLASSIFICATION  
1979

2R ARIZ. 1038 410

Output: 712, 713, 720, 721, 723, OTHER WATERFOWL, AND SHORE-, MARSH-, AND WATERBIRDS MAINTENANCE

Production History:

A variety of shore, marsh, and waterbirds occur on the refuge. Species occurrence and length of stay is greatly influenced by the amount of seasonal run-off that accumulates in **Aquirre**, Mormon, and other human-made or natural water impoundments. Recent **observations** indicate moderate use of refuge waters by the following species:

Pied-billed Grebe	Great Egret
Eared Grebe	Snowy Egret
Western Grebe	Cattle Egret
Double-crested Cormorant	Green-backed Heron
American Bittern	Black-crowned Night Heron
Great Blue Heron	White-faced Ibis

Rationale for Objective:

There is no demand from the Flyway or FWS regional resource plans to support these birds on the refuge. The FWS policy which supports diversity and public desire to view these birds constitutes the demand. The lack of permanent water in this arid environment limits available habitat for a discussion of conflict resolution, see the ODRs for dabbler and diving ducks.

Strategy for Accomplishing Objective:

See the ODRs for dabbling and diving ducks; other waterfowl and shore-, marsh- and waterbirds will benefit from management for dabblers and divers.

Output: 723 OTHER MIGRATORY BIRDS -- RAPTOR MAINTENANCE

Production History:

The refuge offers high quality habitats for transient and breeding raptors. Few records exist on the history of raptor occurrence in the Altar Valley. Not until recent years have there been reliable lists and records on raptor use of the area. Approximately 28 species of raptors have been recorded at the refuge. Raptor categories within this list include 10 resident (R), 3 spring or fall transient species (T), 4 winter visitors (WV), 4 summer breeders (SB), and 7 peripheral breeders (PB). Species with an asterisk following their names are species of special emphasis; refer to the "Other Bird" ODR as well.

Caracara *	(PB)	American Kestral	(R)
Golden Eagle *	(R)	Black-Shouldered Kite*	(PB)
Prairie Falcon *	(R)	Merlin	(T)
Peregrine Falcon *	(SB)	Osprey	(T)
Northern Harrier	(WV)	Elf Owl	(PB)
Gray Hawk *	(PB)	Great Horned Owl	(R)
Red-tailed Hawk	(R)	Long Eared Owl	(R)
Sharp-shinned Hawk	(WV)	Short-eared Owl	(T)
Cooper's Hawk	(R)	Screech Owl	(R)
Harris Hawk	(R)	Ferruginous Pygmy-Owl	(PB)
Swainson's Hawk *	(SB)	Barn Owl	(R)
Zone-tailed Hawk	(PB)	Burrowing Owl	(SB)
Black Vulture	(PB)	Turkey Vulture	(SB)
Ferruginous Hawk *	(WV)	Bald Eagle *	(WV)

Within the last 2-3 years, the black-shouldered kite has expanded its breeding range into the Altar Valley (Gatz, et. al., 1986). Some species use the refuge year round, whereas others, like the golden eagle, peregrine and prairie falcons, use the refuge as foraging territory while nesting in adjacent mountain ranges.

Rationale for Objective:

The rarity of many species of raptors constitutes the demand for their protection and preservation. Raptor predation on migratory birds is not considered to be a major conflict. The loss of some bobwhites to avian predators is expected; the release of good quality bobwhite stock into optimal habitat, with adequate cover, is considered to be the biologically sound answer to this problem. No habitat conflicts between raptors and other wildlife are foreseen. Public use could interfere with raptor nesting; raptors would take priority.

Strategy for Accomplishing Objective:

Habitat management undertaken for higher priority species will benefit these birds. Conserve and protect existing nesting and roost sites, and limit human disturbance near them. Encourage diversity and greater distribution of cavity-nesting species by providing nest boxes. Plant cottonwood trees to encourage nesting of riparian-dependent species.

Output: 730 RABBIT MAINTENANCE

Production History:

Rabbits common to the refuge include black-tailed jackrabbit (**Lepus californicus**), antelope jackrabbit (**Lepus alleni**), and the desert cottontail (**Sylvilagus audubonii**). The antelope jackrabbit is a refuge species of **special** interest (see Antelope Jackrabbit ODR).

Rationale for Objective:

These species are important indicator of habitat quality and condition. They also provide a primary food base for many avian and mammalian predators. Rabbit populations are cyclical and fluctuate according to habitat quality and disease (i.e., tularemia). Rabbits are a buffer species that help take the predator pressure off of other primary wildlife outputs such as masked bobwhite and antelope. There are no constraints to meeting this demand. Rabbits are a low priority output. Rabbit hunting will be closed within the primary public use zone.

Strategy for Accomplishing the Objective:

Manage rabbits incidental to other wildlife outputs. Set hunting season from September 1 thru March 31.

Output: 730 PREDATOR AND FURBEARER MAINTENANCEProduction History:

The abundance and variety of wildlife found on the refuge offers a food base which supports a variety of predatory animals. Although most carnivores are predatory by nature, the species most commonly managed as "predators" are foxes, skunks, coyotes and bobcats. These animals are also treated as furbearers and are harvested according to fur market demand. Historically, there has been demand for both harvesting and controlling these species on the refuge. Information from the Arizona Game and Fish Department indicates that approximately 400 coyotes were taken on the refuge in the past four years.

Other "furbearers" include raccoon, ringtail, coati mundi and badger. These animals have been abundant on the refuge and have been harvested for the fur market. Presently, there is little known about the abundance or distribution of these species on the refuge. More information **needs** to be collected in order to determine management needs and objectives for individual species such as the kit fox.

Rationale for Objective:

Maintenance of healthy wildlife populations and balanced predator/prey relationships, in addition to public viewing opportunity, constitute the demand for these animals. Most of these species are adapted to a wide range of habitats and do not appear to be limited on the refuge. A lack in the diversity and abundance of prey species may limit the ranges of some species. However, with improving habitat quality on the refuge, it is expected that predator/prey relationships will also improve. Therefore, there are no constraints to meeting this demand. Conflicts with masked bobwhites and antelope will be resolved by controlling predators; this will not be allowed to jeopardize predator populations, in the long term.

Strategy for Accomplishing Objectives:

Monitor predator populations incidental to other surveys and via data obtained from trapping records required by special use permit. Predator control may be necessary to protect higher priority outputs during critical periods, such as during the introductory phase of pronghorn antelope. Provide controlled commercial and recreational **predator/**furbearer harvest opportunity by requiring a special use permit limiting species, numbers, areas and seasons. (See Trapping ODR). Direct trapping so as to achieve or augment refuge predator control strategies. Monitor populations and trapping success and alter the trapping program as necessary.

Objective Documentation Record

Output: 730 8540 COUES WHITETAILED DEER MAINTENANCE

Objective:

To provide habitat for this species and maintain a healthy population.

Current Level:

<b>UD/AH:</b> 40,150 UD	Ave. No.: 110	Ave. Days: 365
	Peak: 140	

Objective Level:

UD/A}1: 62,050 UD	Ave. No.: 170	Ave. Days: 365
	Peak: 200	

Production History:

The Coues whitetailed deer (**Odocoileus virginianus couesi**) is found on the refuge in foothills adjacent to the surrounding mountain ranges (see **map**). Portions of the Las Guijas and San Luis mountains within the refuge are considered high density (7-15 deer per section) to medium density (4-7 deer per section) whitetail areas.

Rationale for Objective:

This species is adapted to the desert deciduous and riparian deciduous habitat types within the upper Sonoran desert life zone. It prefers rough, broken, and often steep terrain. Major whitetail predators include mountain lion, coyote, and bobcats. Eagles are known to prey on fawns.

Refuge wildlife diversity, public enjoyment and education goals constitute the demand for this species. No constraints to meeting the demand are foreseen if proper control of the deer hunt is exercised. The refuge was figured to currently have 3 sections of high density and 17 sections of medium density whitetailed deer habitat; these were lumped and figured at 20 sections of medium density at the 7/section level for the current peak and at the middle of the range ~~given--5.5--~~ **for** the current average. With the change in management emphasis from ranch to refuge, a modest increase in these numbers is expected. No conflicts or need for trade-offs are foreseen.

Strategy for Accomplishing Objective:

Maintain a healthy deer population consisting of a minimum ratio of 20 bucks to 100 does and a minimum of 40 fawn to 100 does. Develop permanent deer survey routes on the refuge. Monitor deer habitat and herd health to determine proper refuge carrying capacities. Make deer management recommendations to AGFD. Designate the refuge a separate deer management unit.

Phase 1.

# BUENOS AIRES NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR

PIMA COUNTY, ARIZONA

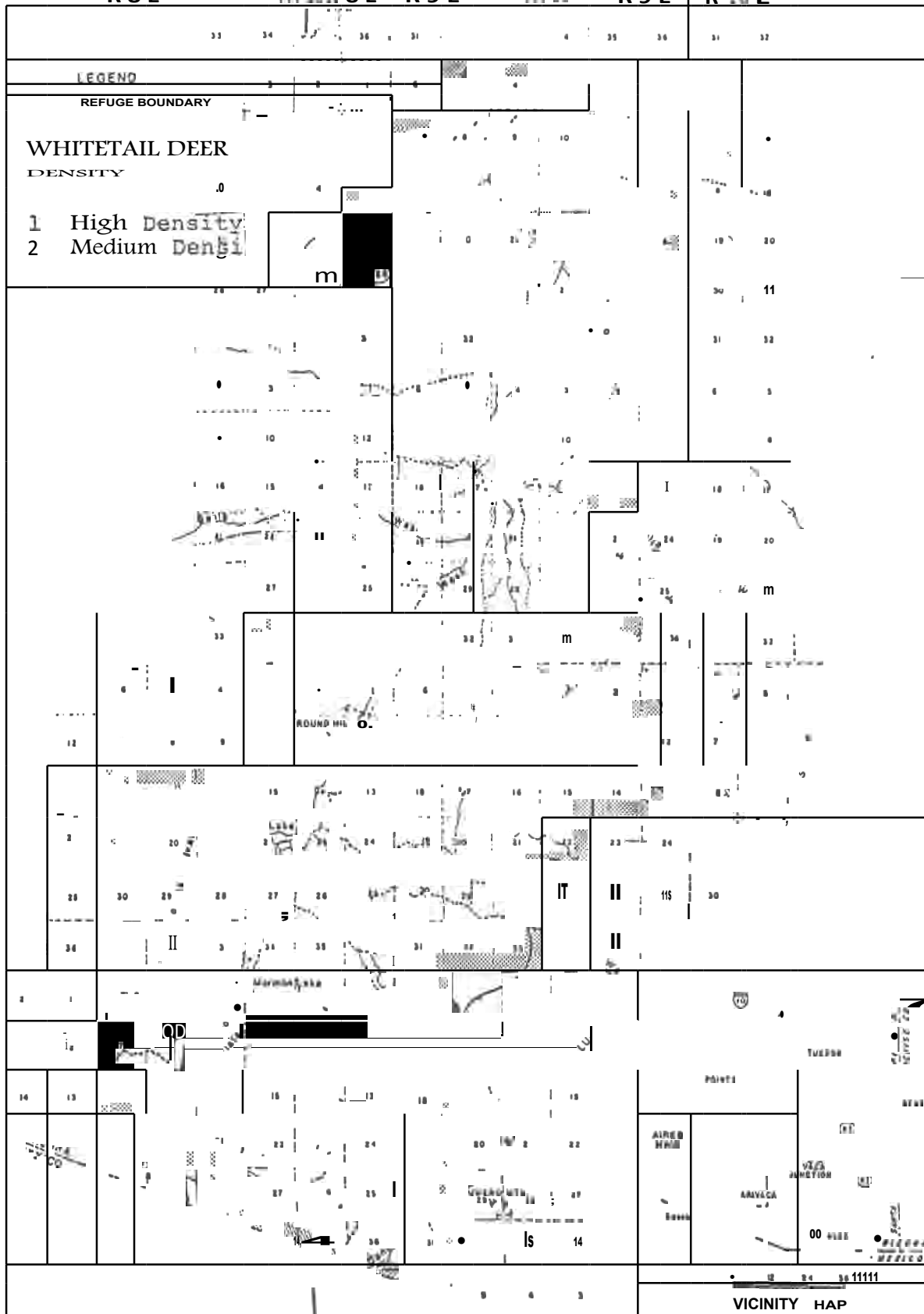
UNITED STATES  
FISH AND WILDLIFE SERVICE

R 8 E

R 8 E R 9 E

R 9 E

R 10 E



COMPILED IN REALTY FROM  
U.S.G.S. QUADRANGLES, G.L.O.  
PLATS, AND SURVEYS BY J.W.B.

GILA AND SALT RIVER PRINCIPAL MERIDIAN

0 1 4.403 4 5 6 MILES

ALBUQUERQUE, NEW MEXICO JULY 1988

0 1 2 3 4 5 6 7 KILOMETERS

MEAN  
DECLINATION  
1979

2R ARIZ. 1038 410



## Objective Documentation Record

Output: 730 8530    DESERT MULE DEER MAINTENANCE

### Objective:

To provide habitat for this species and maintain a healthy population.

#### Current Level:

UD/AH: 292,000 UD	Ave. No.:	800	Ave. Days:	365
	Peak:	1,360		

#### Objective Level:

UD/AH: 365,000	Ave. No.:	1,000	Ave. Days:	365
	Peak:	1,500		

### Production History:

Mule deer (*Odocoileus hemionus crooki*) are common on the refuge and occur throughout the Altar Valley. (See mule deer distribution map.) High density mule deer areas average 7-10 deer per section. Medium density areas average 4-7 deer per section. Low density areas consist of less than 4 deer per section.

In recent years, the mule deer population expanded its range from the foothills into the valley bottoms, along with the increase in mesquite cover. Records indicate that mule deer were not as prevalent in the valley some fifty years ago. Range improvement efforts by former ranch owners have contributed to this expansion by providing a diverse vegetational community within the grassland ecosystem (i.e., Johnson grass thickets, etc.).

### Rationale for Objective:

Desert mule deer are found in the mesquite/mesquite shrub/desert deciduous plant associations. They prefer open to broken terrain from the valley bottoms to the foothills. Mule deer often move great distances for food and water and take advantage of succulent plant growth as it occurs seasonally. The refuge affords good habitat diversity, adequate water, and sufficient cover for this species. The refuge also encompasses important breeding, fawning and wintering areas for mule deer.

Demand for the mule deer comes from the refuge's diversity goal as well as the interpretation and recreation goals. The refuge was figured to have approximately 45 sections of high density and 130 sections of medium density mule deer habitat. The current peak was figured taking the high figure (10) for the high density range plus the high figure (7) for the medium density; the average was figured by using the lower figures (7 and 4, respectively) of the ranges given. Given the change

in management emphasis from ranch to refuge, and modest increase in the number of mule deer is expected. There are no constraints to meeting the demand foreseen. The deer objective will not conflict with objectives for other wildlife, thus no trade-offs are expected.

Strategy for Accomplishing Objective:

Maintain a healthy deer population consisting of a minimum ratio of 20 bucks to 100 does and a minimum of 40 fawns to 100 does. Develop permanent deer survey routes on the refuge. Monitor deer habitat and herd health to determine proper refuge carrying capacities. Identify important seasonal deer use areas of the refuge. Make deer management recommendations to AGFD. Designate the refuge a separate deer management unit.

Phase 1.

# BUENOS AIRES NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
R 8 E

PIMA COUNTY, ARIZONA

UNITED STATES  
FISH AND WILDLIFE SERVICE

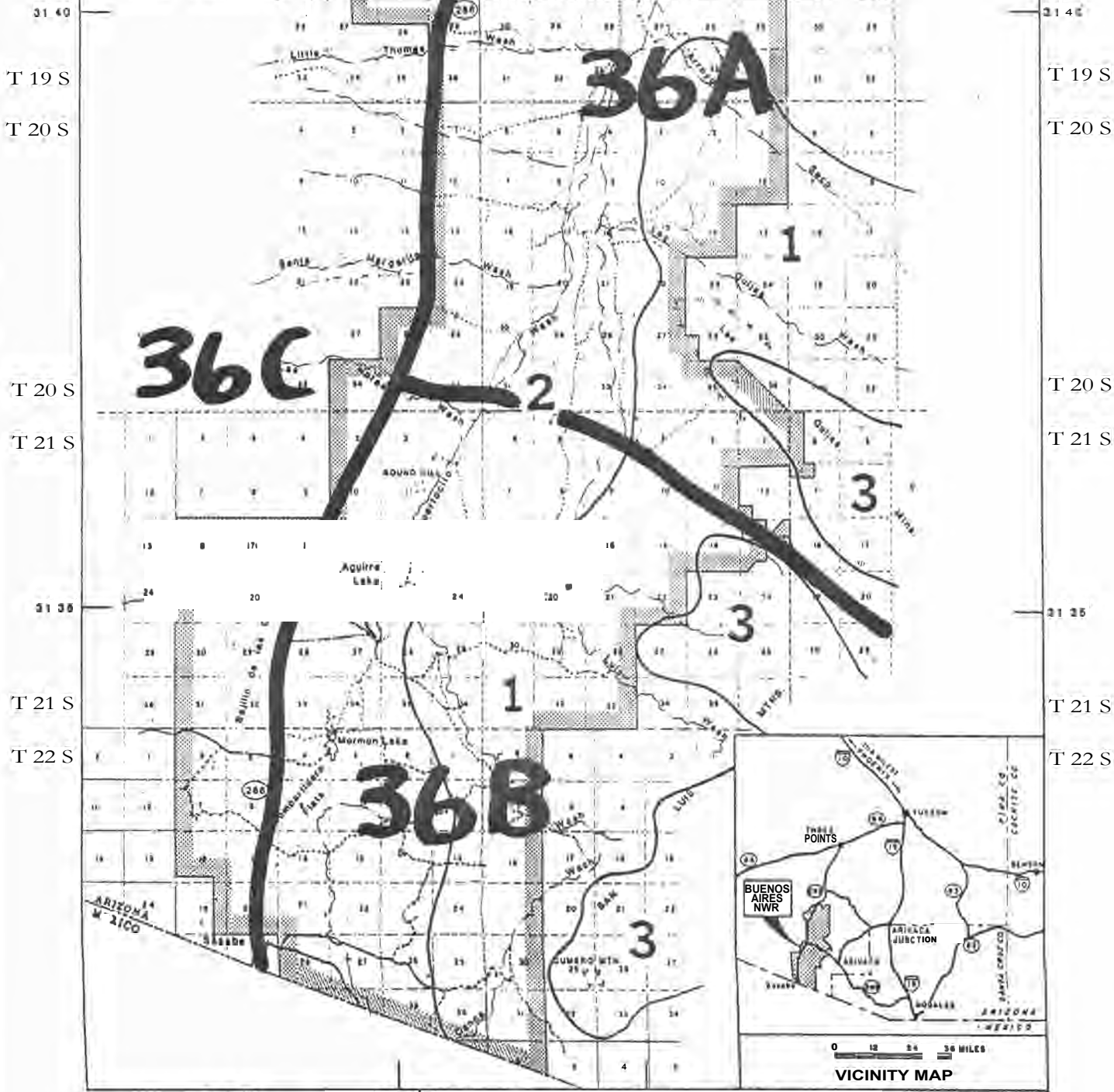
111°30' R 8 E R 9 E 111°30' R 9 E R 10 E

**LEGEND**

REFUGE BOUNDARY

**MULE DEER DENSITY**

- 1 High Density
- 2 Medium
- 3 Low Density



R 8 E 111°30' R 8 E R 9 E R 9 E R 10 E

COMPILED IN REALITY FROM U.S.G.S. QUADRANGLES. G.L.O. GILA AND SALT RIVER PRINCIPAL MERIDIAN PLATE, AND SURVEYS BY F.W.S.

0 1 2 3 4 5 6 7 MILES

0 1 2 3 4 5 6 7 KILOMETERS

0 12 24 36 MILES

**VICINITY MAP**

MEAN DECLINATION

## Objective Documentation Record

Output: 631, 633, 634 ARCHEOLOGICAL SITES (Cultural Resources Preservation)

### Objective:

The objective is preservation of cultural resources in place. To comply with the Refuge Manual and the Regional Cultural Resources Policy.

No numeric objective will be set at this time.

### Production History:

No archeological or historic site surveys have been conducted on the refuge. Arizona State Museum site record files indicate that no sites have been recorded on the refuge. A number of historic structures are within the boundaries of the refuge. These are the Garcia House, Jail House, the Stables, the Pozo Nuevo school house, and historic mesquite corrals.

### Rational for Objective:

The refuge will continue to follow policy and procedure in the following areas: 1) refuge construction projects, 2) law enforcement, 3) visitor use, 4) special-use permits, research referral, 5) special-use permits, non-Service lands use, 6) reporting new cultural resources, 7) reporting maintenance, stabilization or protection needs, 8) National register nominations, and 9) archives and collections.

Disturbance to wildlife and habitat, and the need to devote staff and dollar resources to wildlife programs, are practical constraints which may limit the degree to which compliance with some of these requirements can be met. However, the nine cultural resource management goals described in the strategy below are mandated by federal law and are binding on all federal land management agencies.

Habitat preservation and cultural resource preservation in place are compatible objectives. Management activities planned for wildlife or public use objectives may occasionally present the potential for negative impacts on this resource. However, few conflicts are anticipated and these will be resolved on a case by case basis according to the procedures described above.

Strategy for Accomplishing Objective:

The refuge will continue to ensure compliance with 5 RM 16 of the Refuge Manual and the 1984 Regional Cultural Resources Management Policy Statement. The refuge will provide the fullest protection possible to the cultural resources under its jurisdiction, and ensure that standard procedures continue to be implemented to avoid the **inadvertent** loss of archeological and historic sites. The refuge will ensure that cultural resources are accorded the same planning and management consideration given all other resources. With respect to the historic structures, the refuge will ensure compliance with the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings, and the Maintenance Standards for Historic Buildings, Structures, Sites, and Objects, Vol. 2, Part 12 of the FWS Maintenance Standards.

As provided by 5 RM 16 of the Refuge Manual and the 1984 Regional Cultural Resources Management Policy Statement, our preservation in place objective will be handled in the following manner:

1. **Refuge Construction Projects:** The refuge will contact the Regional Historic Preservation Officer (RHPO) to ensure that appropriate steps are taken to evaluate all cultural resource properties prior to any construction undertakings which will affect those resources. The refuge will contact the RHPO to ensure that suitable mitigation and/or scientific data recovery for affected properties is provided when simple avoidance is not possible.

If previously undetected cultural remains are encountered during construction, the refuge manager will contact the **RHPO** before proceeding further.

2. **Law Enforcement:** The refuge manager will enforce the provisions of the 1979 Archeological Resources Protection Act (ARPA) and the regulations pursuant to the Act: 43 CFR Part 7 and 50 CFR Part 27. Unauthorized removal of cultural remains from the refuge is prohibited. (See also Special-Use Permits - Research Referral.)
3. **Visitor Use:** Other than damage done to sites intentionally by "pothunters," visitor use of the refuge is unlikely to cause any impact on the archeological sites on the refuge. Attention will not be drawn to particular site locations, and information on site locations will not be disclosed.
4. **Special-Use Permits - Research Referral:** Applications to do research are made under 43 CFR Part 7. The refuge manager will refer all research requests to the RHPO. If the Archeological Resources Protection Act (ARPA) permit is issued, the refuge manager will attach special conditions and requirements under a special-use permit. Archeological researchers are required to have both the ARPA and special-use permits.

5. Special-Use Permit - Non-Service Land Use: Land use permits to private industry, organizations, and non-Service agencies for construction or development activities on the refuge may require a cultural resource survey. These types of permits are processed by the Regional Office. The RHPO will work with the permittee to arrange for required studies and conduct all follow-up Section 106 consultation. The procedure will be basically the same as for the Refuge construction Projects. (See #1 above.)
6. Reporting Cultural Resources: any cultural resource sites or objects found by or reported to the refuge manager should be reported to the RHPO. Every effort should be made to determine the location, nature, and extent of the site.
7. Reporting Maintenance, Stabilization, or Protection Needs: The refuge manager will recommend measures that may be needed to stabilize, maintain, or protect sites which are being impacted by natural or human **factors** (vandalism, etc.; see #2, Law Enforcement above).
8. National Register Nominations: As future inventory on the refuge increases, it is anticipated that many new sites will be identified, a number of which may be eligible for listing on the National Register. With regard to the standing historic properties on the refuge, current historical information is incomplete but it is anticipated that as many as five properties may qualify for listing on the National Register. The Fish and Wildlife Service proposes to initiate nominations on some of these properties in 1987.
9. Archives and Collections: Archeological and historical materials and archives shall **be** maintained according to professional standards of curation for scientific use and public interpretation. With few exceptions, the refuge office will not attempt long-term curation. Limited reference collections and small interpretive displays may be permitted. The regional office is responsible for seeking agreements with public institutions to accept and curate archives and collections which are generated by Service activities and acquisitions. All collections remain the property of the U.S. **Government.** Resources Protection Act (ARPA) and the regulations pursuant to the Act: 43 CFR Part 7 and 50 CFR Part 27. Unauthorized removal of cultural remains from the refuge is prohibited. (See also Special-Use Permits - Research Referral.)

## Objective Documentation Record

Output: 511-516 REFUGE STUDIES

### Objective:

To periodically contact universities and other research organizations with suggestions for research which will contribute to refuge management.

No numeric objective will be set.

### Production History:

Prior to acquisition, the Buenos Aires Ranch was a site for an attempted reintroduction of masked bobwhite quail. The study failed due to drought and the ranch's need to maintain an economic ranching operation. The ranch also provided a site for an undetermined number of other grassland/grazing studies conducted in the Altar Valley.

### Rational for Objective:

Masked bobwhites are a high interest species in the scientific community. Much can be learned about Sonoran desert ecology by studying the species life requirements. In addition, the elimination (at least temporarily) of cattle from Buenos Aires NWR offers a unique opportunity to study grassland recovery rates and impacts of various manipulative techniques on the habitat. The FWS expects to receive numerous requests to conduct studies of the flora, fauna, and basic ecology of the refuge. All studies will be evaluated to assure compatibility with masked bobwhites and other important refuge objectives. Studies not meeting the compatibility test will not be permitted. Research will not be allowed to conflict with any other refuge objective.

### Strategy for Accomplishing Objective:

Research requests will be encouraged and accommodated whenever compatible with other refuge programs. The refuge will provide the site for study and the oversight of study methods to assure compatibility. The studies themselves will normally be funded by non-refuge sources. The refuge may be able to provide non-financial assistance such as lodging or survey assistance in some cases. All studies will be evaluated by the Refuge Manager for compatibility and for compliance with Refuge System/FWS policy. When choices must be made between studies, those studies addressing refuge management needs will be given priority. No study will be allowed the exclusive use or reservation of **sizeable** refuge resources or acreage unless it is essential to solving an urgent refuge management need. Special Use Permits will be issued as neces-

sary following approval of Refuge Management Study outlines. The permits will detail restrictions on uses activities. The Refuge Manager has authority to approve Refuge

Management Studies when no FWS monies are involved (assuming compatibility tests are met). Studies requiring FWS/Refuge funds must be approved by the Regional Director following evaluation recommendation of the Refuge Manager.

Phase 1 & 2.



## Objective Documentation Record

### Output: 040 VISITOR CONTACT STATION

#### Objective:

To encourage refuge visitors to enter the visitor contact station. To accommodate all projected demand.

#### Current Levels:

UD/AH: 150 AH	Ave. No: 2	Ave. Days: 300
	Peak: 50	Ave. Hrs.: 0.25

#### Objective Levels:

UD/AH: 16,200 AH	Ave. No: 90	Ave. Days: 360
	Peak: 500	Ave. Hrs.: 0.5

#### Production History:

Prior to acquisition by the government, Buenos Aires Ranch was essentially closed to the public except that hunters possessing a state hunting license hunted and camped on state lands within the ranch boundaries. The ranch provided no services to the public and only very limited interpretive or other non-consumptive activities were allowed. Since acquisition, the refuge has experienced an immediate, steady growth in interest and access for a variety of non-consumptive uses. Much of this is a direct result of the public information efforts of the Refuge Manager and because of the national publicity generated by the acquisition. Use has consisted of structured group "show-me" tours conducted by the refuge staff on request, and unstructured, independent drives by individuals following a brief orientation at refuge headquarters. No leaflets or orientation materials have been prepared, nor are any exhibits available yet.

#### Rationale for Objective:

FWS expects approximately 39,000 visitors annually to the refuge. Perhaps 80% of these visitors will seek information at the visitor contact station. The availability of funds for modification of the existing building and development of appropriate interpretive exhibits will dictate how soon the refuge is able to begin actual interpretive programs. The building is large enough to accommodate all but the largest expected visitor groups, although temporary crowding may occur when bus tours arrive. Proposed refuge staffing calls for an Outdoor Recreation Planner. However, the ability to serve the public on weekends and for extended hours is largely dependent upon availability of volunteer support.

The levels of public use expected for Buenos Aires NWR will occasionally conflict with wildlife objectives and will compete with other refuge objectives for funds and staff time. Proper use of the visitor contact station will allow a central information dissemination point which will help minimize public impacts on refuge resources. Use of volunteers to staff the visitor contact station and conduct tours, etc., will minimize costs to the refuge.

Strategy for Accomplishing Objective:

The residence built by and for the former owner will be converted to serve as the visitor contact station. This building is located in the headquarter's complex adjacent to the office. The visitor contact station will provide an interpretive focal point to introduce the visitor to the refuge and present interpretive materials on masked bobwhite quail, other wildlife, and refuge habitats. Interpretive exhibits will be constructed; several rooms will allow the separation of interpretive themes and will also allow the use of space for a movie/slide room. The visitor contact station will have a central information desk staffed part-time by a volunteer or the Outdoor Recreation Planner.

Phase 1.

## Objective Documentation Record

Output: 051, 052 INTERPRETIVE EXHIBITS/DEMONSTRATIONS

### Objective:

Provide interpretive exhibits in visitor contact station, on auto tour loops, and one foot trail to support the public education goals of the recovery plan for masked bobwhite.

No numerical objective is necessary; refer to the **ODRs** for the Visitor Contact Station, Tour Route, and Self-Guided Trails.

### Production History:

The Buenos Aires Ranch did not provide interpretive exhibits or demonstrations for the public.

### Rationale for Objective:

This output refers to interpretive signs and exhibits placed in and along refuge facilities. The recovery plan for masked bobwhite requires public education about the species and **its** need for protection. This, and FWS emphasis on interpretation, constitutes the demand for this output. Staff time and funds are the principal constraints. Indoor exhibitry for a visitor contact station can be quite expensive. Outdoor exhibitry is also expensive and can become a significant maintenance burden in the Arizona desert climate. Public use facilities compete with wildlife and habitat management programs for limited resource management funds. Since the masked bobwhite recovery plan recognizes the need for public information on the species, a certain amount of tradeoff is justified.

### Strategy for Accomplishing Objective:

Appropriate, integrated interpretive themes will be developed for the visitor contact station, auto trails, and foot trail. Probable themes include masked bobwhite biology and recovery efforts, Sonoran savannah grasslands, habitat diversity, and the role of the National Wildlife Refuge System in habitat, migratory bird, and endangered species management. Interpretive exhibits will be installed in the visitor contact station, and along the tour route and trails. This exhibitry will require significant funding provided by either a supplemental budget request or allocation of ARMS/resource problem/endangered species monies.

Phase 1.

Objective Documentation Record

Output: 021 AUTO TOUR ROUTES--SELF-GUIDED

Objective:

To accommodate the predicted demand for an interpreted auto tour route.

Current Level:

UD/AH: 0	Ave. No.: 0	Ave. Days: 0
	Peak: 0	Ave. Hrs.: 0

Objective Level:

UD/AH: 78,000 AH	Ave. No.: 100	Ave. Days: 360
	Peak: 200	Ave. Hrs.: 2

A limiting objective may be required if conflicts arise.

Production History:

No history of use has been established. During ranch days, the hunting public was allowed to drive the ranch roads in conjunction with hunting activities.

Rationale for Objective:

The FWS predicts that up to 90% of the 39,000 visitors to Buenos Aires NWR will take the interpreted auto tour route. (See also Public Use Demand Analysis.) The tour route will not be allowed to negatively impact wildlife objective. Most birders and general visitors will drive the interpreted route and a smaller percentage of hunters will take the interpreted tour. Primary constraints to fulfilling the demand for auto tour routes are the costs of development and maintenance of all-weather roads and exhibitry, the need to minimize habitat destruction, especially masked bobwhite habitat, the danger of adversely impacting drainage patterns, and increased disturbance, pollution, and litter problems. However, this is a high priority public use output. Experience on refuges where heavy auto tour traffic occurs has shown that wildlife impacts are usually minimal. Care will be taken during construction and roadway improvement to assure the integrity of natural drainages and topography. The tour route will not be allowed to negatively impact wildlife objectives.

Strategy for Accomplishing Objective:

Two interpreted auto tour loops will be constructed, a 7 mile loop in Phase 1 and a longer loop of up to 15 miles in Phase 2. The segment from refuge headquarters to Round Hill will be shared by both loops. Both loops will have interpretive signs/exhibits appropriately sited along the route to describe various habitat and biological features. The routes will generally use existing roads and trails to minimize habitat damage. However, two short segments of new road (1/2 mile) will need to be constructed on each loop to facilitate traffic flow. The tour routes will be improved and maintained to provide all-weather gravel access for visitors, accommodating passenger cars and motor homes.

The segment shared by both loops (headquarters to Round Hill) will be two-way road, as will a segment of the longer route which is presently used as a major access road to the southeast part of the refuge. (See Master Plan Map.) The lower section of the Phase 2 loop will be seasonally shared by visitors and hunters seeking access to the southeast parts of the refuge. This section of road will be two-way. One negative feature of the proposal is that a person wishing to drive both loops will have to repeat the segment from the headquarters to Round Hill which is shared by both loops. This segment is also two-way road so that visitors with limited interest or time may return to the headquarters area exit without traveling the rest of either loop. The remainder of the loops will be one-way routes.

The eastern leg of the longer (Phase 2) tour loop will be in an area open for hunting. For visitor safety, this leg of the route will be closed to the non-hunting public for the five major hunting weekends each year. The short tour loop will be available to visitors during these weekends.

Objective Documentation Record

Output: 011 FOOT TRAILS--SELF-GUIDED

Objective:

To accommodate all predicted demand for interpretive hiking trails.

Current Level:

UD/AH: 0	Ave. No.:	0	Ave. Days:	0
	Peak:	0	Ave. Hrs.:	0

Objective Level:

UD/AH: 9,855 AH	Ave. No.:	27	Ave. Days:	365
	Peak:	100	Ave. Hrs.:	1

Production History:

Buenos Aires Ranch did not provide any public hiking.

Rationale for Objective:

FWS expects that up to 25% of the 39,000 predicted annual Buenos Aires NWR non-hunting visitors would use an interpretive foot trail. If appropriately sited and maintained, one or two interpretive foot trails should adequately provide for the predicted demand for this activity. By providing an organized, well-interpreted trail, most public use demand will be concentrated so that conflicts with wildlife and habitat will be minimized. A small amount of wildlife habitat, including masked bobwhite habitat, has already been usurped by the **trail/road/**levee system which will become the interpretive trail. However, there will be a disturbance effect which extends beyond the trail itself and diminishes habitat values. Even so, the total impact should not have a significant adverse impact on masked bobwhites or other wildlife. The educational benefits derived from the project should outweigh the negative impacts.

Strategy for Accomplishing Objective:

In Phase 1, a trail with appropriate interpretive **signs/displays** will be developed in the headquarter's vicinity using existing roads, levees, and foot paths. It will be accessible from both the visitor contact station and the auto tour route. Portions of the trail will

be accessible to the handicapped. The interpretive trail will encompass portions of wetland, aquatic, masked bobwhite, riparian, and desert grassland habitat types allowing almost unlimited interpretive opportunities.

In Phase 1 or 2, a short trail up Round Hill will be developed. At the top the hill, an interpretive sign will explain important features which can be seen from the hill.

## Objective Documentation Record

Output: 012, 022, 060      OTHER ON-REFUGE INTERPRETIVE PROGRAMS

### Objective:

To provide guided tours and programs to refuge visitors.

#### Current Level:

UD/AH: 250 AH	Ave. No.: 25	Ave. Days: 10 Programs
	Peak: 50	Ave. Hrs.: 1

#### Objective Level:

UD/AH: 5,000 AH	Ave. No.: 25	Ave. Days: 200 Programs
	Peak: 100	Ave. Hrs.: 1

### Production History:

Buenos Aires Ranch provided only very limited interpretive services to the public.

### Rationale for Objective:

Due to the wide publicity given to Buenos Aires NWR and the presence of masked bobwhite, FWS expects to receive requests from numerous conservation organizations and educational groups for guided tours and for more detailed information than the self-guiding interpretive programs will provide. The main constraints to meeting demand are a shortage of staff and the uncertainty of volunteer availability. There will occasionally be times when the benefits of reaching a particular audience will temporarily outweigh the need for other work projects. In general, this activity will receive a lower priority than self-guiding interpretive programs and habitat management activities. The objective is: Phase 1, average one program/week; Phase 2, average four programs/week.

### Strategy for Accomplishing Objective:

The refuge staff will probably not be able to provide more than minimal capability to handle requests for programs. Most requests for guided tours, slide programs, talks, etc., will be handled by volunteers. If volunteers are not available, requests may not be met unless higher priority work schedules do not conflict. When tours are conducted, the receiving group will normally provide their own transportation.

Phase 1 and 2.



## Objective Documentation Record

Output: 502, 503, 504 NEWS RELEASES, APPEARANCES, AND SERVICES

### Objective:

To provide information to the media on refuge activities as needed and as requested.

No numeric objective will be set.

### Production History:

None established.

### Rationale for Objective:

The refuge will receive periodic requests from various media regarding refuge activities such as the masked bobwhite recovery efforts and public use opportunities. There may be occasions when media requests, especially for movies or other photo opportunities, may interfere with the *masked* bobwhite introduction effort. When these conflicts occur, the Refuge **Manager** will reschedule or redirect the media effort to a less conflicting time or method. No trade-offs between this and other programs are foreseen.

### Strategy for Accomplishing Objective:

The Service and the refuge will be responsive to these requests and will assist the media in their efforts. Existing staff should be adequate to provide any necessary assistance. The media will be notified of any newsworthy refuge activities and accomplishments.

Phase 1 and 2.

## Objective Documentation Record

Output: 570 OTHER COOPERATIVE PROGRAMS

### Objective:

To provide a mechanism whereby supplemental educational/informational materials may be provided to the public.

No numeric objective will be set.

### Production History:

None.

### Rationale for Objective:

Demand: The public often requests that refuges provide items such as bird books, maps, and interpretive materials which enhance their visit to the refuge. The FWS generally does not provide these materials, but can, through cooperative associations, allow these items to be sold at the visitor center.

Constraints: None, if the refuge can forge an agreement with an established cooperative association to provide staff to handle sales and information requests at the visitor center.

Trade-offs: None foreseen, unless **low** visitation level causes the refuge to assume the administrative work on sales, etc. In this case, the cost: benefit ratio will be examined to determine the desirability of continuing the activity.

### Strategy for Accomplishing Objective:

The refuge will look **into** the feasibility of establishing membership in a cooperating association. Space for an association display, book sale, etc. will be made available in the visitor center. The goal is to eventually use the association to supplement the volunteer staff and ORP in providing information services to the public.

Phase 1 and 2.

## Objective Documentation Record

Output: 321, 322 WILDLIFE/WILDLANDS OBSERVATION

### Objective:

Encourage wildlife/wildlands observation. Provide for any **wildlife/wildlands** observation uses predicted for the foreseeable future.

#### Current Level:

UD/AH: 7,300 AH	Ave. No.: 10	Ave. Days: 365
	Peak: 100	Ave. Hrs.: 2

#### Objective Level:

UD/AH: 12,410 AH	Ave. No.: 17	Ave. Days: 365
	Peak: 100	Ave. Hrs.: 2

### Production History:

None established.

### Rationale for Objective:

This refers to people driving and walking uninterpreted roads and trails with the aim of viewing wildlife and **wildlands**. Approximately 30% of the 42,000 yearly estimated total visitation will participate in **Wildlife/ Wildlands** Observation. There is a general public demand for **Wildlife/ Wildlands** Observation on refuges. This demand is expected to grow at Buenos Aires refuge. The FWS generally encourages this type of activity and views it as a means of reaching a wide range of visitors. Availability of all-weather roads and a limited number of formal trails will physically restrict this activity. No habitat trade-offs are foreseen, as this activity will occur on existing roads and trails. disturbance to wildlife may become a problem at or above the objective level.

### Strategy for Accomplishing Objective:

The refuge will allow visitors to use existing roads and trails for **Wildlife/Wildlands** Observation during daylight hours. Some roads will be maintained to allow passenger cars and motor homes. Other, more primitive roads will be suitable for only pickups and 4 wheel drive vehicles. Horseback riders (See Horseback ODR) will also participate indirectly in **Wildlife/Wildlands** Observation activities. Occasional closures of particular areas may be necessary during critical biological periods.

Phase 1.

## Objective Documentation Record

Output: 330 PHOTOGRAPHY

### Objective:

To encourage wildlife photography by allowing access and providing a photographic blind(s) for use.

No numeric objective is required.

### Production History:

No records exist for photography use at Buenos Aires Ranch.

### Rationale for Objective:

Birders and general visitors spend a significant portion of their time photographing wildlife and scenic views. We predict a demand for blinds to facilitate photography for waterbirds, ducks, geese, etc. We expect a low level of demand by serious photographers for intensive use of the refuge. Proper siting of photographic blinds will minimize conflicts between general visitors and photographers using the blind. There are no constraints or trade-offs foreseen.

Current use of the refuge by serious photographers is estimated to be 60 per year for approximately 3 hours each. The upper limit for photographers would not be the total number, but the number wishing to use a blind(s) at any given time.

### Strategy for Accomplishing Objective:

One or more photographic blinds will be built at Aguirre Lake to facilitate photography. When Mormon Lake is eventually included in the primary public use area, it would provide an additional, less disturbed site for a photographic blind(s).

Within the main public use area, photographers will be allowed to set up with few restrictions so long as their activities are non-disruptive. If problems or space/time conflicts arise, the activity can be restricted or controlled by issuance of special use permits. There may be occasions when **requests** to photograph masked bobwhites will conflict with masked bobwhite management. We cannot guarantee accessibility of masked bobwhites for photographers, although these birds may be the most highly sought photographic target.

Phase 1.

Objective Documentation Record

Output: 204 HUNTING, MIGRATORY BIRDS

Objective:

To maintain migratory bird hunting opportunity. Restrict use to areas away from the public use interpretive area.

Current Level:

UD/AH: 270 AH	Ave. No.: 1	Ave. Days: 90
	Peak: 10	Ave. Hrs.: 3

Objective Level:

UD/AH: 540 AH	Ave. No.: 2	Ave. Days: 90
	Peak: 10	Ave. Hrs.: 3

Production History:

Buenos Aires Ranch provided some migratory bird hunting opportunities prior to acquisition. Although there is an abundance of public land and public hunting opportunity in southern Arizona, areas for waterfowl hunting are scarce due to the shortage of wetlands. Waterfowl hunting at Buenos Aires was a highly sought activity by a few hunters. The prime waterfowl hunting around Aguirre Lake was leased to a private hunting club. Public hunting was permitted around Mormon Lake and other ponds.

Dove hunting has wide-spread appeal. This activity is generally associated with agricultural areas, but dove hunting on Buenos Aires concentrated around watering sites where these birds concentrate. Buenos Aires offers water sites for both dove and waterfowl hunting, but the area does not provide the agricultural component necessary to provide sustained quality hunting.

Rationale for Objective:

Records of use are sporadic and incomplete. Our estimate is that probably no more than 30 visitors (for 4 hours each = 120 AH) hunted doves and no more than 50 hunters (for 3 hours each = 150 AH) participated in waterfowl hunting. Many of these visits represented repeat trips by the same user. Hunting doves and waterfowl is expected to increase as a result of increased water on the refuge and opening hunting to the general public. Limiting factors are a lack of dependable open water and crops which would attract a huntable population, and the availability of adequate hunting sites. Closing the primary

public use area should resolve possible conflicts between hunting and most other public uses. Hunting will be managed so that it has no negative impacts on wildlife populations.

Because this portion of southern Arizona has never been, nor ever should be, a significant waterfowl wintering area, the FWS has no objective to create a waterfowl wintering area in this part of the flyway. The limited habitat work called for in the waterfowl ODRs of this plan are to provide for wildlife diversity, interpretation, and to maintain a very limited hunter opportunity. The FWS will maintain approximately the same level of total hunting opportunity as was present prior to acquisition. However, different types of hunting may be increased or decreased depending on management activities which affect the species hunted.

#### Strategy for Accomplishing Objective:

The refuge will probably continue to serve only a limited clientele. The primary shift in hunting use will be that the ponds will be available on a first-come basis to any hunter, rather than to hunting lessees. Approximately 20,000 acres of the refuge will be closed to all hunting and reserved for the non-hunting public, to eliminate visitor conflicts and protect visitor safety. This will also provide a quiet, undisturbed area for wildlife and wildlife interpretation. The primary wetland at Aguirre Lake, which was formerly leased by a hunting club, will be closed to hunting and used as part of the public use interpretive area. About ten other small **ponds/** waterholes fall within this closed area as well. However, some 100 other water sites will remain open to public hunting, including Mormon Lake. Mormon Lake and other areas, as time and funds allow, will be enhanced so that waterfowl use should increase. The FWS has no plans to develop the agricultural component to increase dove and waterfowl hunting.

Phase 1.

Objective Documentation Record

Output: 212, 214, 215, 216 HUNTING, RESIDENT GAME (DEER, JAVELINA, PREDATORS, FURBEARERS, RABBITS, QUAIL)

Objective:

To allow hunting at a level which ensures the overall health of the refuge deer herd.

Current Level:

UD/AH: 6,000 AH	Ave. No.: 22	Ave. Days: 90
	Peak: n/a	Ave. Hrs.: 3

Objective Level:

UD/AH: 6,000 AH	Ave. No.: 22	Ave. Days: 90
	Peak: 250	Ave. Hrs.: 3

Production History:

Records for hunting resident game on Buenos Aires Ranch are incomplete. The Ranch did provide considerable quality hunting for mule deer and white-tailed deer and also provided hunting of resident small game. Upon acquisition, much of the former ranch was closed to quail hunting (approximately 50,000 acres) to protect hunters from taking masked bobwhite.

Rationale for Objective:

A very rough estimate of hunting demand was compiled from Arizona Game and Fish Department hunt records and observations by refuge staff (see the "Public Use Demand Analysis" for further explanation). Hunter use data for the refuge alone is difficult to separate from unit-wide information. It is estimated that approximately 30% of the mule deer hunters in Units 36A, 36B & C, hunt the refuge. Over 100 mule deer hunter camps were recorded on the refuge in 1985. The total number of days the refuge was open to mule deer hunting included 15 for the general hunt, 64 for archery, and 39 for muzzle-loader--totaling 146 days. Coues deer are hunted on the refuge within state game management Units 36A and 36B. General hunt seasons for this species included an additional 64 days (92 total). There is little information on the number of deer taken on the refuge portions of these units.

Note: 1,500 "hunter days" would be 1,500 hunters on the refuge for part of a day each, or 750 hunters out hunting for parts of 2 days.

Mule Deer	1,500 Hunter days
White Tailed Deer*	500 Hunter days
Quail	20 Hunter days
Predators and Furbearers	100 Hunter days
Rabbits	50 Hunter days
Javelina	400 Hunter days

Total 2,570 Use days \*

\* Some of the white-tailed deer hunting was on the Forest Service's Canoa Allotment, which was part of the former Buenos Aires Ranch.

No constraints to meeting the objective are foreseen. Hunting will be managed so that it will have no negative impacts on wildlife populations. Normal refuge management of deer populations will sustain this level of hunting, although there is only very limited white-tailed deer habitat on the refuge. Closing the primary public use area should resolve possible conflicts between hunting and most other public uses. Closure of the entire refuge to quail hunting should minimize the potential of masked bobwhite loss by accidental killing and the potential for a hunter to be cited for violations of the Endangered Species act. To compensate for these closures, the refuge will preserve and facilitate hunter access on other parts of the refuge. Management of the refuge for all wildlife should, over the long term, improve habitat and gradually allow increased hunting opportunity and quality on the 90% of the refuge still open to hunting. Thus total hunting activity hours will remain at approximately existing levels.

Strategy for Accomplishing Objective:

In order to better manage the refuge's game populations and provide opportunity for the hunter, the Buenos Aires refuge will be designated as a single, discrete hunting unit under Arizona Game and Fish regulations.

The entire refuge will be closed to quail hunting. Additionally, the primary public use area, approximately 10% of the refuge, will be closed to hunting and reserved for non-consumptive public use, primarily interpretation and wildlife/wildlands observation, which are expected to comprise 90% of the total refuge visitor use. Zoning in this manner will enhance wildlife visibility in the closed area, and minimize potential conflicts between user groups.

Hunting for species such as predators and rabbits with year-round seasons will be permitted when other refuge seasons are open, i.e. September 1 through the end of javelina season. All other seasons will conform to state hunting seasons and limits. feral hogs ma cer  
 d. "g he deer and elina easons.

Phase 1.



## Objective Documentation Record

### Output: 217 TRAPPING

#### **Objective:**

To allow harvest of furbearers without jeopardizing furbearer populations.

#### Current Level:

UD/AH: 240 AH	Ave. No.:	4	Ave. <b>Days</b> :	60
	Peak:	8	Ave. Hrs.:	1

#### Objective Level:

UD/AH: 540 AH	Ave. No.:	9	Ave. Days:	60
	Peak:	10	Ave. Hrs.:	1

#### Production History:

Records for trapping furbearers on Buenos Aires Ranch are lacking. Some trapping did occur on the ranch and adjacent areas but information about on-ranch activities is inseparable from other unit data. The primary target species were coyote and bobcat, although state law also allows the take of fox, badger, ringtail, skunk, and racoon which were taken in lesser numbers.

#### Rationale for Objective:

Trapping by licensed furtrappers (sport and commercial) was an established activity on Buenos Aires Ranch prior to ~~acquisition~~. This activity occurred at unknown levels, but is not thought to have caused serious adverse impacts on populations of furbearers. Refuge staff estimate that four trappers took a total of 280 animals (250 coyotes, 30 bobcats) during the 1985/86 trapping season on the refuge. The habitat of the refuge will support only a limited number of trappers, although more individual "sport" trappers could be accommodated than individual "commercial" trappers. Trapping is a low priority output and therefore will not be allowed to negatively impact any wildlife or public use objective. The above objective is a limiting objective.

#### Strategy for Accomplishing Objective:

Trapping will be permitted by Special Use Permit in accordance with state seasons and limits. Some portions of the refuge (e.g., the primary public use area) will be closed to trapping to prevent conflicts between trappers and other refuge user groups. The refuge will

monitor predator and masked bobwhite populations in an attempt to evaluate trapping impacts on masked bobwhite predation. If trapping is found to impact bobwhites either positively or negatively, the activity may be modified accordingly.

Phase 1 and 2.

Objective Documentation Record

Output: 300, CAMPING, WILDLIFE/WILDLANDS ORIENTED

Objective:

To provide for public camping in support of other public use objectives.  
To accommodate the established camping tradition as long as necessary, but  
to broaden it to all public users.

Current Level:

UD/AH: 9,000 AH	Ave. No.: 10	Ave. Days: 90
	Peak: 100	Ave. Hrs.: 10

Objective Level:

UD/AH: 15,000 AH	Ave. No.: 7.5	Ave. Days: 200
	Peak: 30	Ave. Hrs.: 10

Production History:

The only camping allowed at Buenos Aires Ranch was in conjunction with hunting. Over the years, some traditional camp areas evolved. Many sites were used yearly by the same groups of hunters. Several of these sites were in environmentally sensitive areas such as riparian habitats or high fire danger areas.

Rationale for Objective:

There are no established private or public campgrounds near Buenos Aires refuge. The hunting uses planned for Buenos Aires refuge require that some type of camping be permitted on or near the refuge. In addition, due to the distance of the refuge from urban areas, some type of camping opportunity could be offered to the general non-consumptive visitor as well. FWS policy, and limited funds and staff are constraints to developing and maintaining organized public campgrounds. Camping should not be permitted in the wildlife **interpretive** area. Camping is a low priority output and will not be allowed to negatively impact any other wildlife or public use objective. A small amount of funds and staff will be necessary to patrol and police the designated roads and primitive campsites. Wildlife will be temporarily displaced from the immediate vicinity of **individual** campsites. Camping should impact no more than 1% of available lands, none of which are in prime masked bobwhite habitat.

Strategy for Accomplishing Objective:

Camping will be limited to 14 consecutive days, to prevent long term visits. Certain roads will be designated as open for primitive camping. As much as possible, road designations will consider traditional camping use areas. No facilities will be provided. Vehicles must be parked within 100 feet of the designated road in order to prevent off-road travel. Road designations will avoid sensitive environmental or high fire danger areas. In addition, one road segment will be designated and maintained for camping use by motor homes and self-contained units. No other roads designated for camping will be maintained to allow motor home travel.

Camping will be closely monitored to determine whether conflicts occur between this use and other refuge outputs. The dramatic visitor increase predicted may create some problems. If problems occur, the refuge manager will restructure, restrict, or eliminate camping on the refuge. If off-refuge facilities are ultimately developed, the refuge will eliminate the recreational vehicle area, but will continue to allow dispersed, primitive camping.

Phase 1.

## Objective Documentation Record

Output: 460 OTHER NON-WILDLIFE RECREATION

### Objective:

Allow horseback riding.

No numeric objective will be set.

### Production History:

Several uses of Buenos Aires Ranch and Arizona state lands were taking place by permission prior to acquisition by FWS. Hobby gold panning in Arivaca Creek was a periodic activity. Horseback riding conducted by Rancho de la Osa occurred on a daily basis in fall, winter, and spring on the southern portion of the ranch. No estimates of total use are available. The gold panning activity **was** causing considerable damage to the riparian community along Arivaca Creek as panners drove in the streambed and gouged out sections of the bank to expose new sediment layers.

### Rationale for Objective:

There is an established use and demand for gold panning in Arivaca Creek. However, only those individuals with written permission from the mineral owner would be allowed to pan gold. The mineral owner has no interest in allowing this use. Thus, there will be no gold panning on the refuge.

The Service expects to receive occasional requests from individuals and groups for horseback riding on the refuge. Past horseback riding has generally been associated with hunting activity or with trail rides conducted by adjacent Rancho de la Osa. The Service expects that Rancho de la Osa will want to continue the use of refuge roads and trails for horseback riding in support of their dude ranch operation. Horseback riding over-use could cause trampling and erosion problems. This is a low priority activity and conflicts will be resolved in favor of higher priority objectives.

### Strategy for Accomplishing Objective:

The area north of Arivaca road will be open for horseback riding, without permit or special permission, to any non-commercial group or individual. Appropriate departure points will be developed to provide

parking for vehicles and horse trailers. Two such areas are planned, one approximately mid-way along Arivaca road, and one near the Pozo Nuevo turnoff at State Highway 286.

Horseback riding south of Arivaca Road will be allowed without permit by non-commercial groups and individuals on a designated trail near the south end of the refuge. The location of this trail will be determined by the refuge staff in consultation with local user groups. The trail will avoid heavily trafficked refuge roads, sensitive habitat, etc. Persons wishing to ride on other areas south of Arivaca road must get permission or a permit from the Refuge Manager in order to prevent conflicts with other users and management activities such as range or habitat manipulative studies.

All commercial horseback riding activities on the refuge will require a Special Use Permit which will define places, times, entry points, and other restrictions. Requests for occasional commercial use of other trails will be evaluated by the Refuge Manager upon request and may be permitted when found compatible with other objectives.

Phase 1.