APPENDIX A:
PREVIOUS CONSULTATION ON ARMY ACTIVITIES AT OR NEAR FORT HUACHUCA

APPENDIX A: PREVIOUS CONSULTATION ON ARMY ACTIVITIES AT OR NEAR FORT HUACHUCA

Consultation No	Date of Correspondence	Project	Species Addressed	Findings
2-21-02-F-0229	20 Jun 2005	Annual Report for the Fort Huachuca Biological Opinion		The Service reviewed the annual report for 2004 and found it met the requirements of the biological opinion.
2-21-02-F-0229 2-21-02-F-0266	6 Aug 2004	Informal Consultation on Cellular Antenna Towers	Bald eagle, lesser long-nosed bat, Mexican spotted owl, Huachuca water umbel and Sonora tiger salamander and designated critical habitat	The Service concurred with effect determinations.
2-21-03-I-0400 2-21-02-F-229	20 Aug 2003	Informal Consultation on 3 Additional Wind Data Towers	Bald eagle, lesser long-nosed bat, Mexican spotted owl, Huachuca water umbel and Sonora tiger salamander and designated critical habitat	The Service concurred with effect determinations.
2-21-02-F-229	23 Aug 2002	Biological Opinion for Ongoing and Programmed Future Military Operations and Activities on Fort Huachuca	Huachuca water umbel, southwestern willow flycatcher, Mexican spotted owl, lesser long-nosed bat, Sonora tiger salamander, spikedace, loach minnow, Canelo Hills ladies' tresses, bald eagle, jaguar and designated critical habitat	Activities will not jeopardize the continued existence of any species or destroy or adversely modify designated critical habitat. The Service issued take statements for the owl, bat and salamander and concurred with may affect determinations for other species
2-21-98-F-266	22 Feb 2002	Annual Report for the Fort Huachuca Biological Opinion		The Service reviewed the annual report for 2001 and found it met the requirements of the biological opinion.
2-21-98-F-266	25 Jan 2002	Conservation Easements	N/A	The Service concurred with water credit amounts for Clinton Ranch and with method used to determine water savings and credit.
CL 11-0030	14 Nov 2001	Fort Huachuca Integrated Natural Resources Management Plan	Huachuca water umbel, southwestern willow flycatcher, Mexican spotted owl, lesser long-nosed bat, Sonora tiger salamander, spikedace, loach minnow and Canelo Hills ladies' tresses and designated critical habitat	The Service commented on the INRMP.
2-21-01-I-413 CL2001637	24 Aug 2001	Wind Data Towers	lesser long-nosed bat and bald eagle	The Service concurred with may affect determinations.
2-21-98-F-266R4	9 May 2001	Garden Canyon Road Maintenance Project	Mexican spotted owl, Huachuca water umbel and critical habitat for each species	The Service concurred with may affect determinations.
2-21-98-F-266R3	17 Apr 2001	Grassland Fire Research Project	lesser long-nosed bat	The Service concurred with may affect determination.

Consultation No	Date of Correspondence	Project	Species Addressed	Findings
2-21-01-I-192	15 Mar 2001	Grassland Fire Research Project	lesser long-nosed bat, Huachuca water umbel, Mexican spotted owl and Sonora tiger salamander	The Service concurred with effect determinations
2-21-95-I-421	8 Dec 2000	203 acre land transfer	Huachuca water umbel, southwestern willow flycatcher, lesser long-nosed bat, bald eagle, spikedace and loach minnow and designated critical habitat.	The Service concurred with effect determinations.
2-21-98-F-266R2	29 Nov 2000	East Range effluent reuse program	Huachuca water umbel, southwestern willow flycatcher, Mexican spotted owl, lesser long-nosed bat, Sonora tiger salamander, spikedace, loach minnow and Canelo Hills ladies' tresses	Activities will not jeopardize the continued existence of the umbel, flycatcher, owl, bat or salamander or destroy or adversely modify designated critical habitat. The Service concurred with may affect determinations for the other species.
2-21-98-F-266R1	29 Sep 2000	UAV Program expansion and critical habitat designated for the spikedace and loach minnow	Huachuca water umbel, southwestern willow flycatcher, Mexican spotted owl, lesser long-nosed bat, Sonora tiger salamander, Canelo Hills ladies' tresses, spikedace and loach minnow	Activities will not jeopardize the continued existence of the umbel, flycatcher, owl, bat or salamander or destroy or adversely modify designated critical habitat. The Service concurred with may affect determinations for the other species.
2-21-00-I-345	28 Jul 2000	Bergey Wind Turbine	Lesser long-nosed bat and bald eagle	The Service concurred with may affect determinations.
2-21-00-I-183	3 Jul 2000	Veteran's Cemetery	Lesser long-nosed bat, Huachuca water umbel, southwestern willow flycatcher, loach minnow and spikedace	The Service concurred with may affect determinations.
2-21-98-F-266	27 Oct 1999	Programmatic Biological Opinion on Ongoing and Future Programmed Military Operations and Activities at Fort Huachuca, Arizona	Lesser long-nosed bat, Sonora tiger salamander, Mexican spotted owl, southwestern willow flycatcher, Huachuca water umbel, Canelo Hills ladies' tresses, loach minnow and spikedace	Activities will not jeopardize the continued existence of any species or destroy or adversely modify designated critical habitat. The Service issued take statements for the owl, bat and salamander and concurred with may affect determinations for other species.
2-21-98-I-310	16 Jun 1998	Fire management activities - South Range	Lesser long-nosed bat	The Service concurred that proposed actions may affect, but are not likely to adversely affect the bat
2-21-96-I-147	08 Jan 1998	Programmatic - all activities	Mexican spotted owl, peregrine falcon, southwestern willow flycatcher, lesser long-nosed bat, Sonora tiger salamander, Huachuca water umber, Canelo Hills ladies tresses	The Service requested that the Army request initiation of formal consultation
2-21-96-I-147	08 Oct 1997	Programmatic - all activities	Same as Above	The Service provided comments to the Fort on the draft Biological Assessment
2-21-96-I-127	18 Aug 1997	AZ Army National Guard activities at Fort Huachuca	Same as Above plus jaguar, ocelot, jaguarundi, Mexican gray wolf, cactus ferruginous pygmy-owl	The Service provided comments to the Guard on the Dec 1996 draft Biological Assessment on Guard activities

Consultation No	Date of Correspondence	Project	Species Addressed	Findings
No Number	14 Jul 1997	AZ Army National Guard activities at Fort Huachuca	Not Specified	The Service requested environmental assessment and mitigation of Guard activities at Fort Huachuca and elsewhere
2-21-96-I-127	No Date	AZ Army National Guard activities at Fort Huachuca	Mexican spotted owl, peregrine falcon, southwestern willow flycatcher, lesser long-nosed bat, Sonora tiger salamander, Huachuca water umber, Canelo Hills ladies tresses, Cactus ferruginous pygmy-owl, spikedace, and others	The Service provided comments on the 22 July 1996 draft Biological Assessment on Guard activities
2-21-96-I-127	09 Jun 1997	AZ Army National Guard activities at Fort Huachuca	Not Specified	The Service requested an update on consultation scheduling
2-21-97-I-196	04 Feb 1997	Regionalization of civilian personnel administrative functions	Mexican spotted owl, peregrine falcon, southwestern willow flycatcher, Cactus ferruginous pygmy-owl, bald eagle, lesser long-nosed bat, spikedace, Sonora tiger salamander, Huachuca water umber, Canelo Hills ladies tresses, jaguar, ocelot, jaguarundi, Mexican gray wolf, Gila topminnow	The Service agreed with no effect determination for subject species
2-21-96-I-147	18 Jun 1996	Preliminary draft Master Plan EIS	Same as Above plus Chiricahua dock	The Service provided comments on the preliminary draft EIS
2-21-96-I-142	13 Feb 1996	J-STARS EA	Mexican spotted owl, Huachuca water umbel, Sonora tiger salamander	The Service did not concur with the Fort's finding that the proposed action would not affect listed species
2-21-94-I-473	22 Sep 1995	Programmatic consultation on the draft master Plan EIS	Huachuca water umbel, San Pedro species	The Service suggested measures for mitigating possible adverse effects to San Pedro species
2-21-94-I-473	21 Jun 1995	Endangered species issues at the Fort	Southwestern willow flycatcher, Huachuca water umbel, spikedace, loach minnow, razorback sucker, desert pupfish, lesser long-nosed bat, Mexican spotted owl, peregrine falcon	Service comments on endangered species, especially in regard to the San Pedro River
2-21-95-I-087	21 Dec 1994	Sensitive species management Plan for the Fort	Aplomado falcon, San Pedro species	The Service forwarded a species list to the Fort and commented on concerns in regard to listed species
2-21-94-I-609	13 Oct 1994	EA for M1 tank operation	Mexican spotted owl	The Service commented on draft EA
2-21-94-I-473	14 Sep 1994	Possible base realignment	All listed species in the area	The Service provided the Fort's consultant with a species list for Fort Huachuca and surrounding areas
2-21-94-I-473	22 Aug 1994	Possible base realignment	All listed species in the area	The Service provided the Fort's consultant with a species list for Fort Huachuca and surrounding areas
No Number	25 Feb 1994	8th of the 40th tank training	Lesser long-nosed bat	The Service conditionally concurred with the Fort's no effect determination on the bat
2-21-92-I-146	04 Jan 1994	Proposed gas station and mini-mall	None	The Service determined that no listed species were present in the project area
No Number	28 Dec 1993	M1 tank maneuvers/firing	Mexican spotted owl	The Service expressed concerns over possible adverse effects to spotted owls

Consultation No	Date of Correspondence	Project	Species Addressed	Findings
No Number	17 Dec 1993	Draft EA M1 tank operations	Mexican spotted owl, lesser long-nosed bat	The Service commented on the draft EA
2-21-94-I-054	03 Dec 1993	EA for renovation of Greely Hall	None	The Service concurred with a no effect determination to listed species
No Number	07 May 1993	EA for restricted airspace over South Range	Lesser long-nosed bat, Mexican spotted owl	The Service found that no additional effects to listed species would occur as a result of the action
No Number	01 Apr 1993	EA for comprehensive unmanned air vehicle (UAV)	Lesser long-nosed bat, Mexican spotted owl	The Service provided comments on the draft EA
No Number	04 Nov 1992	EA for Applied Instructional Building for UAVs	Not specified	The Service provided comments on the draft EA
2-21-92-I-742	02 Oct 1992	EA for renewal of leases at Willcox Playa and Sands Ranch	Lesser long-nosed bat	The Service concurred on the Fort's determination of no affect to the lesser long-nosed bat
No Number	24 Aug 1992	EA for Applied instructional Building for UAVs	Not specified	The Service provided comments on the draft EA
No Number	11 Aug 1992	Comprehensive EIS on Fort Huachuca activities and missions	Lesser long-nosed bat, Mexican spotted owl	The Service commented on the need for a comprehensive EIS and Biological Assessment
No Number	2 Jun 1992	EA for Fort Huachuca Installation Asbestos Management Plan	Lesser long-nosed bat	The Service concurred on the Fort's determination of no affect to the lesser long-nosed bat
No Number	14 Apr 1992	EA for 79 Army Security Agency (ASA) points near and on the Fort	Lesser long-nosed bat	The Service provided comments on the draft EA
No Number	19 Mar 1992	Draft FONSI for Vehicle Magnetic Signature Duplicator test	None specified	The Service found that no listed species would be affected
2-21-92-I-153	12 Mar 1992	EA for Test and Experimental Command (TEXCOM), Unmanned Air Vehicle-Short Range (UAV-SR)	Lesser long-nosed bat	The Service provided comments on the draft EA
2-21-90-I-257	10 Mar 1992	Request to extend the UAV-SR Program to June 30, 1992	Lesser long-nosed bat	The Service provided no objection to the time extension
No Number	26 Feb 1992	EA for continuation of Join Terminal Information Distribution System (JTIDS)	None specified	The Service provided comments on the draft EA
No Number	11 Feb 1992	Advanced Airlift Tactics Training Center (AATTC)	Lesser long-nosed bat	The Service provided comments on mitigation measures
No Number	17 Dec 1991	Dec 1991 and Jan 1992 test of the JTIDS	None specified	The Service found that no listed or proposed species would be affected
2-21-92-I-193	07 Jan 1992	Proposed expansion of Black Tower UAV compound Fort Huachuca Base Realignment	Not specified	The Service provided comments on the project
2-21-92-I-146	12 Dec 1991	Fort Huachuca Base Realignment	Lesser long-nosed bat, Mexican spotted owl	The Service provided a species list for BRAC 91
No Number	02 Dec 1991	Draft EA for Development of a Forward Operating Base for the Advanced Airlift Tactics Training Center, Joint Operations Training	Lesser long-nosed bat	The Service provided comments on the draft EA
No Number	02 Dec 1991	Draft FONSI for TEXCOM test of TOPHUNTER tactical communication Intelligence direction finding system	Lesser long-nosed bat	The Service provided comments on the draft FONSI
No Number	02 Dec 1991	EA for Electronic Proving Ground JTIDS on 24 sites within 40 mi. of Fort Huachuca	Lesser long-nosed bat	The Service provided comments on the draft EA
2-21-92-I-053	08 Nov 1991	UAV tests by TEXCOM	Lesser long-nosed bat, peregrine falcon, Gila topminnow, Mexican spotted owl	The Service provided a species list for the subject project

Consultation No	Date of Correspondence	Project	Species Addressed	Findings
2-21-91-I-534 2-21-91-I-442	02 Oct 1991	Exercises of the 11th Signal Brigade	Not specified	The Service found that consultation on individual exercises is not necessary under specified conditions
No Number	23 Sep 1991	EA for Fire Department Training Academy	Lesser long-nosed bat	The Service found that the action would not affect the lesser long-nosed bat
No Number	23 Sep 1991	UAV Projects	Lesser long-nosed bat	The Service concurred with the Fort's determination of no effect to listed species
2-21-91-I-534	20 Sep 1991	EA for 11th Signal Brigade Exercises, Nov 1991	Not specified	The Service concurred with the Fort's determination of no effect to listed or proposed species
2-21-90-I-257	06 Sep 1991	UAVs	Lesser long-nosed bat	The Service conditionally concurred with the Fort's determination that the project would not likely adversely affect to the lesser long-nosed bat
2-21-91-I-477	27 Aug 1991	EAs for renewal of leases at Willcox Playa and Gila Bend	Lesser long-nosed bat, Whooping crane, Tumamoc globeberry	The Service concurred with the Fort's determination of no effect to listed species
No Number	09 Jul 1991	8th of the 40th Army Reserve Unit Training, fires in agave areas, etc.	Lesser long-nosed bat	The Service commented on issues involving listed species and discussed the need for a comprehensive consultation on all activities at the Fort
No Number	1991	8th of the 40th Army Reserve activities	Not specified	Compliance of the 8th of the 40th with conditions/environmental regulations
2-21-90-I-257	30 May 1991	UAV activities over Canelo Hills and Patagonia Mountains	Lesser long-nosed bat	The Service conditionally concurred with the Fort's determination that the project would not likely adversely affect to the lesser long-nosed bat
2-21-91-I-207	19 Mar 1991	Prescribed fire on Area W	Lesser long-nosed bat	The Service provided comments on the proposed fire and identified a need for a comprehensive Fire Management Plan
2-21-91-F-083	18 Jan 1991	Prescribed fire and fire breaks on South Range	Lesser long-nosed bat	Biological Opinion, in which the Service found that the action would not jeopardize the continued existence of the lesser long-nosed bat
2-21-91-F-083	18 Dec 1990	Prescribed fire and fire breaks on South Range	Not specified	The Service acknowledged receipt of request for formal consultation
2-21-91-I-041	14 Nov 1990	Tank firing at Fort Huachuca	Lesser long-nosed bat, peregrine falcon	The Service provided a list of species in the project area
No Number	04 Jun 1990	EA for UAV runway	Lesser long-nosed bat	The Service concurred with the Fort's determination that the project would not affect the lesser long-nosed bat
No Number	23 May 1990	Base realignment	Lesser long-nosed bat	The Service concurred with the Fort's determination that the project would not affect the lesser long-nosed bat
No Number	27 Mar 1990	UAV Runway	Lesser long-nosed bat	The Service provided comments on the first draft of the EA
No Number	20 Mar 1990	NEPA, ESA issues, prescribed fire	Lesser long-nosed bat	The Service provided comments on the NEPA and ESA processes
No Number	21 Dec 1989	EA/scoping letter for High Frequency Test Facility at Site Sibil	Lesser long-nosed bat	The Service provided comments on the draft EA/scoping letter

Consultation No	Date of Correspondence	Project	Species Addressed	Findings
No Number	11 Sep 1989	Relocation of High Frequency Radio Transmitter from Blacktail Canyon to Site Sibil	Lesser long-nosed bat, peregrine falcon	The Service requested an opportunity to comment on the draft EA
No Number	24 Sep 1989	EA for High Frequency Test Facility	Lesser long-nosed bat	The Service provided comments on the draft EA
No Number	15 Mar 1990	EA for Base Realignment	Lesser long-nosed bat	The Service commented on the draft EA and stated that Section 7 consultation may be required
No Number	29 Aug 1989	EA for UAV	Not specified	The Service concurred with the Fort's FONSI
No Number	13 Jul 1989	Effects of fire and training on lesser long-nosed bat	Lesser long-nosed bat	The Service commented on recent fires, and the need for a comprehensive evaluation of effects of military activities at Fort Huachuca on the lesser long-nosed bat
No Number	23 Nov 1988	NEPA and ESA processes	Lesser long-nosed bat	The Service identified a need for better coordination between Fort Huachuca and the Service on NEPA and ESA issues

APPENDIX B:
MAJOR UNIT DESCRIPTIONS

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MAJOR UNIT DESCRIPTIONS

US ARMY WHITE SANDS MISSILE RANGE - ELECTRONIC PROVING GROUND

The EPG is an independent Directorate of the US Army White Sands Missile Range, which is in turn a part of the US Army's Material Command in Alexandria, Virginia. The mission of EPG is to conduct laboratory and field tests to evaluate new and proposed military communications and electronic equipment. Tests are also conducted to evaluate new product items, and to evaluate improvements to existing field equipment. The test results are used by the Army, other defense agencies, and equipment manufacturers for decision-making concerning further development or production of the test equipment. Field tests usually consist of deploying vehicles and personnel to a number of on-post and off-post ASA (for the former Army Security Agency) sites. Individual tests typically will employ different combinations of sites, with each site occupied by one or two vehicles containing the test equipment. EPG normally has approximately 200 tests or projects active at any given time. Approximately fifty of these tests are conducted annually using a current network of about 2,400 on-post and 675 off-post "ASA site" field locations. The balance of the tests uses EPG installations located in the cantonment. Tests may also employ UAS.

EPG test facilities at Fort Huachuca consist of an antenna test facility, a compact range, a radar tracking network, an EMI/EMC test facility, avionics Global Positioning System (GPS) test facility, UAS test facility, and a complete environmental effects test laboratory.

INTELLIGENCE ELECTRONIC WARFARE DIRECTORATE

This organization is the Intelligence Electronic Warfare Test Directorate (IEWTD), with their higher headquarters located at Fort Hood, Texas. IEWTD is responsible for conducting operational tests on communication and direction finding UAS and other electronic warfare systems for the DoD and other national intelligence agencies. The mission of the IEWTD is to conduct realistic operational tests of new and/or upgraded Intelligence and Electronic Warfare equipment and systems. Results of these tests are used by DoD officials in determining the suitability of new systems for purchase and ultimately, fielding throughout the DoD.

The full-time military and civilian strength of IEWTD, to include support contractors, is generally about 130 people. However, in many instances during the conduct of annual tests, the figure may increase substantially for short periods of time. For instance, during a test, there may be as many as 40-50 soldiers and civilians from other military posts at Fort Huachuca on temporary duty to assist with the test. Additionally, support contractors might hire numerous temporary workers for the duration of a test. Test periods do not usually exceed 2-3 months at a time. At the conclusion of the test, the temporary duty soldiers and civilians return to their home post, and temporary support contractor personnel are released.

The IEWTD tests Intelligence and Electronic Warfare equipment. These types of equipment are generally electronic, computer, or radar imaging systems, and can be moved on wheeled, track,

or Army standard aircraft. In the future, IEWTD will test tactical UAVs. On occasion, IWETD uses standard Army motor vehicles as targets for radar systems. Drivers of those vehicles receive extensive training in environmental concerns (i.e., use of oil drip pans when stopped, areas not to drive in, etc.).

The majority of tests are conducted within the confines of the IEWTD compound on Fort Huachuca. Some tests are conducted using existing facilities on Fort Huachuca (i.e., established ranges, buildings owned by other organizations, airfield facilities, etc.). Infrequently, off-post areas and roadways are used for vehicular traffic. In these instances, IEWTD always coordinates and receives clearance from the Fort Huachuca Environmental Office at the DPW.

JOINT INTEROPERABILITY TEST COMMAND

JITC is a Defense Information System Agency (DISA). Their purpose is operational and interoperability testing. Fort Huachuca is a major range and test facility base for this command. They have approximately 790 military, civilian, and contract personnel. They operate in Buildings 57305, 57428, and on a 40-acre remote site leased from the state. They use military communications equipment during normal office hours and occasionally on weekends and holidays.

The DISA aggregates all communications networks, sensors, data entry devices, computer resources, facilities, and staffs which provide collection, production, storage, display, and dissemination of information. JITC tests equipment and systems developed by the individual service branches and evaluates the interoperability of the test equipment with equipment, tactics, and doctrine of the other service branches.

The majority of tests performed at the JITC involve bench tests or other non-environmentally intrusive tests conducted internally within self-contained laboratories or facilities on the installation near LAAF, and at the High Frequency Test Facility (HFTF) transmitter site situated on approximately forty acres of land within the East Range.

US ARMY INTELLIGENCE CENTER

US Army Intelligence Center is comprised of administrative and training functions. The Center is responsible for Military Intelligence doctrine for the US Army. Additionally, the center oversees training of Military Intelligence personnel from Army, Air Force and Marine students throughout their career progression. The USAIC includes several directorates for doctrinal work, and two training brigades, the111TH and the 112TH Military Intelligence Brigades, and several training detachments from other US armed services.

The MI Brigades provide intelligence and electronic warfare training, testing, maintenance and support to the Intelligence Center and Fort Huachuca. The brigades consist of five MI battalions and two detachments. Four battalions (304th MI, 305th MI, 309th MI, and 344th MI) and one detachment (HHD, 111th MI Brigade) are located at Fort Huachuca. In addition to its primary mission of MI training, the units deploy subject matter experts and units equipped with low

density systems such as the UAS, and Trojan Special Purpose Integrated Remote Intelligence Terminal (SPIRIT) to contingency operations throughout the world.

The UAS Training Battalion on the West Range is a tenant unit of the 1st Aviation Brigade, at Fort Rucker, AL. This training is conducted at the Black Tower Complex, approximately six miles west of the cantonment area on the West Range, by the C/304th and D/304th. Their mission is to train UAS operators for the US Army. Operational proficiency training involves field exercise activity by the UAS training Battalion. They have approximately 500 personnel and anticipate training approximately 400 students annually through the year 2008. They operate almost entirely on the West Range from approximately 5:00 AM to 10:00 PM. They use equipment such as UAS, ground control stations, mobile power units, and antennas.

NETWORK ENTERPRISE TECHNOLOGY COMMAND/ 9TH ARMY SIGNAL COMMAND

The Network Enterprise Technology Command (NETCOM) is a direct reporting command of the Department of Army. The NETCOM mission is to deliver a responsive, deployable, agile signal force in support of Commanders in Chief and Army Service Component Commanders. Operate, sustain, and protect the Army's portion of the Global Information Grid, enabling force projection and the delivery of decisive combat power. In addition to administrative functions, the NETCOM also is the higher Headquarters for the 11th Signal Brigade, located at Fort Huachuca.

The 11th Signal Brigade provides contingency communications support as directed by the Joint Chiefs of Staff to United States deployed units and organizations throughout the world. At Fort Huachuca the brigade has approximately 1,400 authorized personnel.

US ARMY COMMUNICATIONS ELECTRONICS COMMAND

The US Army Communications Electronic Command (CECOM) is part of the US Army Electronics Command headquartered at Fort Monmouth, New Jersey. Their mission includes handling communication security equipment and training students to support communication equipment. They operate in Greeley Hall during normal office hours. The US Army Information Systems Engineering Command (ISEC) is a subordinate command of CECOM and AMC. ISEC is the US Army System Engineer. They primarily work on Army projects, but also support other government agencies and DoD branches as directed. At Fort Huachuca their personnel operate during normal office hours in three buildings on the installation.

US ARMY GARRISON AND OTHER SUPPORT

The US Army Garrison manages the multitude of functions and services that keep the 73,000-acre installation operating so that other organizations on post may concentrate on their primary missions. In addition to several functional directorates, such as the DPW and the Directorate of Community Activities which are comprised primarily of civilian and contract employees, the Headquarters Commandant Garrison, located in Alchesay Barracks, provides support to the Garrison. The Commandant exercises command over military operations including the 36th Army Band, the 18th Military Police Detachment, and the Ceremonial Detachment. As a city unto itself, the Garrison provides support to Fort Huachuca just as any city government supports

its community. For instance, the Garrison provides such services as military and civilian personnel, legal, inspector general, logistical, facilities engineering, fire and safety, housing, public affairs, resource management, internal audit compliance review, and crime prevention/law enforcement. The Garrison maintains telecommunications facilities, equipment, and resources common to all partner organizations as well as community facilities and provides necessary services for religious, health, welfare, and entertainment activities. The Garrison is responsible for maintaining Fort Huachuca's quality of life.

Other support activities include the MEDDAC (medical clinics), the DENTAC (dental clinic), AAFES (Post Exchange), the commissary, the Accommodation Schools for army family members, financial services (bank, credit union), and Non-appropriated funds personnel who run restaurants and recreational activities.

US ARMY RESERVE TRAINING ACTIVITIES

The 63rd Army Reserve Support Command (ARSC) is the operational command for US Army Reserve training activities performed at Fort Huachuca. There are two Reserve units under this command using the Installation, which are the 208th and 257th Transportation Companies. Both transportation companies conduct four training exercises each year. The 208th and 257th Transportation Companies operate on the Fort’s East and South Ranges. Their exercises include simulation of convoy training along existing roads and bivouacking for a fourth of the personnel at one time. The 208th has approximately 68 vehicles. The 257th Transportation Company activities includes simulation of convoy training along roads, hauling tank equipment on vehicles, and setting up bivouacs for Reservist camping. The 257th Company has approximately 46 vehicles which includes 34 HET vehicles. Other Army, Air Force, and Marine Reserve and National Guard units may drill or perform Annual training at Fort Huachuca on an irregular basis.

APPENDIX C:
FORT HUACHUCA FISHING FACTS

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Environmental and Natural Resources Division, Building 22526, phone: 533-2549.

Fishing on Fort Huachuca is open to the general public.

Ponds currently available for fishing on-post are:

Golf Course Pond
Gravel Pit Ponds
Woodcutters Pond
O Club Pond (Lakeside Club)

Inquire about current conditions at the Sportsman Center.

1. Fishing License Requirements

   a. Adult Fisherman, age 14 and older must have in their possession the following licenses:

      (1) A valid Arizona fishing license or a valid Arizona combination hunting and fishing license, and

      (2) A valid Fort Huachuca fishing permit ($10 per year) <u>or</u> a 9-day temporary Post fishing permit ($3)

      (3) In order to take trout, Arizona law requires a Trout Stamp to validate a class A (general) fishing license.

   b. Juvenile *Anglers*:

      (1) 9-13 years old, NO Post fishing permit required. (A $3 Post fishing permit fee has been waived).

      (2) 0-8 years, <u>NO</u> Post fishing permit required, but to ensure safety, these children must be accompanied by a <u>licensed</u> fisherman who is at least 16 years old.

   c. Duplicate Post fishing permit ($2).

2. All fishing licenses are sold at the Fort Huachuca Sportsman Center located on Garden Canyon Road. The Sportsman's Center is closed Monday and Tuesday, phone 538-7085. Post fishing permits <u>only</u> (for those who already have their Arizona licenses and trout stamp, if applicable) are available at MWR Rents (Monday and Tuesday) at the corner of Irwin and Hunter Streets, phone: 533-6707.

3. Fishing Regulations: Except for the rules listed below, fishing regulations for Fort Huachuca are the same as Arizona Fishing Regulations.

   a. The daily individual limit of fish on Fort Huachuca is as follows:

Rainbow Trout	5
Channel Catfish (10 inch min)	5
Largemouth Bass (10 inch min)	5
Bluegill and other sunfish	5

   b. Military training has priority over fishing; *therefore* some ponds may be closed to fishing during training. *Anglers* must call Hunter Control (MP Desk) at 533-2181, before fishing at Woodcutters Pond (i.e. ask if Area T3 is open).

   c. Fishing on Post is only authorized during hours of daylight.

   d. The use or transportation of <u>live bait of any kind,</u> including fish, salamanders, or crayfish (crawfish, crawdads) is **<u>NOT AUTHORIZED</u>** on Fort Huachuca.

   e. *Anglers* are not allowed to possess firearms on Fort Huachuca.

   f. *No* boating or swimming is allowed on Fort Huachuca ponds, *except for fishing float tubes.*

   g. Littering and fish cleaning is prohibited at the pond site.

   h. *Anglers* may not camp or build fires by ponds.

   i. **Capture, transport, or release of Salamanders is prohibited.**

   j. Failure to comply with these fishing regulations may result in fines/or revocation of the Fort Huachuca Fishing Permit.

Updated June 2002

Appendix D:
FORT HUACHUCA AGAVE MANAGEMENT PLAN

AGAVE MANAGEMENT PLAN

FORT HUACHUCA, ARIZONA

Prepared by

Environmental and Natural Resources Division
Directorate of Public Works

December, 2006

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EXECUTIVE SUMMARY

Palmer's agave, *Agave palmeri*, also known as the century plant, is a succulent which is important to Lesser Long-Nosed Bats (LLNB) as it represents the primary food source during part of its annual seasonal migration (July through October) (Howell et. al.1995 and Slauson 2000). The objective of this management plan is to maintain a sufficient number of self-sustaining natural populations of Palmer's agave on Fort Huachuca and to ensure the continued presence and protection of suitable concentrations of this important food source against natural and human threats.

Populations of Palmer's agave are found on the South and West Ranges of the Fort. Several areas of these Palmer's agave stands on the South and West Ranges are protected and recognized as Agave Management Areas (AMA). In 1990 Agave Management Areas (AMAs) were identified based on a 1989 map developed by a Fort Wildlife Biologist and the Range Control Officer (Derdeyn 1989). AMAs are located on the South and West Ranges where several areas of abundant Palmer's agave stands are found. Palmer's agave stands were outlined based on density of highly visible reproductive adults. This map was modified several times in the early 1990s based on recommendations from the U.S. Fish and Wildlife Service (USFWS), fire fighting protocols outlined by the Post Fire Department, studies by Howell and Robinette (1995), and necessity of use by Range Control. In late 2005 and early 2006 a pilot study was conducted in an effort to set reasonable sampling objectives and develop a sampling design that would satisfy those objectives (Schlichting 2006). The pilot study was used to develop a monitoring protocol to identify trends in the population (Schlichting 2006). This study also resulted in designating new Agave Management Areas and a new map.

Threats to survival of Palmer's agave populations on Fort Huachuca are numerous. Habitat alteration, invasive species, fire, depredation, and mission essential operations can all have a detrimental effect on Palmer's agave populations. The following guidelines delineate reasonable actions believed necessary for the long-term maintenance of stable Palmer's agave populations on Fort Huachuca:

1. Prior to construction activities located in agave management areas, pre-construction surveys shall be conducted for paniculate Palmer's agave that may be directly affected by construction activities. If Palmer's agave are found during pre-construction surveys, the following measures shall be implemented:
    a. Disturbance shall be limited to the smallest area practicable, damage to Palmer's agave shall be avoided where possible, and projects shall be located in previously disturbed areas whenever possible.
    b. Vehicle use shall be limited to existing routes and areas of disturbance except as necessary to access or define boundaries for new areas of construction or operation.
    c. All workers shall strictly limit their activities and vehicles to designated areas. Construction workers shall be informed of these terms and conditions.

2. No seeding/planting of nonnative grasses or other plants shall occur at Fort Huachuca that may alter fire frequencies in wildland areas. However, seeding with hybrid sterile seeds in disturbed construction sites is authorized to establish a temporary ground cover for erosion control. This is only authorized during fall and spring when it is not feasible to seed with native species.

3. Prescribed fire and managed natural fire shall be planned to minimize adverse effects to lesser long-nosed bat forage plants and roosts. Measures shall be developed to ensure the following:
    a. Fires in agave management areas shall be actively suppressed unless the area is approaching its natural fire return interval of 10 years.
    b. Prescribed fire on the west range will be scheduled so that no more than ½ the agave management areas are burned in one year with no less than a two year waiting period before burning the remaining areas.
    c. A mitigation plan shall be developed by the Fort in coordination with the Service for each prescribed or managed natural fire within 0.5 mile of a lesser long-nosed bat roost. The mitigation plan shall ensure those effects to lesser long-nosed bat roosts and forage plants are minimized and shall include monitoring of effects to

forage plants. The Service shall approve the plan. Mitigation and monitoring for managed natural fire shall be coordinated with and approved by the Service as soon as possible after a decision is made to let a natural fire burn under controlled conditions.

d. A schedule for prescribed burns shall be established and followed to reduce fuel loading in Fort Huachuca grasslands and woodlands, thereby reducing the potential for major wildfires in lesser long-nosed bat foraging and roosting habitat. This schedule shall be coordinated and approved by the Service.

e. Nighttime training shall not occur in agave management areas from July 1 through October 31.

4. No nighttime use and no tracer fire shall occur on live fire ranges 2,3, and 4 from July1 through October 31.

5. Off-road vehicle travel shall not occur in protected agave management areas or any other part of the West Range or South Range.

6. Pyrotechnics and blank ammunition shall not be used within 0.25 miles of protected agave management areas.

7. The Fort shall conduct monitoring of Palmer's agave populations on the West and South Ranges consistent with efforts of other agencies and research.

As monitoring efforts progress and more data becomes available, designated agave management areas may be modified as necessary. Modifications may include additions or deletions of designated areas.

INTRODUCTION

Palmer's agave (*Agave palmeri*) is not a rare or endangered plant; however, its association as an important forage resource for the federally endangered lesser long-nosed bat (*Leptonycteris curosaoe yerbauenae*) (LLNB) necessitates additional conservation measures. Palmer's agave is important to LLNB as it represents the primary food source during part of its annual seasonal migration (July through October) (Howell et. al.1995 and Slauson 2000). The objective of this management plan is to maintain a sufficient number of self-sustaining natural populations of Palmer's agave on Fort Huachuca and to ensure the continued presence and protection of suitable concentrations of this important food source against natural and human threats. This plan will describe present and historical Palmer's agave research, and inventory and monitoring projects conducted within the fort's boundary. Secondly, this plan will identify the current distribution of Palmer's agave on the fort. Finally, this plan will describe the management actions the fort has developed to ensure the continued viability of Palmer's agave stands within the boundaries of Fort Huachuca. A considerable amount of work has gone into updating Agave Management Areas (AMA's) in the 2006 calendar year. This plan incorporates the most recent data and decisions based on these data.

SPECIES DESCRIPTION

The genus agave is distinguished by having a basal rosette of succulent, often blade-like leaves from which a somewhat tall woody flowering stem arises. Flowers are tubular, thick-walled, and form woody multi-seeded dry pods. After flowing, almost all agave species die. The following description of *Agave palmeri* is a composite from Gentry 1972 and 1982, Kearney and Peebles 1960, and Breitung 1968:

> Rosettes at first single, uncommonly suckering in more mature plants. Rosettes 5-12 dm tall, 10-12 dm broad, rather open around conal bud (i.e., not cabbage-like). Leaves rigid and lanceolate, thickened at base. Leaves 35-75cm X 7-10cm. Leaf margins have slender dark teeth along the side. The teeth are biggest toward the middle of the leaf. Most are about 5mm apart. The end of each leaf is tipped with a spine 3-6cm long.
>
> The flowering stalk grows 3-7m tall with numerous branches of many flowers. The branches are horizontal and the branch itself about twice as long as the flowering cluster. The flowers are pale greenish yellow to

> waxy white; reddish in bud. They are 45-55mm long with stamens projecting beyond the tepals (= combination of petals and sepals). Fruit capsules are dry, three chambered pods, oblong to pyriform 3.5-6 X 1.8-2cm. The seeds are think, flat, and black, 5-7 min. along the straight edge.

Palmer's agave is characteristic of Arizona and Sonora oak-grasslands thirty five hundred to five thousand feet (Gentry 1972, 1982). Palmer's agave prefers stony hillslopes and dissected alluvial fans. It is not found in significant numbers in valley areas. It occurs on a variety of parent materials including limestone, granite, shale, and quartzite. It thrives on deep, slightly acidic, red clay soils with surface covers of rock, cobble, and gravel. It flowers typically June through August, sometimes into September.

NATURAL HISTORY

Palmer's agave, also called century-plants, are large paniculate succulents. More closely related to lilies than cacti, agaves occupy a unique plant family, the agavacea. In the area of Fort Huachuca, two species of agave occur, *Agave palmeri* and *Agave parryi*. Both exhibit a rosette of blade-like leaves from which emerges, at maturity, a flowering stalk several meters high with showy branches of yellowish flowers along its length.

Palmer's agave may be distinguished by more globose rosettes, heavily suckering. The leaves are shorter and wider (20 X 40cm) and placed in a compact fashion around the center cone, almost cabbage-like. The teeth on the leaf margins are biggest toward the apex, the terminal spine of the leaf 1.5-3mm. The flowering stalk and branches are more robust than *Agave parryi* stalks. The flowers are 60-75mm long and bright light yellow. The seeds are roughly half-moon shaped. Generally, *Agave parryi* is a higher altitude plant preferring five to nine thousand feet. It flowers earlier, generally in May and June. *Agave parryi* is not actively managed on the fort.
Agaves are adapted to the arid conditions of the region by their water-storing leaves protected by a waxy cuticle. They are Crussulacean Acid Metabolism (CAM) plants, where carbon dioxide is captured at night and held in organic acids to be used in photosynthesis during the day. This allows for the minimization of water loss, as stomata remain closed through the heat of the day. The radial arrangement of agave leaves catch rain and direct it toward the base of the plant. The

agaves have a very shallow, but vast network of roots through which they may take advantage of even light rainfall and possibly the dew of fall mornings.

In the summer, usually in late May or early June, some of the mature plants in an agave community begin sending up robust asparagus-like flowering stalks which may grow to heights of seventeen to twenty feet within a month. Gentry (1982) estimates that a rosette must store nutrients for up to twenty five years before it can support this massive reproductive effort. Howell and Roth (1981) found the flowering stalk to comprise over fifty nine percent of the plant's total biomass with over one thousand flowers, almost a liter of nectar, thirty eight grams of pollen, and up to twenty thousand ovules. Park Nobel (1977) has shown that the photosynthetic capacity of the plant cannot keep up with the demands of the growing inflorescence. Additionally, there is massive movement of carbohydrates and water from the leaves, so much so that the rosette is dying by the time the seeds are forming.

Agave flowers are conspicuously protandrous, meaning the pollen or male aspect of the flower appears first. Some days later, the male elements are withered and the stigma, or female element, emerges. This timing largely precludes a flower receiving its own pollen and promotes outcrossing. Although Palmer's agave may appear to be flowering by day, in fact, it is a nocturnal blossom. Pollen is not presented on the anthers until after eight o'clock at night, nor is nectar produced until that time. The stigmatic surface of the flower is not open and receptive to pollen except at night (Howell 1979, Howell and Roth 1981). Thus, agaves exhibit many characteristic of chiropterophily (nocturnal nectar flow, pollen release, and receptivity of the female parts to pollen, strong floral odor, and high levels of pollen protein with relatively low levels of nectar sugar concentrations) (Howell 1977, 1979 and Slauson 2000). Each flower has hundreds of ovules, which upon receiving pollen grains, may form seeds. As the seeds mature, the ovary walls form a dry woody seed pod which splits and allows the seeds to fall or be shaken out by the action of wind or perching birds. The seeds offer no incentive for active animal dispersal and, in fact, the seed coat may contain chemicals which make the seeds relatively unpalatable to many animals.

ECOLOGICAL RELATIONSHIPS

"Agave" comes from a Greek word meaning "admirable" or "noble". This is not inappropriate for a plant which was a veritable supermarket to early native Americans. These species were used for fiber, paper, medicine, instruments, building material, food, and drink. The agave was to indigenous southwesterners what the buffalo was to the plain Indians. Sauer (1965) contends that agaves were a primary agriculture crop in the region, along with corn and squash. Agaves have been used by man for at least nine thousand years, and managed for at least seven thousand (Callen 1965). Rural Mexicans today still put agaves to pre-Columbian uses. Cultures world-wide still use agave products such as sisal, henequen, tequila, and pharmaceutical steroids. Human transport of agaves and crossing of early varieties may have fostered many of the species we find today.

Nectar bats and agave PALMERI

The lesser long-nosed bat (LLNB), *Leptonycteris curasoae yerbabuenae* (formerly *L. sanborni*) was listed as federally endangered in 1988 (53FR 38456; September 39, 1988). The Mexican long-nosed bat *Choeronycteris mexicana* is a federal species of concern and state endangered. Both of these bats have long snouts with a leaf-shaped flap of skin at the end. Both belong to the tropical family phyllostomidae. *Leptonycteris* bats are highly social and far outnumber *Choeronycteris* who live singly or in tiny groups. Both appear to feed on the same kinds of flowers.

Leptonycteris, however are nectar feeding bats of primary concern on the fort due to their endangered status. On Fort Huachuca, identified roost sites for LLNB include Pyeatt Cave, Manila Mine, and Wren Bridge (Sidner 2006). The number of LLNB roosting on the fort has risen from 50 in 1990-1992 to over 14,000 in 2005 (Sidner 2006). The increase in numbers of these bats is coincident with careful stewardship and protection of important cave roosts on the fort (Sidner 2006). The 2005 survey season was the 16th consecutive year of biological monitoring for LLNB on the fort.

LLNB follow an annual circuit from central or southern Sonora to Arizona following the blooming cycle of a variety of plants. The bats obtain their carbohydrates from nectar, and

pollen is their sole protein source (Howell 1974). As the bats move northward, tropical vegetation gives way to more xeric communities and the bats find fewer appropriate food plant species. When *Leptonycteris* reach Arizona in late April and May, they feed on saguaro and organ pipe flowers. Later in the summer, when these cacti have stopped flowering, the bats switch to paniculate agaves like Palmer's agave. It is their only source of food in the United States in late summer and early fall, and when LLNB are found roosting on the fort (June through October) (Sidner 2006). In the fall, the bats work their way back down into Mexico using later-blooming agave species and encounter a richer flora coming into bloom by November.

Reasons for the apparent decline in nectar bat populations are not fully understood. Like many species, they experience the habitat destruction that comes with encroaching civilization. Bats in general are subject to direct vandalism because of their bad reputations, and the low reproductive output of bats leave them slow to rebound when losses occur. Howell (1981) suggests the main factor in their decline is the disappearance of agaves in northern Mexico due to the robust mescal moonshine industry.

Fort Huachuca hosts one of the best areas in southern Arizona for Palmer's agave and one of the few remaining United States roots of *Leptonycteris*, with a positive upward population trend. It is of critical importance to the bat species to maintain the number of agaves in a stable age distribution.

Additional Contributions of Agave PALMERI

Many other organisms use agaves. Insects, birds and mammals take food, drink, or shelter from the plants. A variety of plant-sucking insects feed on the leaves. Ungulates eat the growing reproductive stalks, gaining water as well as nutrients. Hawks and owls use the stalks as perches. Carpenter bees, elf owls, woodpeckers, flycatchers, and other birds nest in the hollow stalks. Packrats construct their nests amidst the protective armor of the leaves. Shrews live in the moist darkness beneath the rosettes. Ground squirrels, packrats and other rodents sometimes eat the dispersed seeds on the ground and moth larvae feed on developing seeds on the ovaries. Sapsuckers feed on the moth larvae. Bees and wasps drink the nectar as do hummingbirds,

doves, orioles, and other birds. However, it should not be inferred that these creatures who are attracted to the abundant nectar are actually pollinators. Most of these daytime visitors approach the flower in a way which does not contract the sexual parts of the flower (Gentry 1982; Howell and Roth 1981). The flowers are sexually nocturnal, pollen is only available at night, and the stigma, or female element of the flower, is only available at night. Bats are the most important pollinators of Palmer's agave flowers (Howell 1979: Howell and Roth 1981). Long-nosed bats of the genera *Leoptonycteris* and *Choeronycteris* are anatomically adapted for nectar-feeding and pollen gathering (Howell and Hodgkin 1976) and depend primarily on Palmer's agave for their sustenance during the later part of their five month sojourn in Arizona (Howell 1979; Howell and Roth 1981).

MANAGEMENT

Populations of Palmer's agave are found on the South and West Ranges of the Fort and represent the primary food source for the lesser long-nosed bats on Fort Huachuca (Howell and Robinett 1995, Slauson 2000). Several areas of these agave stands on the South and West Ranges are protected and recognized as Agave Management Areas (AMA). Lesser long-nosed bats roosting on Fort Huachuca forage both on post and off-post.

HISTORICAL AGAVE MANAGEMENT ACTIVITIES

Shortly after the long-nosed bat was listed as federally endangered, Fort Huachuca began plans to monitor the on-post bat population and to study Palmer's agave with the goal of protecting both the bats and their feeding habitat. In the Spring of 1989 field studies were conducted on much of the South and West Ranges to determine general densities of Palmer's agave reproductive stalks in various game management areas which had differing burn histories (Derdeyn 1989). These stands were chosen as they contain relatively high densities of Palmer's agave compared with other populations across the installation. Although this was not an exhaustive survey (it covered fifty three of approximately one hundred forty six game management areas where *Agave palmeri* might exist on the South and West Ranges), sample sizes were good and statistical analysis competent. The product of this initial study was a map outlining Agave Management Areas to be designated for protection, based on density of highly

visible reproductive adults and a strong suggestion that fire is damaging in several ways to agaves.

This AMA map was modified several times in the early 1990s based on recommendations from the U.S. Fish and Wildlife Service, fire fighting protocols outlined by the Post Fire Department, studies by Howell (1992), and necessity of use by Range Control. These modifications resulted in a total of five different AMA maps, none of which were sanctioned by the U.S. Fish and Wildlife Service or designated as 'official'. The Fort's Range Control Office, however, chose a single map by which range restrictions were to be applied (Figure 1).

CURRENT AGAVE MANAGEMENT ACTIVITIES

In 2001 and 2002, the ITAM Program Coordinator developed a monitoring protocol. Using 72 permanent plots, plants were partitioned into four size classes. Various morphological measurements were made. The number of old and new flowering stalks were counted. Ground cover was described by point-intercept sampling. Unfortunately there was no pilot study, nor were there any data analysis to determine the effectiveness (power) of the sampling design. In the spring of 2005, the data were organized into an Access data base for storage and analysis by the RTLA Coordinator. The sampling design was found inadequate to fulfill any useful sampling objective on examination of the data.

On 9 November, 2005, a meeting was arranged with the Environmental and Natural Resources Division (ENRD), the USFWS, and the RTLA Coordinator to discuss this project. It was decided that a higher level of data accuracy was needed and a redesign of the plots using the same plot locations would be appropriate.

In late 2005 and early 2006 a pilot study was conducted in an effort to set reasonable sampling objectives and develop a sampling design that will satisfy those objectives (Schlichting 2006). The pilot study was used to develop a monitoring protocol to identify trends in the population (Schlichting 2006). In early 2006, data were collected on 60 of the original Palmer's agave monitoring plot locations. With the data obtained through this research and that gained from previous research, a new single 'Master' AMA map was delineated (Figure 2). The new AMA's

consist of 6,209 acres, compared to the previous AMA acreage of 5,117. Another product of this effort was a delineation of an area to be used as our statistical population, or Agave Monitoring Area (Figure 3), for monitoring purposes. This area is different from the Agave Management Area (Figure 2) that is delineated for the implementation of training restrictions.

THREATS TO AGAVE

Threats to survival of Palmer's agave populations on Fort Huachuca are numerous. Seedling survival is tremendously low. Howard Gentry (1982), the world expert on agaves, stated that "I have never seen a wild seedling agave less than one year old…Their scarcity is not due to lack of seed…[but] only one seed in a half million to a million…grows to maturity." This unfortunate ratio is due to the vagaries of the desert environment. Many seeds fall in the wrong place, don't get enough water or get eaten, while young plants suffer from climatic extremes, get eaten, trampled, or fall prey to disease.

Palmer's agave, like many agave species, has potential for vegetative reproduction in the form of small suckers on plantlets coming from a "mother" plant. Gentry (1972), however, characterizes Palmer's agave as "commonly non-suckering." Those vegetative offshoots that are produced appear late in the life of an adult (Gentry 1982). This potential for vegetative reproduction, though not strongly developed in Palmer's agave, allows a genome another chance at sexual reproduction a decade or so down the line, but in itself contributes no variability to the population.

Rock crevices and thorny overstory help protect the young plants. Gentry (1972) insists that Palmer's agave need "nurse plants" to protect them in their early growth. When Palmer's agave are one to two years old they are tender, susceptible to sun burn and dehydration, and trampling and herbivory. Once established (i.e., several years old), they are relatively hard, with waxy succulent leaves, sharp teeth on the leaves, and some bitter chemicals to protect against certain herbivores.

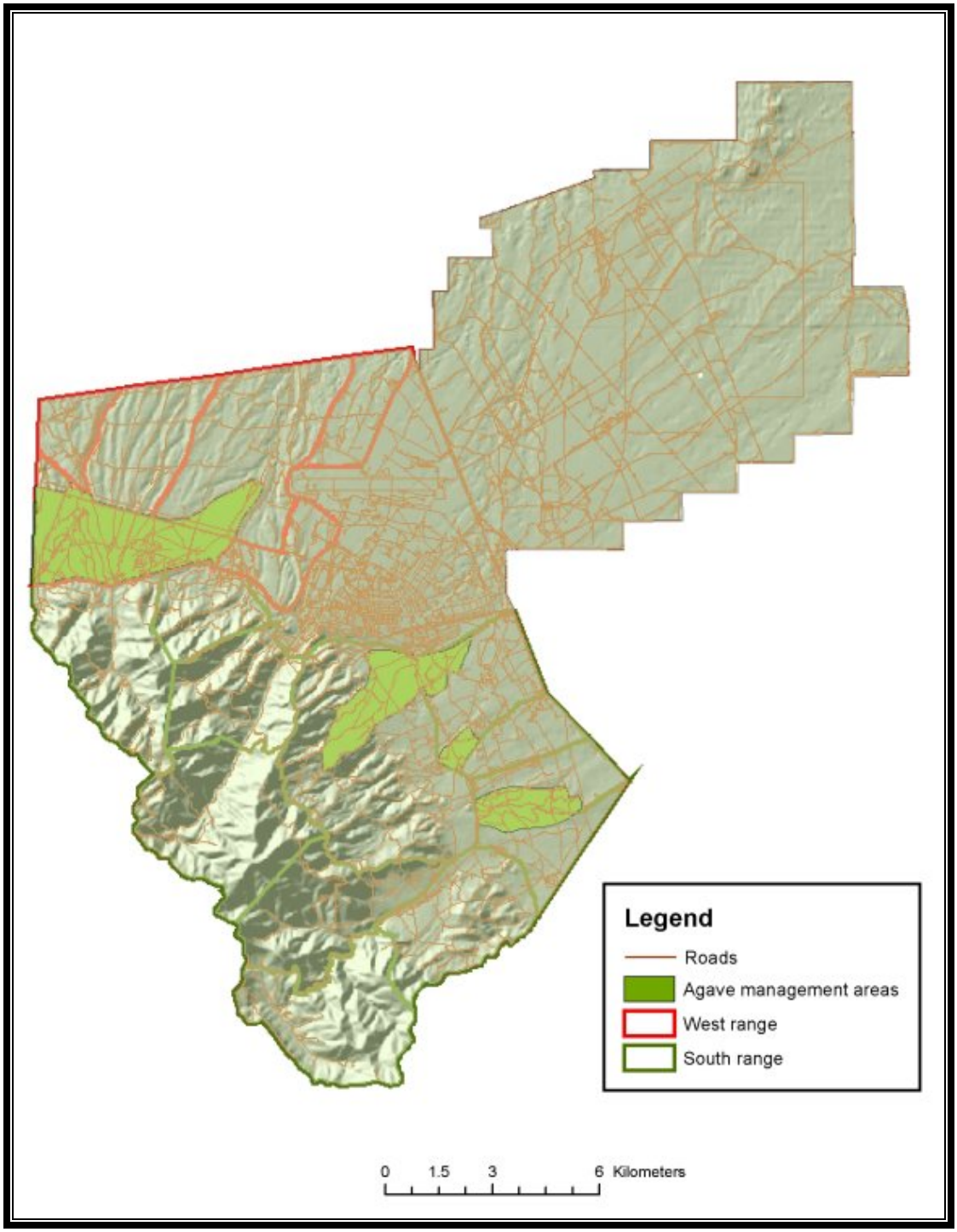

Figure 1: Former Palmer's Agave Management Areas (AMAs) on Fort Huachuca, Arizona.

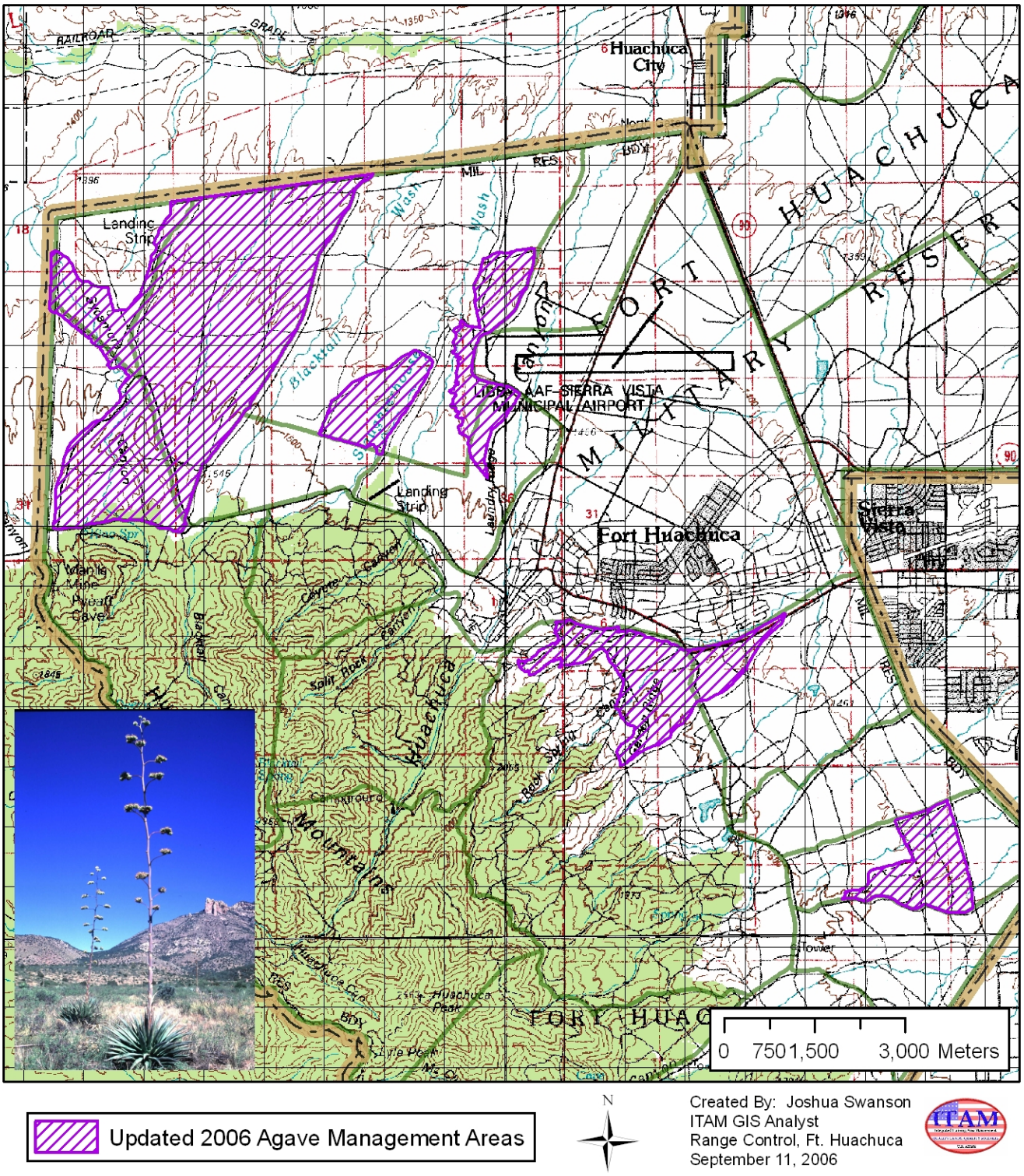

Figure 2: Current Agave Management Areas (AMA's) on Fort Huachuca as of 2006.

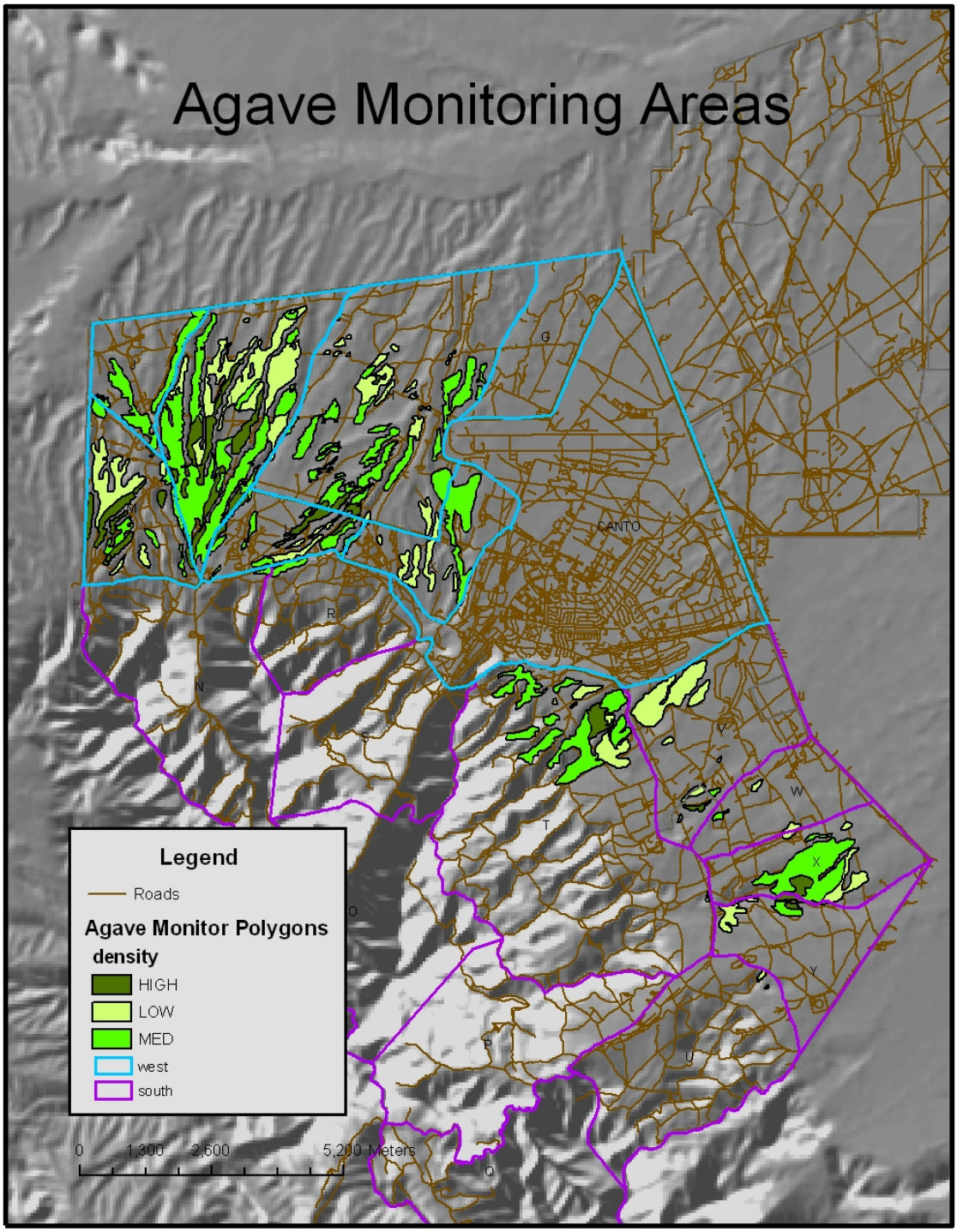

Figure 3: Agave Monitoring Areas on Fort Huachuca.

Since the young survive best in rock crevices or under shrubs, they are not at all obvious to the casual observer. What looks like a thriving community judged on the obvious adults and reproductives, may in fact be a senescent (dying) colony with little apparent future. What looks like a hillside with a small population may hide hundreds of young and hold the future of the population.

HABITAT ALTERATION

Invasive Species

Non-native and invasive plant species are altering habitats across the globe, and the effect is no less apparent on the grasslands of Fort Huachuca. Lehmann's lovegrass (*Eragrostis lehmannii*) is an aggressive exotic that was introduced in 1930 for use in erosion control. Since its introduction, it has spread easily by outcompeting native grasses. The spread of this species has made areas of Fort Huachuca exhibit monotypic stands (Howell 1996).

Grasses in general are extremely efficient at suppressing other plants because of their rapid growth rate (D'antonio and Vitousek, 1992). Not only do they directly compete for nutrients and light, but grass invasion may also set up a fuel situation which leads to more frequent burns. Grasses grow through root systems located underground. Therefore, after a fire, grasses can seed and grow more quickly than agave. Lehmann's lovegrass appears to maximize these effects.

Lehmann's lovegrass turns once patchy stands of native grasses into a fine-grained area of continuous vegetation that burn at a constant temperature. Germination of Lehmann's lovegrass seed is 40% higher in burned plots than in unburned and the seedlings in burned areas can achieve a density of 320 seedlings/square meter contrasted to 0.8 on unburned plots (Ruyle et al 1988). It is thought that agave exist in bare areas with low fuel, rock outcrops, etc. Areas such as this allow enough plants to escape fires to repopulate. Palmer's agave may be at a higher risk of burning in a higher temperature fire in areas with Lehmann's lovegrass due to the creation of a new and deleterious fire regime.

Fire

The effects of fire on Palmer's Agave is not fully understood. A study was conducted by Liz Slauson in 2002 on the effects of fire on Palmer's Agave. Slauson investigated the effects of fire on floral resources, fruit and seed set, and survivorship of Palmer's agave. Both burned and unburned flowering agaves were compared for nectar production, sugar concentration, pollen and nectar standing crops, and fruit and seed production. Overall, no significant differences were noted between burned and unburned agaves. However, standing nectar crops were slightly smaller than total nectar productions amounts. Still, large amounts of nectar and pollen remained available at dawn in both burned and unburned agaves. Slauson's report states "initial mortality measures across all size classes at one site was only 3.3%. Although levels of burn damage relative to plant size were quite variable, plants with greater damage (61-100%) tended to be <0.6 m in height and diameter. These results indicate that fire did not appreciably decrease food resources of the lesser long-nosed bat or the reproductive resources and survivorship of *A. Palmeri*." (Slauson 2002)

Prescribed fire and managed natural fire shall be planned to minimize adverse effects to lesser long-nosed bat forage plants and roosts. Measures have been developed to ensure the following:

1. Fires in agave management areas shall be actively suppressed unless the area is approaching its natural fire return interval of 10 years.

2. Prescribed fire on the west range will be scheduled so that no more than ½ the number of agave management areas are burned in one year with no less than a two year waiting period before burning the remaining areas.

3. A mitigation plan shall be developed by the Fort in coordination with the Service for each prescribed or managed natural fire within 0.5 mile of a lesser long-nosed bat roost. The mitigation plan shall ensure those effects to lesser long-nosed bat roosts and forage plants are minimized and shall include monitoring of effects to forage plants. The Service shall approve the plan. Mitigation and monitoring for managed natural fire shall be

coordinated with and approved by the Service as soon as possible after a decision is made to let a natural fire burn under controlled conditions.

4. A schedule for prescribed burns shall be established and followed to reduce fuel loading in Fort Huachuca grasslands and woodlands, thereby reducing the potential for major wildfires in lesser long-nosed bat foraging and roosting habitat. This schedule shall be coordinated and approved by the Service.

5. Nighttime training shall not occur in agave management areas from July 1 through October 31.

DEPREDATION

Depredation, a loss of Palmer's agave through natural means, must be considered. The Agave Management Areas identified in this plan will allow for the maintenance of sufficient agave stands to account for this natural phenomenon. Large areas of conservation are requisite for future Palmer's agave stands.

MISSION ESSENTIAL OPERATIONS

The ongoing missions and activities at Fort Huachuca constitute the operational baseline at the installation. This operational baseline at Fort Huachuca is comprised almost entirely of intelligence and communications systems testing and training. Because of the nature of this mission, these activities account for nearly 95 percent of training range use (USAIC&FH 1997). Other supported activities on the installation include field training exercises, aviation activities, live-fire qualification and training, vehicle maneuver training, and administrative and support activities.

Field training exercises have the potential to impact Palmer's agave on the installation. Impacts from trampling, fire, off road driving and other activities could cause the reduction or loss of important Palmer's agave fields. In addition to Army operations, impacts from Border Patrol activities and illegal border crossers could also cause a loss of agaves. Illegal border crossers have the same potential impacts to Palmer's agave from trampling, fire, and off road driving.

MANAGEMENT NEEDS

The following guidelines delineate reasonable actions believed necessary for the long-term maintenance of stable agave populations on Fort Huachuca:

1. Prior to construction activities located in agave management areas, pre-construction surveys shall be conducted for paniculate agaves that may be directly affected by construction activities. If agaves are found during pre-construction surveys, the following measures shall be implemented:
    a. Disturbance shall be limited to the smallest area practicable, damage to agaves shall be avoided where possible, and projects shall be located in previously disturbed areas whenever possible.
    b. Vehicle use shall be limited to existing routes and areas of disturbance except as necessary to access or define boundaries for new areas of construction or operation.
    c. All workers shall strictly limit their activities and vehicles to designated areas. Construction workers shall be informed of these terms and conditions.

2. No seeding/planting of nonnative grasses or other plants shall occur at Fort Huachuca that may alter fire frequencies in wildland areas. However, seeding with hybrid sterile seeds in disturbed construction sites is authorized to establish a temporary ground cover for erosion control. This is only authorized during fall and spring when it is not feasible to seed with native species.

3. Prescribed fire and managed natural fire shall be planned to minimize adverse effects to lesser long-nosed bat forage plants and roosts. Measures shall be developed to ensure the following:
    d. Fires in agave management areas shall be actively suppressed unless the area is approaching its natural fire return interval of 10 years.
    e. Prescribed fire on the west range will be scheduled so that no more than ½ the agave management areas are burned in one year with no less than a two year waiting period before burning the remaining areas.

f. A mitigation plan shall be developed by the Fort in coordination with the Service for each prescribed or managed natural fire within 0.5 mile of a lesser long-nosed bat roost. The mitigation plan shall ensure those effects to lesser long-nosed bat roosts and forage plants are minimized and shall include monitoring of effects to forage plants. The Service shall approve the plan. Mitigation and monitoring for managed natural fire shall be coordinated with and approved by the Service as soon as possible after a decision is made to let a natural fire burn under controlled conditions.

g. A schedule for prescribed burns shall be established and followed to reduce fuel loading in Fort Huachuca grasslands and woodlands, thereby reducing the potential for major wildfires in lesser long-nosed bat foraging and roosting habitat. This schedule shall be coordinated and approved by the Service.

h. Nighttime training shall not occur in agave management areas from July 1 through October 31.

4. No nighttime use and no tracer fire shall occur on live fire ranges 2,3, and 4 from July1 through October 31.

5. Off-road vehicle travel shall not occur in protected agave management areas or any other part of the West Range or South Range.

6. Pyrotechnics and blank ammunition shall not be used within 0.25 miles of protected agave management areas.

7. The Fort shall conduct monitoring of Palmer's agave populations on the West and South Ranges consistent with efforts of other agencies and research.

As monitoring efforts progress and more data becomes available, designated agave management areas may be modified as necessary. Modifications may include additions or deletions of designated areas.

RESEARCH NEEDS

There are numerous potential research projects which, if conducted, would provide new and valuable information on Palmer's agave plants located on Fort Huachuca.

Monitoring of Palmer's agave populations should continue as long as Palmer's agave management exists on Fort Huachuca. The density and size distribution of Palmer's agave plants is a very critical indicator of future forage resources. It is important to detect changes is in density over time, as well as have detailed information on the range of plant sizes.

The density of the forage resource available for bats during the summer months is the primary issue of concern regarding Palmer's agave populations. The density of freshly opened and flowering stalks is very low and widespread. Past efforts to determine density have been inadequate due to insufficient plot size. Many of the plots in the 2002 study had no flowering stalks in any of the age classes, while many more had no stalks from the current year (Danzer 2003). In order to capture this variability, a much larger plot size is needed, or even the use of a non plot method such as wandering quarter or strip transects.

Ground cover and invasive species information is important. The amount of available growing space free of competing vegetation is an important factor in successful seedling establishment. Additionally the amount of cover in invasive perennial bunch grasses such as Lehmann lovegrass, *Eragrostis lehmanniana*, and Boer lovegrass, *Eragrostis curvula*, is an indicator of potential fire threat and behavior.

A long term study showing the effects of fire on Palmer's agave would be useful in management of the designated areas. Some studies have been conducted, however, a more in depth study showing the different effects of heat intensities, fire effects on different age classes, effects of fire as associated with ground cover, and frequencies of the fire would provide valuable management information.

SUMMARY STATEMENT

The Agave Management Plan for Fort Huachuca is part of the Integrated Natural Resources Management Plan. It is needed to protect and conserve Palmer's agave, an important forage resource for the federally endangered Lesser Long-Nosed Bat. Actively managing threats to the Palmer's agave will help to maintain self-sustaining natural populations on Fort Huachuca and insure the continued protection of these populations for the current future use of the Lesser Long-Nosed Bats. This plan includes actions which ensure compliance with the Endangered Species Act and allows Fort Huachuca to fulfill its commitment to the U.S. Fish and Wildlife Service to protect and conserve Palmer's agave.

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APPENDIX E:
CURRENT LEASES AT FORT HUACHUCA

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CURRENT LEASES AT FORT HUACHUCA

ITEM NO.	LEASE OR PERMIT NO.	TASK OR PROJECT	ACRES	EXPIRATION DATE	ANNUAL RENTAL	USE AND LOCATION	PERMITTER/ LESSOR	REMARKS
1	BLM No. PLO 2183 91210 Gila Bend	USAEPG 1960 Fac No. LW001	640	INDEF	NONE	Portions of SEC 23, 24, 25, and 26 T4S, R9W, Oatman Mt.	Dept. of Interior	Oatman Mountain Site
1a	BLM No. AR 035662 91319 Gila Bend	USAEPG 1966 Fac No. LP059	N/A	INDEF	NONE	Right-of-way in SEC 7, T4S, R7W Maricopa County, Oatman Mt.	Dept. of Interior	Alt route to site (old file #2a) (.1 ac in RPI)
2	BLM No. AR 028695 91310 Gila Bend	USAEPG 1960 Fac No. LP002	13.77	INDEF	NONE	Portions of SEC 26, 34,35, T4S, R9W Oatman Mt. Site R/W	Dept. of Interior	
9	LA 1330 91310 Gila Bend	USAEPG 1961 Fac No. LP009	1.0	INDEF	NONE	Portions of SEC 25, T4S, R9W Oatman Radar Reflector Site	Dept. of Interior	Utility Pole reflector site
21	LA 2146 & Lease DACA09-05-0315 91350 Ft Huachuca	USAEPG 1971 Fac No. LP021	14.75 (15.0 in RPI)	INDEF & 12/31/2018	NONE	Mt. Lemmon; temp com-shelter, 8'x16' (128 SF) with Army tower	US Forest Service	POC: Brian Patrick, 538-6901; USFS: Rachel Hohl, 520-749-7737; lease DACA09-05-0315, dtd 6/27/05, same coverage as LA2146 w/7 amendments.
27	LA 2349 BLM No. A 7694 91310 Gila Bend	USAEPG 1974 Fac No. LP027	.027	INDEF	NONE	Tract 27, T3N, R3W, Commo & Data BLM Line, White Tank Mts. 20'x60'	BLM - Joint Use	
28	1. AZ #96405 2. AZ #93918-B	USAEPG ASA Sites a. EPG b. OTC (TEXCOM)	N/A	1. 14 Jan 07 Blanket Permit – Tucson District 2. 1 Dec 06 Blanket Permit – Safford District	NONE	Various roadside sites located along AZ State Highways: 80, 82, 90, & 92.	1. Arizona State Highway Dept. - District 2, Area 2, Tucson 2. Arizona State Highway Dept. - District 2, Area 3, Safford	ASAs: 2532,76,47,90,93, 218,219,222,226, 233,235,236,237, 251,255,256,257, 265,266,314,320, 900,2525,2526, 2527,2528,2529, 2530,2531,2533 ,2534. 1 & 2a. EPG POC: Mr. Sid Quintana, 533-8119 1 & 2bb. USAOTC (TEXCOM): Mr. Darrol Walker, 538-7666
32	LA 2427/A9227 91310 Ft Huachuca	USAEPG DTEP 1975: Fac No. LP032	.34	INDEF	NONE	Test Site (.23 ac) & helipad (.11 ac) Mule Mountain	BLM - Joint Use	ASA's 113 & 114

ITEM NO.	LEASE OR PERMIT NO.	TASK OR PROJECT	ACRES	EXPIRATION DATE	ANNUAL RENTAL	USE AND LOCATION	PERMITTER/ LESSOR	REMARKS
34	LA 2439 & Commo Use Lease 91310 Ft Huachuca	USAEPG 1976 Fac No. LP034	.1	31 Dec 13	NONE	Repeater Site, Heliograph Peak Electronic Site	US Forest Service - Joint Use	INDEF MOU supt by Commo Use Lease; Mt Graham Safford Ranger District, POC: Ms. Lisa Angle, (928) 428-4150; site is 24 miles from rts 191/366.
36	DACA09-3-68-34 LA 68304 91360 Gila Bend	USAEPG (SPT) 1967: Fac No. LP036	N/A	INDEF	NONE	P/SEC 26, T5S, R4W, west of Gila Bend right-of-way under SP bridge	Southern Pacific RR - Joint Use	Alt route to site (see file #63)
37	DACA 09-4-02-033 AZ #23-103417-64 92210 Willcox	USAEPG 1958 Fac No LL037	4.8	30 Sep 07	$1200.00	Tract No. 5, W1/2, of P/SEC 16, T15S, R24E, West right-of-way, 100' wide strip of land; access to Willcox Dry Lake	State of Arizona - Joint Use	
40	DACA 09-5-05-0316 92210 Ft Huachuca	11th Sig Bde 1965 Fac No LL040	8.3	30 Sep 10	$1000.00	P/SEC 3 & 4, T23S, R27E, Bisbee-Douglas International Airport	Cochise County - Joint Use	USAEPG site 19 POC MSG Garcia, S3, 11th Sig Bde 533-2160 or Ms. Arelyn Cook, 533-0999.
41	DACA 09-5-02-0303 92210 Ft Huachuca	11th Sig Bde 1965 Fac No LL041	10.0	31 Dec 12	$2500.00	Safford Airport; FTX SE1/4 SW1/4 of SEC 1, T7S, R26E, G&SRM, Graham County	City of Safford - Joint Use	Coord w/owner required; POC: MSG Garcia, S3, 11th Sig Bde 533-2160 or Ms. Arelyn Cook, 533-0999.
43	DACA 09-4-02-0035 AZ #23-103519-64 92210 Ft Huachuca	USAEPG 1972 Fac No LL043	10.0	30 Sep 07	$1200.00	Sands Ranch Commo Site; P/SEC 2, T20S, R19E	State of Arizona - US Gov't Spec Land Use Permit	ASA 21
45	DACA 09-9-88-466 91310 Ft Huachuca	USAEPG Test 1972 Fac No LP045	.92	INDEF	NONE	Commo site - Hereford Rd; SEC 9, T23S, R22E	BLM - SPRCNA, Tucson District - Joint Use	Land adjacent to ASA 94; EPG has key (lock #E437)
47	DACA 09-5-03-096 92210 Ft Huachuca	USAEPG Test 1965 Fac No LL047	16.0	31 Mar 08	$1.00 Term	Tombstone Municipal Airport; Parcel #2, P/SEC 30, T20S R23E	City of Tombstone - Joint Use	POC: MSG Garcia, SE, 11th Sig Bde; 533-2160 or Ms. Arelyn Cook, 533-0999. Contact Mr. Sid Quintana, 533-8119 prior to use. ASA 11 (EPG)
51	DACA 09-9-99-0001 AZ #018-105182-00 92210 Willcox	USAEPG 1961 Fac No LL051	1.82	11 Jan 01 to 10 Jan 2011	$1300.00 Term	East access off of Kansas Settlement Rd to Willcox Dry Lake; P/SEC 27, T14S, R25E	State of Arizona - Right-of-way Permit; Joint Use	POC: Mr. Sid Quintana 533-8119; fax 533-8018 * Note files 56 & 90

ITEM NO.	LEASE OR PERMIT NO.	TASK OR PROJECT	ACRES	EXPIRATION DATE	ANNUAL RENTAL	USE AND LOCATION	PERMITTER/ LESSOR	REMARKS
52	DACA 09-5-05-0314 AZ 66-98538-00 92210 Ft Huachuca	USAEPG & JITC 1961: Fac No LL052	60.0	30 Sep 09	$3000.00	Site Sibyl; P/SEC 26, T16S, R21E; 20 ac (EPG) & P/SEC 25, T16S, R21E, 40 ac (JITC)	State of Arizona - US Gov't Spc Land Use Permit - Joint Use	ASA 577 & 648; POC: Mr. Sid Quintana 533-8119 (EPG) & Mr. Mark Barrett, 538-1907, alt, Mr. Andre Beaudet 538-5313 (JITC)
55	DACA 09-4-02-0034 AZ 23-103411-64 92210 Ft Huachuca	USAEPG 1978 Fac No LL055	18.76	30 Sep 07	$1200.00	Winchester Site; P/SEC 11 & 14, T13S, R22E, 2.47 acre (original site); added right -of-way (16.29 ac) in Apr 98	State of Arizona - US Gov't Spc Land Use Permit - Joint Use	ASA 499; POC Mr. Sid Quintana 533-8119.
56	DACA 09-9-94-3081 92210 Willcox	USAEPG Test 1970 Fac No LP056	.9	INDEF	NONE	East entry to Willcox Dry Lake off of Kansas Settlement Rd (portion thereof) North 30', NE1/4, SEC 26, T14S, R25E	Robert G. Dycus PO Box 1801 Bisbee, AZ 85603 - Joint Use	Note files 51 & 90
58	LA 1000 AR 09785 RW 91310 Gila Bend	USAEPG 1956 Fac No LW058	3.56	INDEF	NONE	Stone Cabin site; SEC 19, T2S, R19W	BLM - Joint Use	Access of Hwy 95, 52 miles N. of Yuma (includes old file #59). Outgrants to USFWS (File #49) DACA 09-4-04-0123; .31 ac & 1,571 SF of bldg and DPS (File 56) DACA 09-03-03-0096; 64 SF of bldg X9001
61	DACA 09-4-00-0005 BLM AZA-31348 91310 Gila Bend	USAEPG 1980 Fac No LP061	10.0	10 Jan 06	NONE	Oatman Mt. Material Borrow Site	BLM - Exclusive Use	Previous LA number: LA2512; renewal pending.
63	LA 1270 AR 029174 91310 Gila Bend	USAEPG 1960 Fac No LW063	10.0	INDEF	NONE	Gila Bend Commo Site (Forward Test Site); SENESW of SEC 1, T6S, R4W	BLM - Exclusive Use	Previously contained metal bldg 40'x100', subsurface; 'The Pit'
68	DACA 47-5-96-116 NM ROW Easement No. 25894 92210 Ft Huachuca	11th Sig Bde 1982 Fac No LL068	15.0	28 Apr 06	$500.00	Lordsburg, NM FTX Site; SE1/4 of SEC 23, T22S, R18W, NMPM	State of New Mexico - Joint Use	POC: MSG Garica; S3; 11th Sig Bde x3-2160 or Ms. Arelyn Cook, 533-0999.
69	DACA 09-5-00-0316 AZ 66-98601-00 92210 Ft Huachuca	USAEPG 1990 Fac No LL073	.63	30 Apr 2010	$1500.00	Mustang Peak antenna site; SWNESENW NW, SEC 25, T20S, R18E	State of Arizona - Joint Use	POC: Mr. Sid Quintana, 533-8119.
76	Permit No 2005-0740	USAEPG Trailblazer DT	N/A	21 Jul 06	NONE	County road side sites	Cochise County Highway Dept. - Joint Use	ASAs: 253,258, & 261

ITEM NO.	LEASE OR PERMIT NO.	TASK OR PROJECT	ACRES	EXPIRATION DATE	ANNUAL RENTAL	USE AND LOCATION	PERMITTER/ LESSOR	REMARKS
80	Permit No 2005-0743	USAEPG	N/A	21 Jul 06	NONE	Road side test sites; SEC22, T21S, R21E	Cochise County Highway Dept. - Joint Use	ASA 404 (Charleston and N. Moson Rd)
86	Verbal Agreement	USAEPG	N/A	INDEF	NONE	Road side test site; SEC 2, T18S, RR21E, SE of St. David; Curtis Flat Rd.	Private Road	ASA 319 – entry by combination Lock.
88	1. Permit No 2005-0742 2. Permit No 2005-0732 & 2005-0733	USAEPG - Unnamed Test	N/A	1. 21 Jul 06 2. 21 Jul 06	NONE NONE	County Road side site: 565-Ramsey Rd; 231-Davis/Hi Lonesome Rd; 2521- Gleeson Rd	Cochise County Highway Dept. - Joint Use	1. ASA: 565 2. ASA 2521 & 231 (?ASA destroyed mid-05)
90	DACA 09-9-94-3080 92210 Willcox	USAEPG - AJSC 1960: Fac No LL050	1.82	INDEF	NONE	East entry to Willcox Dry Lake off Kansas Settlement Rd (portion of entry access); N. 30', NE1/4 SEC 26, T14S, R25E	Mr. James T. Puls 2101 2. Detroit St Chandler, AZ 85224 Joint Use	Also see files #51 & 56
91	Permits, LAs, & Agreements	7th Special Forces	Varies	INDEF	NONE	BLM, USFS, Cochise/Santa Cruz Counties	BLM, USFS, Counties	Historic file
92	Special Use Permit No. S1E0065-02/DACA09-9-05-0271	USAEPG - UAV Aural/Visual Tests & Short Range & USAOTC	100	30 Jun 10	NONE	Collie Springs - UAV; .25 mils NE of mile marker 19, Highway 83; SEC 36. Freeman (FR4620) & Welch Springs (FR4617).	USFS - Sierra Vista Ranger District Coronado National Forest	EPG POC: Mr. Sid Quintana, 533-8119 & USAOTC POC: Mr. Darrol Walker, 538-7666. Use of ASAs 1009/1520, 1266; 312-Douglas, 1491,1494,1496, 1497,1507,1509 ,1521,1522,1523, 1525 & 2205.
95	Permit No 2005-0741	USAEPG SINCGSARS	N/A	21 Jul 06	NONE	County road side site	Cochise County - Highway Dept. Joint Use	ASA: 252 (old file #79)
96	PLO 127 WD 91210 Willcox	USAEPG 1958 Fac No LW001	27,386.9	INDEF	NONE	Willcox Dry Lake	Dept. of Interior	ASA: 20, 102 (old file #1a). For previous AZ State lands see file #35
99	Permit Nos 2005-0738 & 2005-0739	USAEPG JTIDS Test	N/A	21 Jul 06	NONE	County road side sites	Cochise County - Highway Dept. Joint Use	ASAs: 282 (re-estab 6//04, 872
101	1. Permit No: 2005-0737 2. Permit Nos: 2001-0624 & 2001-0625	OTC (TEXCOM) - Ground: TRAILBLAZER	N/A	1. 21 Jul 06 2. 02 Jul 02	1. NONE 2. $70.00	County road side sites: 1) Sibyl Rd (3 ea), Cascabel Rd, Post Ranch Rd, I-10 Frontage (E. Of Benson), & Pomerene 2) Muleshoe Ranch Rd, War Bonnet Rd & Double Adobe Rd 3)Charleston Rd/MP3	Cochise County - Highway Dept. Joint Use	Sites: 1) G,H,J,K,L,P,R,U, V & Site #2: initial permits July 200 USAOTC (TEXCOM) POC: Mr. Darrol Walker, 538-7666; fax: 538-4739.

ITEM NO.	LEASE OR PERMIT NO.	TASK OR PROJECT	ACRES	EXPIRATION DATE	ANNUAL RENTAL	USE AND LOCATION	PERMITTER/ LESSOR	REMARKS
104	1. Permit No 2005-1231 2. Permit No 6351	USAEPG SANDBLAST	N/A	1. 20 Dec 06 2. INDEF	1. NONE 2. NONE	1. County road side sites 2. City of Sierra Vista right-of-way permit	1. Cochise County - Highway Dept. Joint Use 2. City of Sierra Vista - Joint Use	1. ASAs: 259,234,661,225, 1581,1582,1583, 1591,1033, respectively 2. ASA: 2553 & 2554. City of Sierra Vista, AZ; Public Works Parking lot; 401 Giulio Casare Avenue; intitiated 2/06/03.
105	USFS - Ltr of Auth	OTC (TEXCOM) - Air SHORT RANGE	N/A	INDEF	NONE	Operational testing of EPG's Short Range UAVs	USFS - Sierra Vista Ranger District Coronado National Forest	USFS POC: Duane Bennett 378-0311
106	Variable	111TH MI Bde INTEGRATED FTX	Varies	Varies	NONE	Electronic testing along highway rights-of-way N & E of Ft Huachuca	ADOT, USFS, Cochise County	POC:S-3, 111th MI BDE, MAJ Haupt, 533-2508
108	DACA 09-9-96-1 91360 Gila Bend	USAEPG 1996 Fac No LP108	2.5	INDEF	NONE	Old Hwy 84, right -of-way, Gila Bend, AZ; Sections 3 & 4, T6S, R4W, G&SRM, Maricopa County, AZ	Steven L. Holt & Duane Holt PO Box 30 Gila Bend, AZ 85337	POC: Steve Holt Gila Bend, AZ (602) 683-2449
109	1. USFS - SIE0044; 2. County ROW#2001-0615 91330 Ft Huachuca	USAG Fac No LP109	2.0	1. 31 Dec 20 2. INDEF	NONE	Cimmaron Road; USFS, Coronado Nat'l Forest; NESE of Section 31, T21S, R19E, G&SRM	US Forest Service and Cochise County	Permit covers use of forest land; county permit covers use of Cochise County ROW for warning light to West Gate - Ft Huachuca;USFS POC Duane Bennett, 520-378-0311
110	1. PLO 1471 2. PLO 6788 91210 Ft Huachuca	1. USA 1957 Fac No LW001 2. USA 1990 Fac No LW001	1. 13,463.27 2. (2,040)*	1. INDEF 2. 08 Aug 10	NONE	RDT&E; one half of East Range, Ft Huachuca, AZ	Dept. of Interior	* Mineral rights acreage withdrawn is a part of the 13,463 acres
111	Special Use Permit No. S1E0075	111th MI BDE SOC Course	Varies	31 Dec 09	NONE	SV District: Ida Cyn; forest rds 61, 771 & jeep trails; 2 base camps, SE1/4,NE1/4 Sec5,R20E, T24S & NE1/4,SE1/4, Sec1,R19E, T24S	USFS – SV Ranger District – Joint Use	309th MI BN POC: MAJ DeSantis, bldg 81401, x3-6331.
112	1. Permit No. 2005-1040 2. Permit No. 2005-1041	USAOTC (TEXCOM) Ground-PINERIDGE	N/A	3 Nov 06	NONE	County road side sites: 1) .4 miles north of Davis Rd, west side of Central Rd 2) .4 miles south of Davis Rd, west side of Central Rd	Cochise County – Highway Dept Joint Use	Initial Use. POC: Mr. Darrol Walker, 538-7666; Fax 538-4739.