DRAFT INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
U.S. ARMY YUMA PROVING GROUND
YUMA AND LA PAZ COUNTIES, ARIZONA
Update for: Fiscal Years 2023-2027

September 2022

Prepared by
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Reviewed by:

ROBERT J. HALLAHAN
Installation OPSEC Officer

SIGNATORIES AND APPROVAL

The U.S. Army Garrison – Yuma, Environmental Service Division developed this Integrated Natural Resources Management Plan in cooperation with the Department of Interior, Fish and Wildlife Service and the Arizona Game and Fish Department. The signatures included in this section indicate the mutual agreement of the parties concerning the conservation and management of fish and wildlife resources on the installation.

U.S. ARMY GARRISON YUMA PROVING GROUND

I have reviewed the Integrated Resources Management Plan (February 2022) for operation and effect including the management goals and objectives and approve implementation of this Plan, as revised for fiscal years –2023- 2027.

_____ _____

Ron James Date
Garrison Manager

U.S. FISH AND WILDLIFE SERVICE

Our office and staff collaborated with U.S. Army Garrison Yuma Proving Ground during development of their Integrated Natural Resources Management Plan and concur with the management goals and objectives as presented in the revision for fiscal years 2023 - 2027. These goals and objectives represent the mutual agreement of the cooperating parties concerning the conservation, protection, and management of wildlife resources on Yuma Proving Ground.

_____ _____

DR. BENJAMIN N. TUGGLE Date
Director
U.S. Fish and Wildlife Service, Region 2

ARIZONA GAME AND FISH DEPARTMENT

Our office and staff collaborated with U.S. Army Garrison Yuma Proving Ground during development of their Integrated Natural Resources Management Plan and concur with the management goals and objectives as present in the revision for fiscal years 2023 - 2027. These goals and objectives represent the mutual agreement of the cooperating parties concerning the conservation, protection, and management of wildlife resources on Yuma Proving Ground.

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Ty E. Gray Date
Director
Arizona Game and Fish Department

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A. MANAGEMENT OVERVIEW

1. Purpose & Scope

The purpose of this Integrated Natural Resources Management Plan (INRMP) is to guide and document the manner in which the U.S. Army Yuma Proving Ground (USAYPG or YPG) sustains the military mission on the installation while managing the ecological health of our natural resources. The INRMP will ensure sound land management, environmental stewardship, and compliance with all relevant laws, regulations, and policy during mission and project planning activities resulting in no net loss of mission capacity from meeting our stewardship responsibilities. The INRMP is consistent with military requirements, Sikes Act, Army Regulation (AR) 200-1, and Department of Defense Instruction (DoDI) 4715.3.

The INRMP is a dynamic document that focuses on a 5-year planning period based on past and present actions. Continual improvement of the INRMP is achieved by utilizing adaptive management and required reviews and/or updates at least every five years. This plan applies to organizations internal and external to YPG that are involved with, or interested in, the management or use of YPG lands and natural resources for military and non-military purposes. The focus of this INRMP is the management of natural resources on the installation for the next five years (Fiscal Years [FYs] 2022-2027) and beyond.

2. Management Philosophy

The philosophy of land management at YPG can be framed within the contexts of Sustainable Range Program (SRP) and ecosystem management. Fundamental to these programs is the conclusion that the military mission drives natural resources management. Because it is a desert test center, YPG must endeavor to conserve valuable natural resources. The holistic approach of the SRP and ecosystem management ensure sustainable use of YPG lands as well as taking into consideration the environment of the surrounding area, compliance with federal environmental laws, and public concerns. YPG works cooperatively with the Arizona Game and Fish Department (AZGFD) and United States Fish and Wildlife Service (FWS) to ensure effective management of natural resources.

3. Mission & Natural Resource Management History

YPG is a Research Test Development and Engineering (RDT&E) installation that has supported a variety of training and weapons systems testing activities for over 50 years. Past missions have included diverse tests from World War II testing and training to emerging technologies and equipment to support the post-9/11 environment. Today, YPG is in the forefront of making sure the Army's weapon systems and munitions are truly ready to do whatever job is necessary in the 21st century. YPG's mission is dynamic and changes based on new technology needs and development. YPG maintains vast Research Test Development and Engineering (RTD&E) ranges that must simulate natural desert conditions. YPG maintains infrastructure for transportation, communication, instrumentation, impact areas and specialized test facilities as well as undeveloped land.

The vast undeveloped landscape on YPG provides valuable habitat for a multitude of wildlife and YPG supports AZGFD and FWS efforts to enhance wildlife habitat and manage wildlife. AZGFD manages over 20 wildlife water catchments on YPG that support a variety of species including desert bighorn sheep, Sonoran pronghorn and mule deer. AZGFD has captured desert bighorn sheep from YPG to repopulate struggling sheep herds throughout the state of Arizona. YPG is within the boundaries of the nonessential experimental population of Sonoran pronghorn and serves as a release location to support this population, which is important to the recovery of the species.

Natural resource management efforts such as these are complex with many unpredictable variables and outcomes. Implementing these projects on YPG is beneficial because the planning procedures established for YPG are built around flexibility due to our dynamic mission. Our ranges can support low-flying aircraft and occasional heavy equipment requirements with little notice. Furthermore, range infrastructure such as water wells, meteorological monitoring, and range security provide management opportunities that do not exist elsewhere.

4. Goals & Objectives

The focus of the INRMP is the implementation of goals, objectives, and natural resources management policies and projects. This management plan is based on ecosystem management with the intention of demonstrating the interrelationships between the military mission and natural resources management. In summary, some of the goals and objectives of this INRMP are as follows:

Table 1: Goals & Objectives

Goal	Objectives	Action Indicators of Target Effectiveness
1. No net loss in the capability of military installation lands to support the military mission of the installation.	*1a. Find opportunities to leverage unique mission capabilities to support natural resource conservation.*	• YPG, including Garrison and Mission partners, is providing interagency support with expertise, equipment or other resources typically unavailable to natural resource managers.
	1b. Enhance natural resources outside YPG range areas to provide range wide benefits and reduce overall natural resource impact from mission activity.	• YPG support of endangered species recovery actions on neighboring lands based on need. • Range-wide approach to species management is used and efforts to ensure maximum benefit to species are balanced with meeting mission requirements.
	1c. Build partnerships with neighboring agencies to enhance YPG mission capabilities and regional	• Participation in interagency work projects. • Development of agreements with partners to enhance our capabilities.

Goal	Objectives	Action Indicators of Target Effectiveness
	land management opportunities.	
2. Provide a benefit to listed species to prevent the establishment of critical habitat on the installation.	*2a. Support threatened and endangered (T&E) species recovery.*	• Collaboration with Sonoran Pronghorn Recovery Team. • Implementation of Sonoran pronghorn recovery actions including habitat enhancement for pronghorn such as feeding stations, improvements to watering holes, and enhanced forage plots.
	2b. Relocate wildlife to maintain, enhance, or restore viable populations and distributions of native wildlife.	• Guidelines followed for Handling Sonoran Desert Tortoises (AZGFD 2014) if moving tortoise from harm's way. • Labor, range/air space, and/or funding for Sonoran pronghorn captive breeding and release efforts in the nonessential experimental population area. • Labor, range/air space, and/or funding for capture and relocation for desert bighorn sheep from YPG ranges to aid populations in other areas.
3. Conserve Special Status Species to prevent future listing	*3a. Survey, monitor, and analyze trend information and assess habitat needs.*	• Management of Sonoran Desert Tortoise in accordance with the Candidate Conservation Agreement for Desert Tortoise. • Annual monitoring for long term population trends of Sonoran Desert Tortoise as funding allows. • Identify and map the areas of special concern such as bat roosts, desert washes, mesquite bosques and sand dunes. • Identify habitat and phenology for monarch butterfly on YPG.
	3b. actively manage to provide and protect habitat for species of	• Develop projects to enhance forage for special status species.

Goal	Objectives	Action Indicators of Target Effectiveness
	special management concern.	• Supplemental feeding for pronghorn during critical periods. • Wildlife waters used to support wildlife during extreme drought. • Protect unique habitat features to the extent practical such as dunes, abandoned mines or mesquite bosques. • Maintain and enhance habitat for Monarch butterfly. • Maintain and protect habitat for Mojave Fringe-toed lizards.
4. Provide for conservation of migratory birds and Eagles	*4a. protection and enhancement of bird populations and habitat.*	• Participate in the Arizona Bird Conservation Initiative. • Inventory and monitor for migratory birds and eagles as funding is available. • Support and enhance use of native plants in landscaping within cantonment areas. • Apply FWS Management Guidelines where applicable for conservation migratory birds including eagles.
	4b. Protection of nesting birds.	• Limit vegetation management practices to avoid the breeding season to the extent practical. • Integrate migratory bird breeding season avoidance into project scheduling. • Educate the YPG workforce of the importance of bird conservation and use of best management practices to avoid impacts to migratory birds. • Adopt best management practices to avoid impacts to birds in accordance with FWS guidelines.
	4c. Support and Protect Migrating Birds	• Consider night-lighting impacts on migrating birds.

Goal	Objectives	Action Indicators of Target Effectiveness
		• Implement appropriate BMPs for tower safety lighting. • Reduce electrocution risks to birds from existing and new power poles. • Coordination with utility providers to proactively minimize risk to migratory birds and eagles.
	4d. Protection of Bald and Golden Eagles	• Inventory eagle nesting areas and identify features for avoidance. • Protect individual eagles nests, eggs and chicks from disturbance such as Implementing 1000ft buffers to active nests. • Identify active eagle nesting territories.
5. Provide for wildlife habitat enhancement or modification.	*5a. Survey, monitor, and analyze trend information for wildlife populations.*	• Support airspace access needs for monitoring overflights by AZGFD and FWS for pronghorn, bighorn sheep, and mule deer surveys. • Participation in wildlife monitoring surveys.
	5b. Assess wildlife habitat needs and actively manage to provide, protect, and enhance wildlife habitat.	• Limit vegetation management practices to avoid the breeding bird season (March 15-September 15) to the extent practical. • Support monitoring and maintenance of wildlife water sources both natural and manmade. • Establish new wildlife water catchments. • Enhance water storage capacity at wildlife water sites.
	5c. Maintain or restore geographic continuity and minimize population isolation among native wildlife populations	• Mapping of vegetation communities, riparian/xeroriparian areas, wildlife waters, wildlife home ranges, and features, such as fences and roads that have potential to cause habitat fragmentation.

Goal	Objectives	Action Indicators of Target Effectiveness
		• Implement best management practices for construction of fences, roads, or other infrastructure to minimize habitat fragmentation and promote connectivity.
	5d. Protect abandoned mine features or other potential bat roost locations	• Map potential bat roost locations. • Install bat gates or similar protection devices to prevent unauthorized human entry to abandoned mines.
6. Promote healthy native vegetation and ecosystem function	*6a. Promote and restore native plant communities*	• Removal of invasive species. • Native vegetation restoration or enhancement. • Managing or reducing project footprints to maximize native vegetation. • Washing and maintaining equipment to prevent the spread of invasive species.
	6b. Protect plants identified under the Arizona Plant Law and promote salvage to preserve those plants on YPG	• Identify salvage locations where salvaged plants would be desirable. • Seek partnerships with agencies or companies with the knowledge and ability to successfully transplant cacti if needed.
	6c. Protect desert washes and natural storm water flow	• Limit ground disturbing activity within washes. • Maintaining natural wash flow.
7. Prevent injury to personnel or damage to equipment and infrastructure from nuisance wildlife or other animal related hazards.	*7a. Manage wild horse and burro populations at or below the Appropriate Management Levels in coordination with the Bureau of Land Management (BLM) (Bureau of Land Management 2010)*	• Coordination with neighboring agencies to identify horse and burro issues and solutions. • Share burro location information with partners to enable effective horse and burro management across boundaries with neighboring wildlife refuges. • Aid BLM in site specific surveys and identification of sites for management actions.

Goal	Objectives	Action Indicators of Target Effectiveness
		• Support Horse and burro gather activities. • Construction of horse and burro exclusion fencing as necessary to protect natural resources and facilities from damage.
	7b. Manage nuisance wildlife in accordance with the YPG Integrated Pest Management Plan	• Seek technical guidance from AZGFD and FWS for best techniques for managing nuisance wildlife. • Employ hunting as a technique for reducing human/animal conflict when appropriate. • Ensure nuisance wildlife relocation is accomplished in a way to maximize the likelihood of survival and prevent disease transmission. • Partner with local organizations for animal rehabilitation for injured wildlife.
	7c. Manage wildlife-aircraft strike hazards (WASHs) in accordance with the YPG WASH plan	• Work with Airfield personnel to manage wildlife incidents. • Report wildlife strikes through the Federal Aviation Administration. • Actively work to reduce wildlife attractants near the airfield.
8. Installation access and use by the public and tribes of natural resources to the extent such use is not inconsistent with safety, security, mission needs, and natural resources management.	*8a. Provide Hunting access to approved areas on YPG.*	• Coordinate with Range Operations, Safety and Security to ensure hunt areas do not conflict with safety, security or mission. • Permits are administered so that hunters are informed of safety and notification procedures. • Hunters and hunting parties receive appropriate background vetting prior to entry to the installation.
	8b. Provide access for special group events based on safety, security, and mission requirements.	• Coordinate with Range Operations, Safety and Security to ensure that any group activity occurs in an area

Goal	Objectives	Action Indicators of Target Effectiveness
		and at a time that does not conflict with safety, security and mission. • Group activities are evaluated to ensure that the use will not damage the environment and are compatible with the use of nearby facilities. • Participants must receive appropriate vetting prior to entry to the installation.
	8c. Provide access to Native American tribes for traditional gathering.	• Contribute to open dialogue and consultation with the Tribes. • Assist with technical expertise on locations of valued resources. • Provide field escort as appropriate.
	8d. Coordinate YPG test activities to ensure the safety of persons on YPG as well as those in neighboring areas.	• Coordinate temporary safety closures with adjoining land management agencies as appropriate. • Coordinate closures with law enforcement, fire to prevent disruptions of emergency access. • Provide community notification for road closures. • Notify potential visitors in advance of planned closures of hunting areas.
9. Enforcement of applicable natural resource laws and regulations.	*9a. Minimize illegal wildlife take and habitat degradation in remote areas.*	• Protect natural and cultural resources from damage, trespass, vandalism and theft. • Coordination and mutual aid with neighboring resource law enforcement (e.g., BLM, AZGFD, FWS). • Be available to serve as a first responder for incidents involving injury, property destruction, search and rescue when needed. • Enforcement of State and Federal Wildlife laws including game violations.

Goal	Objectives	Action Indicators of Target Effectiveness
		• Trespass and security violations are reduced. • Destruction or theft of natural or cultural resources does not occur. • Unauthorized ground disturbance or construction does not occur. • Unauthorized Off-Road vehicle use does not occur.
	9b. Enforce violations of state, federal, and regulations to include local and USA YPG regulations.	• Regular patrols of YPG ranges. • Make contact with individuals downrange (hunters, recreationist, or employees). • Citations for violations. • Resolve illegal/trespass vehicle travel on YPG and adjoining lands with appropriate land management agency.
10. Integration of, and consistency among, the various activities conducted under the INRMP.	*10a. Use best available scientific knowledge and techniques to manage wildlife and plants*	• Coordination and networking with Subject Mater Experts with Federal, State, local agencies, and institutions. • Coordination among the various YPG Directorates and Divisions including DPW, Range Control, Police, and Mission partners to ensure consistency between our plans and SOPs.
	10b. Continuous coordination with AZGFD and FWS	• Collaboration on joint projects. • Provide and receive technical assistance. • Early involvement in planning projects.
	10c. Continuous coordination within all YPG Directorates	• Review of Records of Environmental Consideration, Work Orders, Dig Permits. • Provide technical assistance to proponents for environmental requirements.

Goal	Objectives	Action Indicators of Target Effectiveness
	10d. Training and outreach for YPG workforce	• Briefings to YPG Test Divisions for environmental requirements. • Safety training for workforce and residents for living and working around wildlife. • Public affairs articles and social media posting for Natural Resources. (quarterly)
11. Review of INRMP as to operation and effect by the parties on a regular basis, but not less often than every 5 years.	*11a. Maintain frequent communication with AZGFD and FWS in planning and implementation of natural resource projects.*	• Documentation of annual INRMP reviews and 5 year updates. • Progress reporting for implementation are completed by February each year. • Present project deliverables to the team.
	11b. Provide updates to the INRMP as needed	• Maintain track changes errata to facilitate INRMP updates.

5. Review, Revision and Reporting

This INRMP will be reviewed with regard to operation and effect by the parties on a regular basis, but not less often than every 5 years. The INRMP will be updated as appropriate in concert with installation needs to obtain mutual agreement in coordination with the FWS, State fish and game agencies, and other internal and external stakeholders. A 5-year update will not be required if circumstances have not changed."

Annual reviews of this INRMP will be conducted consistent with DoDI 4715.03. YPG will conduct an annual meeting of all our collaborating partners including but not limited to AZGFD, FWS, BLM, and Barry M. Goldwater Range. During the annual meeting we will discuss progress on implementation of the INRMP and new projects and priorities for the upcoming year. The implementation schedule will be updated each year. The review will be documented through a memo signed by AZGFD, FWS and YPG representatives.

B. INSTALLATION OVERVIEW

1. Maps

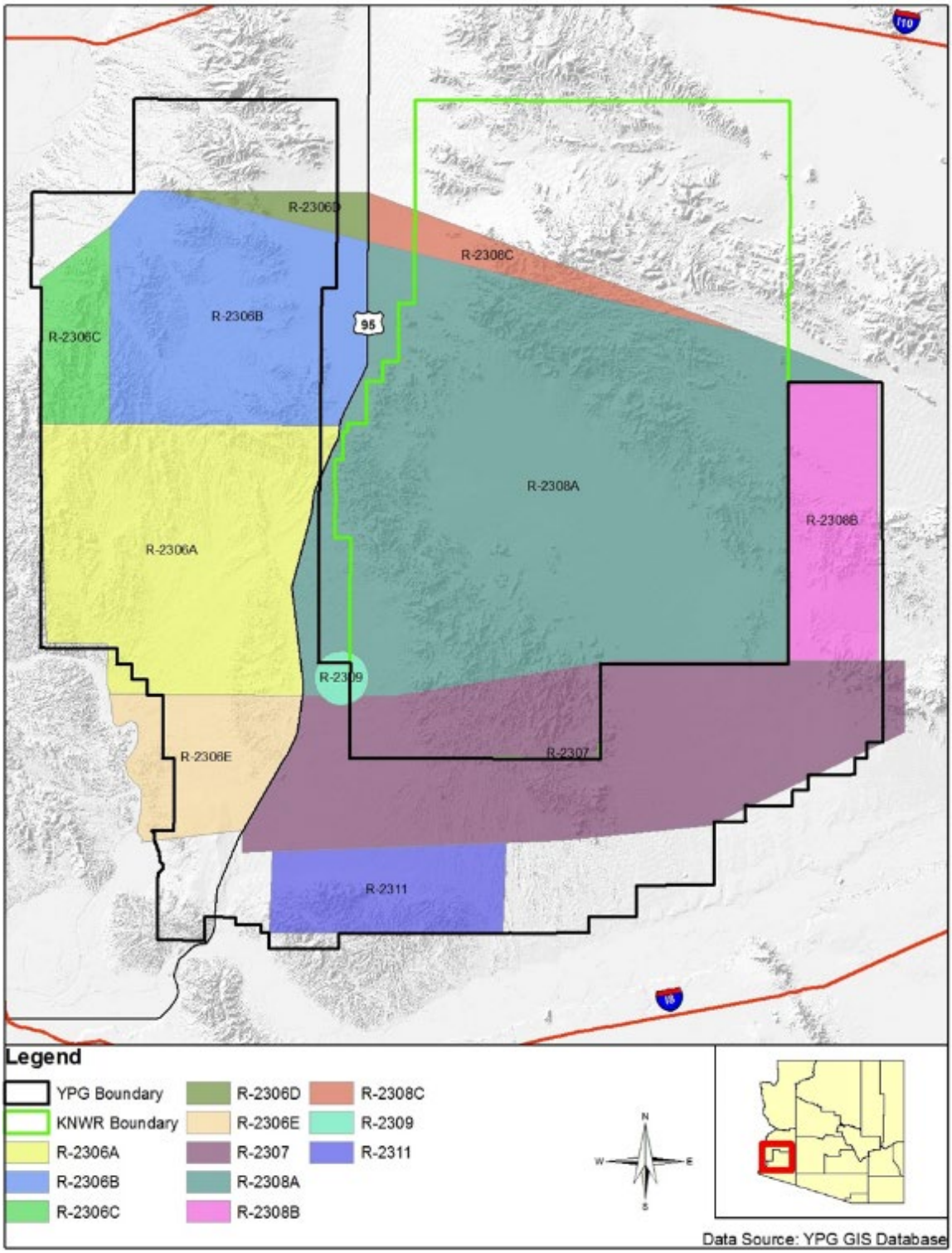


Figure 1: Airspace Boundaries Used for YPG Mission Purposes

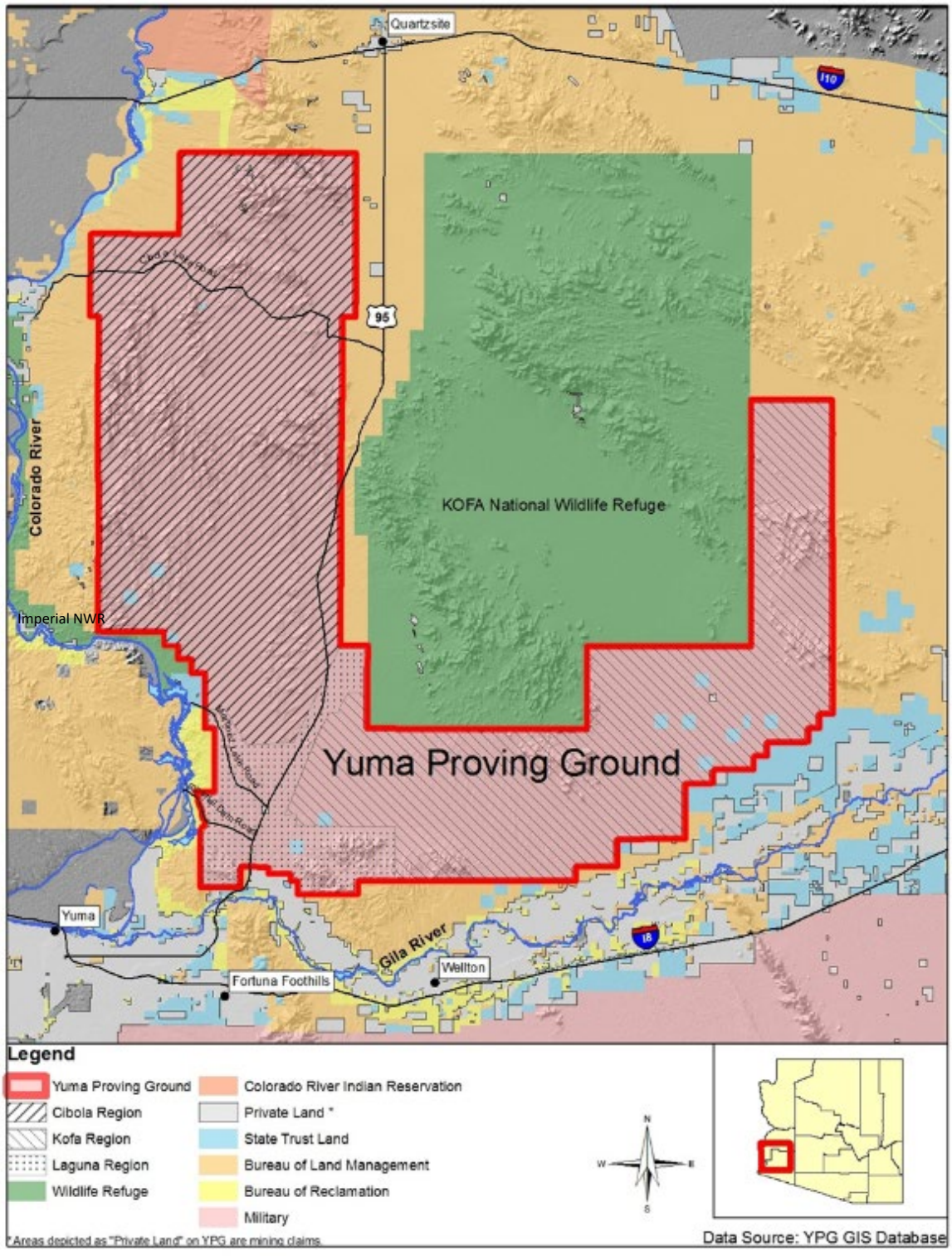


Figure 2: General Location of YPG and Surrounding Land Use

2. General Installation Information

As a Research Development Test and Engineering (RDT&E) range, YPG's mission is to plan, conduct, analyze, and report on the testing of military materiel that is in development, production and operation. YPG testing includes, munitions and weapons, combat automotive systems, unmanned aerial systems, radars, sensors, electronic warfare, and air delivery. Most of the work at YPG is developmental testing.

New or modified equipment, systems, and/or components of such are tested at YPG to determine whether they meet the customer or manufacturer's specifications. Production acceptance testing is a quality assurance program ensuring the Army's standing stock of munitions and other supplies are serviceable and ready for deployment. Operational testing is conducted to ensure that new training doctrines developed to optimize soldiers' abilities to field improved weapons and tactical equipment in training exercises or battle are successful. These tests are completed for proponent materiel developers, producers, or contractors as directed by the Commanding General (CG), U.S. Army Test and Evaluation Command.

Training is also conducted at YPG by all military services as well as other government agencies. The Military Freefall School is located on YPG. YPG also hosts Military Working Dog training.

Private Partnerships/Industrial Tenants: Non-military tenants are allowed to develop and use facilities on the installation. Some industries may use existing military facilities; however, they must comply with all Federal, State, and Army regulations and requirements. Private project proponents are responsible for any mitigation of impacts required resulting from their activities. The Army is responsible for ensuring that appropriate management, monitoring, and mitigation measures are implemented. General Motors operates an enhanced use lease on YPG where they developed facilities on YPG for their purposes, but allow YPG to use those facilities for testing.

Military Tenants: Several military units use YPG facilities and resources as tenants on the installation. These include:

- Military Freefall School – Approximately 100 permanent instructors are stationed at YPG and they annually train over 1,000 students from all military services in freefall parachute techniques.
- Special Operations Terminal Attack Controllers Course (SOTACC) - The purpose of the SOTACC is to teach Special Forces troops from the Army, Air Force and Marine Corps the conduct of close air support missions and fully certify them as qualified Joint Terminal Attack Controllers (JTAC).
- Army Medical Command – A small garrison of support soldiers from Fort Irwin, CA is stationed at YPG and is responsible for providing medical services at the YPG Clinic.
- Veterinary Clinic – A veterinary clinic is a tenant activity that provides animal care services to military families in the Yuma area, including those stationed at Marine Corps Air Station in Yuma (MCAS-Yuma).

- The veterinary clinic also provides animal care for K-9 troops that train at YPG, as well as other Federal government agencies in the local area that operate K-9 units such as U.S. Customs and Border Protection.

3. Regional Land Use and Setting

YPG is located in Yuma and La Paz counties in the southwest corner of Arizona, approximately 25 miles (40 kilometers) north of the City of Yuma (Figure 1). The Kofa National Wildlife Refuge (NWR) is nested within the "U" shape of the YPG borders. Imperial NWR shares a portion of its boundary with YPG on the west. The Cibola NWR is north of Imperial NWR and in proximity to YPG. Neighboring portions of Kofa and Imperial NWRs are designated as wilderness. BLM wilderness areas in the Trigo Mountains and Muggins Mountains share boundaries with YPG.

YPG originally comprised 892,570 acres of both public and non-public lands withdrawn under provisions of Public Land Order (PLO) No. 848, dated July 1, 1952. Since that time, various real property transactions have altered the installation's holdings to its current size of 838,174 acres. Included within YPG are numerous parcels of state and privately owned land amounting to approximately 7,882 acres currently under lease to YPG. Patented mines within the installation not currently leased make up approximately 410 acres. In addition, by letter permit dated December 3, 1958, the Secretary of Interior granted permission to YPG to use 171,000 acres within the Kofa NWR as an artillery fire buffer zone.

The airspace above most of YPG, Kofa NWR, and neighboring areas is restricted for military operations. The airspace is not completely off-limits to private or commercial flights, but these flights are restricted to periods of non-use by YPG or other military users. MCAS-Yuma schedules airspace in the greater Yuma region. Further, MCAS-Yuma manages the restricted airspace over YPG upon release by YPG. This allows flight-training opportunities for units from all services in Arizona, California, and elsewhere.

4. Natural Environment

YPG is part of the Sonoran Desert in southwestern Arizona. The region is relatively flat with low vegetation cover, made up of low mountain ranges and desert valleys. The climate is warm and arid, where the total annual precipitation is only about 3.5 inches per year. All soils on YPG are identified as typic aridic and hyperthermic. Ecoregions within the area include floodplains, stream terraces, alluvial fans, fan terraces, basin floors, sand dunes, and relic beach terraces.

Vegetation on the installation is very sparse and is mostly concentrated along washes that only flow during infrequent rain events. Although the area encompasses many washes and arroyos, there are no perennial streams present at YPG. The only surface water is in natural rock potholes or man-made water catchments. Wells at YPG indicate ground water depths range from less than 25 feet, near major drainages, to several hundred feet.

5. Installation History

Prior to use by the military, the YPG area experienced relatively minimal human use. In general, protohistoric groups living along the river were more sedentary than the upland people; subsistence was based on floodwater agriculture, fishing, hunting, and wild plant gathering.

Groups living away from the river were more mobile, focusing more on hunting and seasonal resource gathering in the deserts and mountains, and practiced only limited farming. In more recent times, mountainous areas were mined for a variety of ores, primarily copper and gold and the lower elevations supported occasional seasonal cattle grazing.

In 1942, the War Department created the California-Arizona Maneuver Area (CAMA), an 18,000 square mile (approximately 11,520,000 acres) training area commanded by General George S. Patton as he prepared troops for the North African campaign. The CAMA spanned both sides of the Colorado River and consisted of 12 camps and auxiliary facilities, including Camp Laguna, located in the southwest corner of YPG. The test mission of YPG started in 1943 with the creation of the Yuma Test Branch, which tested bridging and fording equipment prior to deployment to the European and Pacific fronts. The current YPG mission dates to 1951 with the establishment of the Yuma Test Station, the precursor to YPG.

6. Current Military Missions

The following table lists the major missions or agencies using facilities or ranges on YPG.

Table 2: Current Military Missions

Installation Users	Primary Mission	YPG Resources Utilized
Army Test and Evaluation Command (ATEC) Ground Combat Directorate	*Ground combat tests munitions, weapons and automotive systems.*	*Research Test Development and Engineering Ranges, Automotive courses, munitions impact areas, drop zones, Laguna Army Airfield (LAAF), test facilities and labs*
ATEC Air Combat Directorate	*Air Delivery, Unmanned Aerial Systems, Electronic Warfare, Instrumentation and Geodetic Support*	*Research Test Development and Engineering Ranges, Automotive courses, munitions impact areas, drop zones, LAAF, test facilities and labs*
Training Exercise Management Office	*Support troop training exercises on YPG*	*Research Test Development and Engineering Ranges, Including but not limited to Automotive courses, munitions impact areas, drop zones, Military Working Dog facilities, Comanche Flats, Coyote Den, West LA Town, and Forward Operating Base at LAAF.*
Military Free Fall School	*Training soldiers for Paratroop operations and Freefall maneuvers*	*LAAF, Drop Zones, Cox Field, various undeveloped sites or mock villages.*
General Motors	*Testing for GM vehicles*	*GM test tracks Enhanced Use Lease*

Installation Users	Primary Mission	YPG Resources Utilized
Special Operations Terminal Attack Controllers Course	*Teach Special Forces troops the conduct of close air support.*	*Castle Dome Annex, YPG Ranges including but not limited to OP9 and Prospect Square*
Aerostat Balloon	*Operated by Homeland Security*	*Castle Dome Aerostat Facility R-2309 airspace*

The vast majority of YPG testing occurs within the boundaries of YPG. On occasion YPG may have a test or safety buffer that encroaches onto other lands such as National Wildlife Refuge or adjacent BLM lands. In the event such a test is proposed, the YPG Range Operations begins coordination with adjacent land owners as early as possible to determine if the action is feasible and determine what authorizations safety, or environmental measures would be required for the activity.

YPG controls significant special use airspace R-2307, R-2308A, and R-2308C, that overlays portions of the Kofa NWR. In addition, safety buffers and line of fire locations from YPG tests sometimes encroach onto the refuge. YPG and Kofa NWR maintain a Memorandum of Understanding for Safety Buffer and Line-of-Fire (LOF) within the (Kofa NWR) in Support of the Live-Fire Test Mission at YPG. This MOU establishes notification procedures to in advance of proposed incursions to ensure appropriate safety precautions are taken while avoiding interference with public access and resource management activities on the refuge.

With a long history of military use in the region, Unexploded Ordinance (UXO) is an ever-present hazard, regardless of land management agency. YPG does not currently respond to UXO recovery actions outside the installation unless it is part of a specific test. However, if UXO are reported to YPG, the Range Operations personnel can provide technical support to contact the appropriate first responders to recover the item.

7. Public and Affiliates Access

YPG hosts more than 17,000 visitors per year. These include test customers, training units, U.S. Government and foreign dignitaries, local organizations, and school groups. Guests are not authorized in restricted areas without Commander/ Director approval. All YPG visitors who do not possess a military identification card or Common Access Card must undergo a computer background check of individual records through the National Crime Information Center prior to gaining entry to the proving ground.

YPG encompasses many locations and resources that are important to Native American Tribes. They are granted access to YPG in accordance with section D-19 of this plan.

C. INTEGRATION OVERVIEW

The INRMP is integrated by reference to the YPG Real Property Master Plan as well as the Programmatic Environmental Impact Statement (PEIS) for Activities and Operations on YPG.

1. Authorities & Responsibilities

Table 3: Authorities & Responsibilities

Law/Reg/Memorandum of Understanding (MOU) #	Law/Reg/MOU Title	Responsible/ Administering Agency(s)	Responsible Directorate & Personnel Position Title(s)
16 U.S.C § 742j-l	Airborne Hunting Act	FWS	ESD Natural Resources Program Manager
7 U.S.C.§ 426-426b	Animal Damage Control Act	U.S. Department of Agriculture	ESD Natural Resources Program Manager
16 U.S.C. §§668-668d	Bald & Golden Eagle Protection Act	FWS	ESD Natural Resources Program Manager
42 U.S.C. § 7401-7642	Clean Air Act	Environmental Protection Agency (EPA)	DPW, ESD
16 U.S.C. 4301 *et. seq.*	Cave Resource Protection Act	Department of Defense (DoD)	NA
33 U.S.C. §1251 *et. seq.*	Clean Water Act	EPA	DPW, ESD
40 CFR Parts 1500- 1508	Council on Environmental Quality Regulations - Regulations for Implementing the Procedural Provisions of NEPA	All Federal Agencies (As Applicable)	DPW, ESD
32 CFR 651	Environmental Analysis of Army Actions	U.S. Army	DPW, ESD
42 U.S.C. §9601-9675	Comprehensive Environmental Response, Compensation and Liability Act	EPA	DPW, ESD

Law/Reg/Memorandum of Understanding (MOU) #	Law/Reg/MOU Title	Responsible/ Administering Agency(s)	Responsible Directorate & Personnel Position Title(s)
DoDM 4715.03	Conservation Program for Natural Resources, March 18, 2011	DoD	ESD Natural Resources Program Manager
DoDI 5525.17	Conservation Law Enforcement Program (CLEP), October 17, 2013	DoD	Directorate of Operations, Conservation Law Enforcement
DoD & FWS MOU	Conservation of Migratory Birds MOU (Partners in Flight)	DoD & FWS	ESD Natural Resources Program Manager
DoD & the Pollinator Partnership MOU	Conservation of Pollinators MOU	DoD & The Pollinator Partnership	ESD Natural Resources Program Manager
DoDI 6055.06	DoD Fire and Emergency Services Program, December 21, 2006	DoD	Directorate of Operations, YPG Fire Department
DoD 5400.7-R	DoD Freedom of Information Act Program, September 4, 1998	DoD	Installation Management Command (IMCOM) Freedom of Information Act Action Officer usarmy.ypg.imcom.mbx.freedom-of-information-act@mail.mil
16 U.S.C. §1531-1543	Endangered Species Act of 1973 (ESA), as amended	FWS	ESD Natural Resources Program Manager
DoDI 4715.17	Environmental Management Systems	DoD	DPW, ESD
7 U.S.C. §136 *et. seq.*	Federal Insecticide, Fungicide, and Rodenticide Act, as amended	EPA	DPW, ESD
43 U.S.C. §1701	Federal Land Policy and Management Act of 1976	BLM	Army Corps of Engineers

Law/Reg/Memorandum of Understanding (MOU) #	Law/Reg/MOU Title	Responsible/ Administering Agency(s)	Responsible Directorate & Personnel Position Title(s)
Executive Order (EO) 13514	Federal Leadership in Environmental, Energy, and Economic Performance, October 5, 2009	DoD	DPW
7 U.S.C. § 2801	Federal Noxious Weed Act of 1974	Secretary of Agriculture	ESD Natural Resources Program Manager
33 U.S.C. § 1251-1376	Federal Water Pollution Control Act of 1977 (Clean Water Act), as amended	EPA	DPW, ESD
16 U.S.C. §2901 – 2911	Fish and Wildlife Conservation Act of 1980	FWS	AZGFD
EO 11988	Floodplain Management, May 24, 1977	DoD	DPW, ESD
EO 13148	Greening the Government through Leadership in Environmental Management, April 21, 2000	DoD	DPW, ESD
10 U.S.C. §2671	Hunting, Fishing and Trapping on Military Lands	DoD	ESD Natural Resources Program Manager
EO 13112	Invasive Species, February 3, 1999	DoD, State Department of Natural Resources (DNR), & other Federal Agencies (As Applicable)	ESD Natural Resources Program Manager
16 U.S.C. §701, 702	Lacey Act of 1900	Secretary of the Interior	Directorate of Operations (DoO) Conservation Law Enforcement

Law/Reg/Memorandum of Understanding (MOU) #	Law/Reg/MOU Title	Responsible/ Administering Agency(s)	Responsible Directorate & Personnel Position Title(s)
U.F.C. 3-210-10	Low Impact Development	DoD	DPW
16 U.S.C. §718-718k	Migratory Bird Hunting Stamp Act	FWS	ESD Natural Resources Program Manager
16 U.S.C. §703 *et. seq.*	Migratory Bird Treaty Act (MBTA), as amended	FWS	ESD Natural Resources Program Manager
Public Law 91-190, 42 U.S.C. §4321-4347	NEPA of 1969, as amended	DoD	DPW, ESD
16 U.S.C. §§1241-1249	National Trails Systems Act of 1986	DoD	ESD Natural Resources Program Manager
32 C.F.R. 190	Natural Resource Management Program for the Department of Defense	DoD	ESD Natural Resources Program Manager
EO 11989	Off-Road Vehicles on Public Lands, May 24, 1977	DoD	ESD Natural Resources Program Manager
50 C.F.R. 13 para 12-4	Permit Procedures of the FWS	FWS	ESD Natural Resources Program Manager
Public Law 106-224, 7 U.S.C. §7702	Plant Protection Act	U.S. Department of Agriculture	ESD Natural Resources Program Manager
43 U.S.C. § 1701 et. Seq., 18 U.S.C. §641, and 18 U.S.C. §1361	Protection of Fossils on Federal Lands	DoD	ESD Natural Resources Program Manager
DoD & FWS MOU	Promote the Conservation of Migratory Birds	DoD	ESD Natural Resources Program Manager
42 U.S.C. 6901-6992 k	Resource Conservation and Recovery Act	EPA	DPW, ESD
EO 13186	Responsibilities of Federal Agencies to Protect Migratory	FWS	ESD Natural Resources Program Manager

Law/Reg/Memorandum of Understanding (MOU) #	Law/Reg/MOU Title	Responsible/ Administering Agency(s)	Responsible Directorate & Personnel Position Title(s)
	Birds, January 10, 2001		
16 U.S.C. §670a et. seq.	Sikes Act	FWS, State DNR	ESD Natural Resources Program Manager
Sikes Act Tripartite MOU	Cooperative Integrated Natural Resource Management Program on Military Lands	Department of Defense, FWS, & Association of Fish & Wildlife Agencies	ESD Natural Resources Program Manager
16 U.S.C. §2001	Soil and Water Conservation Act	Secretary of Agriculture	DPW, ESD
EO 13423	Strengthening Federal Environmental, Energy, and Transportation Management, January 24, 2007	DoD	DPW
50 C.F.R. 10-16	Taking, Possession, Transportation, Sale, Purchase, & Barter, Exportation & Importation of Wildlife & Plants	FWS	ESD Natural Resources Program Manager
Title I of P.L. 102-440, signed October 23, 1992 (106 Stat. 2224)	Wild Bird Conservation Act	FWS	DoO Conservation Law Enforcement
16 U.S.C. §1331-1340	Wild Horses and Burros Act	BLM, U.S. Forest Service	ESD Natural Resources Program Manager
AR 200-1	Environmental Protection and Enhancement	Department of Army (DA)	DPW, ESD
ARS Title 17	Arizona's State Wildlife Action Plan	AZGFD	ESD, Natural Resource Manager

Law/Reg/Memorandum of Understanding (MOU) #	Law/Reg/MOU Title	Responsible/ Administering Agency(s)	Responsible Directorate & Personnel Position Title(s)
3 A.A.C.Article 11	Arizona Native Plant Law	Arizona Department of Agriculture	ESD, Natural Resource Manager

U.S. Army Yuma Proving Ground

YPG employs a complex staff of military and civilian professionals to support its military testing and training mission. The following describes those entities that assume the largest roles in the management of natural resources and outdoor activities.

Installation Commander: The YPG Commander is responsible for ensuring that subordinate commands and tenant activities at YPG are familiar with the requirements of the INRMP and participate to the extent practicable.

Garrison Manager: The Garrison Manager conducts operations in support of the Yuma Test Center (YTC) and tenant activities, to include the preparation and implementation of an INRMP for the installation.

Directorate of Public Works: The Directorate of Public Works (DPW) manages the real property, grounds maintenance, construction, and pest control functions. Contract personnel perform many of the tasks overseen by DPW civilian employees. DPW and its maintenance contractor supply the equipment and materials to maintain improved grounds and some outlying areas.

Environmental Sciences Division: The Environmental Sciences Division (ESD) is a division under DPW and has overall responsibility for the installation's environmental programs. Areas of responsibility include air and water resources, solid waste, natural resources, cultural resources, National Environmental Policy Act (NEPA), pest management, installation restoration, hazardous materials and waste handling, and spill response activities.

Natural Resources Program: The ESD administers this program, which has responsibility for oversight of YPG natural resources management. One natural resources manager and one wildlife biologist performing natural resources work currently staff the program. Additional ESD staff are cross trained to assist with natural resource management tasks. The environmental support services contractor also provides technical support on a task-assignment basis.

The YPG Natural Resources Program is responsible for the wildlife and plant conservation on YPG as well as administering the YPG Hunting program. The natural resource managers also support Conservation Law Enforcement, and the YPG Fire Department. The Natural Resource Program works collaboratively with other resource agencies including AZGFD, FWS, and BLM.

The YPG Natural Resources Program often provides technical assistance for other directorates dealing with YPG public access and recreation.

Sustainable Range Program: The Sustainable Range Program (SRP) Office is located within the Plans and Operations Directorate. SRP is responsible for the Integrated Training Area Management (ITAM) Program that includes four subprograms: the Range and Training Land Analysis (RTLA), Training Requirements Integration (TRI), Land Rehabilitation and Maintenance (LRAM), and Sustainable Range Awareness (SRA). ITAM is the U.S. Army standard for sustaining the capability of installation land units to support their military training missions, to ensure compliance with existing statutory regulations, and to promote sound stewardship of natural resources contained on lands used for military operations.

Directorate of Operations (DoO): The Directorate of Operations (DoO) controls public access and serves as the post-game warden. The YPG Police and Fire Departments are also part of DoO. The YPG Police Department patrols and enforces regulations and laws, and exercises functional oversight over the Conservation Law Enforcement Program (CLEP). It also manages the CLEOs who carry out the CLEP. The police also perform stray animal control and emergency snake removal and relocation. The YPG Police Department and CLEOs also conduct nuisance wildlife control in coordination with ESD. The YPG fire department provides fire protection on the installation.

> ***The Conservation Law Enforcement Officer (CLEO)*** program includes officers dedicated to patrol and enforcement for natural and cultural resource protection. This includes trespass, vandalism, or theft of resources on YPG. The CLEOs work closely with Environmental Sciences staff to identify resources in need of protection and monitor conditions of resources. CLEO officers coordinate with all local law enforcement agencies in the region to deter illegal activities that may damage natural and cultural resources on YPG.
>
> ***YPG Fire Department*** provides fire protection on YPG, which includes Wildland Fire Management. The installation Wildland Fire Manager is the YPG Fire Chief.

Family, Morale, Welfare, and Recreation Directorate: The Directorate of Family, Morale, Welfare, and Recreation (FMWR) sponsors the outdoor recreation program. Recreational equipment such as campers, mountain bikes, and backpacks are available for rent for use on or around YPG. MWR operates the day care center and Youth Services, both of which collaborate on interpretive environmental education programs. FMWR is eligible for non-appropriated funds generated by fees that can, in return, be expended for these activities.

Public Affairs Office: The Public Affairs Office (PAO) serves as liaison with the public in public meetings, prepares media presentations, and offers photography services for natural resources projects and community educational events. They are the first point of contact for the general public if people have questions or concerns about YPG activities. PAO coordinates responses to inquiries with the appropriate YPG points of contact.

2. External Stakeholders

It is important to note that natural resources on military lands are cooperatively managed with other federal and state agencies. Therefore, representatives from these agencies directly or indirectly perform natural resources functions such as game and non-game survey, habitat monitoring and improvements, or nuisance wildlife control. The FWS and AZGFD are both mandated partners with YPG in recognition of the respective wildlife management missions they fulfill (Sikes Act) and have signatory authorities on this plan.

U.S. Fish and Wildlife Service: Much of the Service's role with YPG is one of compliance with federal laws such as the ESA and MBTA. The Southwest Region 2 Office in Albuquerque, New Mexico, oversees Sikes Act coordination. The Migratory Bird Division in FWS R2 Office, Albuquerque, NM oversees the MBTA and related issues. The Arizona Ecological Services Field Office in Phoenix serves as ESA compliance liaison. The neighboring Cibola, Imperial and Kofa refuges also partner with YPG on many natural resources projects. Refuge managers and staff collaborate and partner with YPG to achieve mutually beneficial natural resource enhancements and developments. FWS operates primarily on appropriated funds as well as partnerships, and provides its own supplies and resources to perform its mission.

Arizona Game and Fish Department: Arizona Revised Statute (ARS) 17-231 states that the AZGFD may "enter into agreements with the federal government…for management studies, measures or procedures for or relating to the preservation and propagation of wildlife and expend funds for carrying out such agreements." In addition, the Department is given priority into entering into contracts with YPG to implement INRMP objectives as outlined in the Sikes Act (Sec. 670a [Section 101]). The AZGFD Region 4 office in Yuma handles most of the Department's day-to-day coordination with YPG. Although all Yuma AZGFD staff likely have responsibilities for YPG natural resources, the Region Supervisor serves as the principle liaison. YPG also relies on professional staff at the state office level for specific projects. Primary natural resource management activities with YPG include law enforcement, wildlife monitoring, and habitat improvement. AZGFD provides the equipment and supplies necessary to accomplish its mission throughout the region, including YPG. YPG may also enter cooperative agreements or contracts with AZGFD to fund Natural Resource Projects.

Bureau of Land Management: The BLM Yuma Field Office manages 1.6 million acres in southwest Arizona, much of it neighboring YPG. The BLM has responsibilities on the installation arising from its organic act, the Federal Land Policy and Management Act (43 U.S.C. 35 *et seq*.) and other related statutes. The office oversees management of wild horses and burros in the Cibola-Trigo Herd Management Area (HMA), which includes a large area of YPG. In concert with other local agencies, BLM serves as the primary responder to wildfire emergencies. YPG maintains a mutual aid agreement with BLM for wildland fire responses. Principle field office staff involved in YPG natural resources programs include natural resources specialists, wildlife biologist, range conservationist, law enforcement officers, recreation planners and wilderness specialists. BLM receives appropriated funds as its primary funding source, but also may be entitled to fee-based revenues. BLM provides its own equipment and supplies to perform its mission.

Other Agencies, Academia, and Non-Governmental Organizations (NGOs)
Many agencies, universities, and NGOs participate in YPG's natural resources management. These include, but are not limited to:

- Army Research Office
- Natural Resource Conservation Service
- Arizona Department of Agriculture
- U.S. Army Corps of Engineers Research Laboratories
- Bureau of Reclamation
- Marine Corps Air Station Yuma
- Luke Air Force Base 56 Range Management Office
- Desert Research Institute
- Colorado State University and other academic institutions
- Sonoran Institute
- Yuma Valley Rod and Gun Club
- Arizona Desert Bighorn Sheep Society
- Desert Wildlife Unlimited.

These entities may contribute expertise, labor, equipment, and supplies in support of natural resources projects on YPG. The funding sources for use by these entities depend upon the nature of the organization—some are entitled to federal or state appropriations, while others depend upon charitable donations. These groups are an invaluable part of natural resource management on the installation.

3. Internal Integration

The Army goal is to integrate environmental reviews with other Army planning and decision-making actions, thereby ensuring consistency and avoiding delays in mission accomplishment. To facilitate meeting this goal, YPG has a process for tracking actions through Work Orders, Dig Permits, and Records of Environmental Consideration (i.e., NEPA). All actions undertaken on YPG are subject to the NEPA process. Many construction, operation, and maintenance functions are tracked through Work Orders. All digging or excavation projects require Dig Permits. A cross functional team consisting of Environmental, Security, Fire, Safety, Mission, Budget, Real Property and others to review various aspects of all projects. Natural Resource review is incorporated into all phases of project planning and development. Natural resource specialists review all NEPA, Work Orders, and Dig Permits to incorporate the appropriate Natural Resource requirements, minimization, or avoidance measures. Through early communication with our proponents, these elements can be incorporated as design features for projects.

4. Installation Plans

Table 4: Installation Plans

Responsible Directorate	Installation Plan (Date of Approval)	Personnel Position Title(s)	Integration Methods	Contact Frequency
DoO Protection Division Conservation Law Enforcement	Conservation Law Enforcement Plan (Conservation Law Appendix to YPG Protection Division Standard Operating Procedure [SOP])	Conservation Law Enforcement Officer	Plan Referenced in INRMP, CLEO Coordinate with Natural Resources personnel	Weekly
DPW ESD	PEIS for Activities and Operation on Yuma Proving Ground (2016)	NEPA Coordinator	All projects are reviewed for conformance with the PEIS as part of the NEPA process	Daily
DPW, ESD	Integrated Cultural Resources Management Plan (2017)	Cultural Resource Manager	Email, Phone, Meetings	Daily
DPW, ESD	Integrated Pest Management Plan (2016)	Pest Management Coordinator	Plan Referenced in INRMP	Weekly
Plans and Operations Division	Integrated Training Area Management Work Plan	Sustainable Range Program Manager	Email, Phone, Meetings, Weekly coordination	Weekly
DoO, Fire Department	Integrated Wildland Fire Management Plan (2016)	Fire Chief	Plan Referenced in INRMP	Monthly
DPW, Real Property/Master Planning	Real Property Master Plan (RPMP) (2015)	Real Property Officer	The INRMP and RPMP reference one another. RPMP is reviewed for conformance with new projects as part of NEPA process	Monthly
Air Operations Division	WASH Plan (2019)	LAAF Airfield Manager	Plan Referenced in INRMP	Monthly
Range Operations	SOP YPY-RO-P-1000	Range Operations Manger	Prescribes range control precautions, instructions and information for safe conduct of all operations on YPG	As Needed

5. Internal Coordinating Offices

This table describes the integration of regular or daily operations, not fully addressed in the above-listed plan integration. That is, list the Division or Department (i.e. sub-Directorates levels) that the natural resources team must coordinate with on a regular basis in order to effectively implement the INRMP and ensure compliance with natural resource laws and regulations. Some examples are provided.

Table 5: Internal Coordinating Offices

Responsible Directorate	Personnel Position Title(s)	Natural Resources Coordination	Contact Frequency
Range Operations	Range Control	Main point of contact for all downrange activities, aids in scheduling activities and reporting natural resource observations downrange, tracks all hunter activity on the range.	Daily
Plans And Operations	Sustainable Range Program Analyst	Serves as Mission Environmental Officer. Reviews mission needs and ensures appropriate processes are followed. Monitors mission activity downrange.	Daily
DoO	CLEO	Enforces Natural and Cultural Resource Protection Law. Provides emergency response. Lead enforcer for illegal trespass on the installation. Enforces YPG hunting regulation.	Weekly
YPG Garrison Safety	Director of Safety	Provides safety outreach to the YPG workforce. Natural Resource managers provide technical info to the director to enhance safety awareness.	As Needed
YPG Mission Safety	Explosive Safety	Assists in planning Natural Resource projects for siting to avoid explosive hazards	As Needed
Ammo Recovery	Demolitions	Provides Range Escort for access into hazardous areas, conducts range cleanup, performs vegetation management and test support in munitions impact areas.	As Needed

D. PROGRAM ELEMENTS

1. Geospatial Information Systems

Geographic information system (GIS) data is gathered in various forms including but not limited to Geodetic surveyor data, commercial handheld global positioning system (GPS) units, and drawn using mapping software. Data is collected daily and used in creation of project maps, descriptions of various actions and recording the locations of resources or features on YPG. Data is stored based on the project is developed for and shared among users as needed. The Real Property Master Planning Division maintains GIS data for YPG using the standards for facilities, infrastructure, and environment (SDSFIE). Most of this data is accessible through an electronic GIS portal.

Critical data for Project Planning, Range Control, CLEO and Mission include locations of Wildlife Waters, Abandoned Mine Lands, Vegetation Communities, Special Status Species habitat, locations and movement corridors.

YPG Natural Resource Manager shares pertinent Natural Resource GIS data with Geodetics, Range Control, CLEO and Fire Department. It is updated as needed and upon request of the various users. Some data such as wildlife location and movement data and neighboring land use areas are hosted through the AZGFD Heritage Data Management System (HDMS), BLM, or other agencies. While we have access to this data, it is subject to change and possible restrictions for use. GIS data is made available to the various directorates through a wide variety of web based GIS products including EGIS, Range Activity Display, and ESRI GIS Portal.

2. Conservation Law Enforcement Program (CLEP)

The protection of property and natural and cultural resources under DoD control is accomplished through the enforcement of all applicable federal and State laws and regulations including local regulations. The CLEP is used to support decisions and management actions by DoD's natural and cultural resources managers regulating the users of these resources to achieve specific goals and objectives. DoO Protection Division (YPG Police Department exercises functional oversight over the CLEP and the CLEOs carrying out the program).

In accordance with DODI 5525.17, the objective of the CLEP is to:

1. Conserve and direct the use of natural and cultural resources in accordance with the INRMP and Integrated Cultural Resource Management Plan.
2. Ensure installations and military and public users remain in compliance with appropriate environmental, natural, and cultural resource laws and regulations.
3. Provide specialized law enforcement expertise regarding natural and cultural resource matters and protection of government property.
4. Improve inter-jurisdictional conservation law enforcement among the Military Departments, federal, State, tribal, and local law enforcement and land management agencies.

5. Collect and track data on violations.

The YPG Conservation Law Enforcement Plan is synonymous with the YPG Protection Division SOP, Appendix C: Conservation Law. This SOP is subject to review and update by YPG Police in coordination with the ESD.

The Conservation Law Enforcement Section performs the primary duties of Conservation Law Enforcement duty under authority of the Installation Commander, primarily in the live fire range, maneuver training areas, and unimproved cantonment areas. CLEOs are required to operate independently with minimum supervision therefore, it is paramount for success that all assigned personnel adhere to the Army Values of Loyalty, Duty, Respect, Selfless Service, Honor, Integrity and Personal Courage.

The appointment authorizes the carry of Government Issue firearms, citing or apprehension of offenders, and enforcement of all Federal laws, state laws, military regulation/directives, and fish and game laws in accordance with Protection Division Policy and Procedures.

CLEOs will respond to all reported and observed violations concerning Conservation of Cultural and Natural Resources; as well as Environmental, Archaeological, Antiquities, threatened or endangered species. Investigation of the aforementioned violations and preparation of documents for court proceedings rest solely in the purview of the Conservation Law Enforcement Section unless required by specific federal statutes or DA regulations to relinquish investigative jurisdiction.

CLEOs may respond as first responders for testing/training accidents, traffic accidents and other types of incidents involving injury or property destruction. All CLEOs should be trained in medical evaluation (MEDEVAC) helicopter procedures, including establishing landing zones, hand/arm signals for ground guide procedures and MEDEVAC assistance requirements. Requests for aircraft (helicopter) assistance is through Fire Chief/Range Control.

CLEOs response to request for assistance calls from Federal/State Wildlife personnel and other law enforcement agencies will be authorized through the Section Supervisor and/or Chief of Police. This may include search and rescue efforts as well as other emergency response situations.

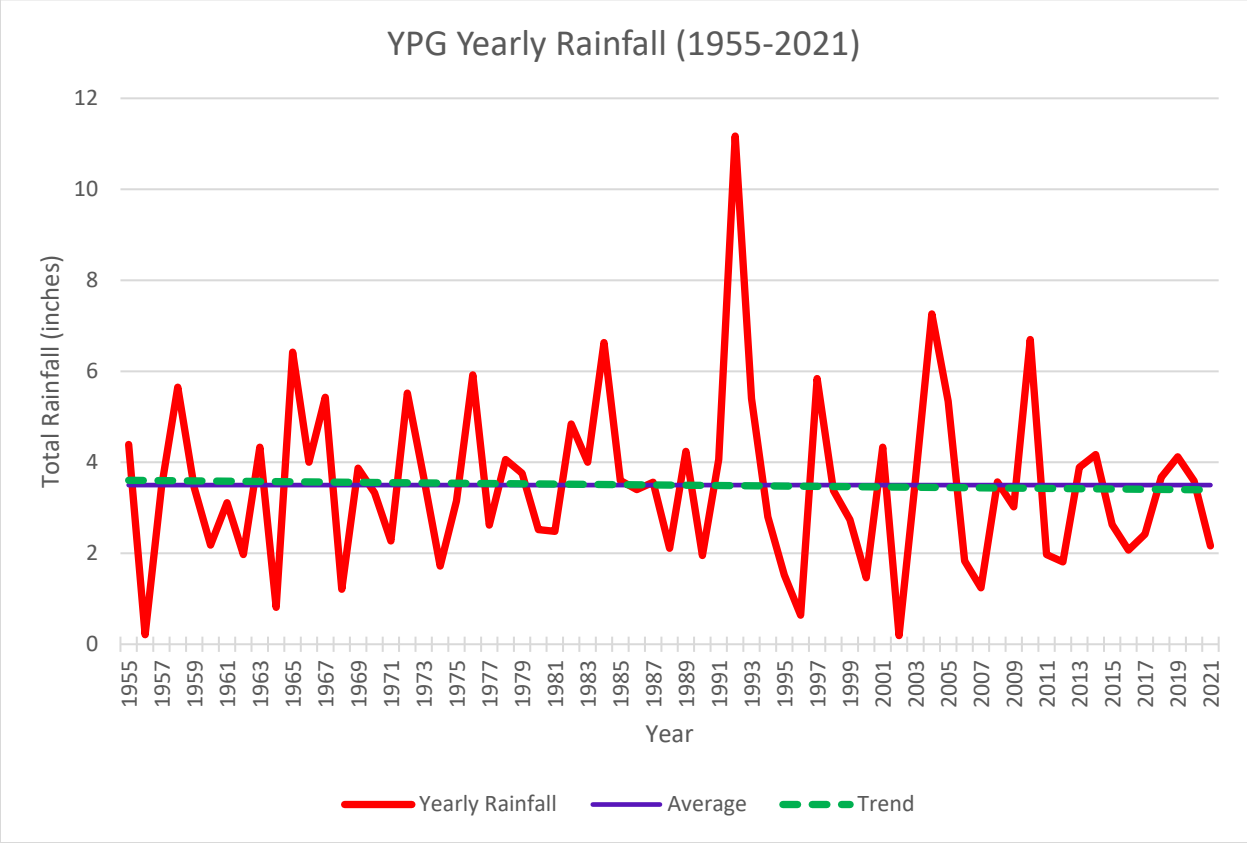
CLEOs respond to wildlife related incidents such as nuisance animals. They may trap or catch wild or feral animals in accordance with the necessary permits or licenses. Capture of wildlife would be coordinated with the YPG Environmental Sciences Division and AZGFD as appropriate. CLEOs may exercise lethal control of animals as a last resort for public safety.

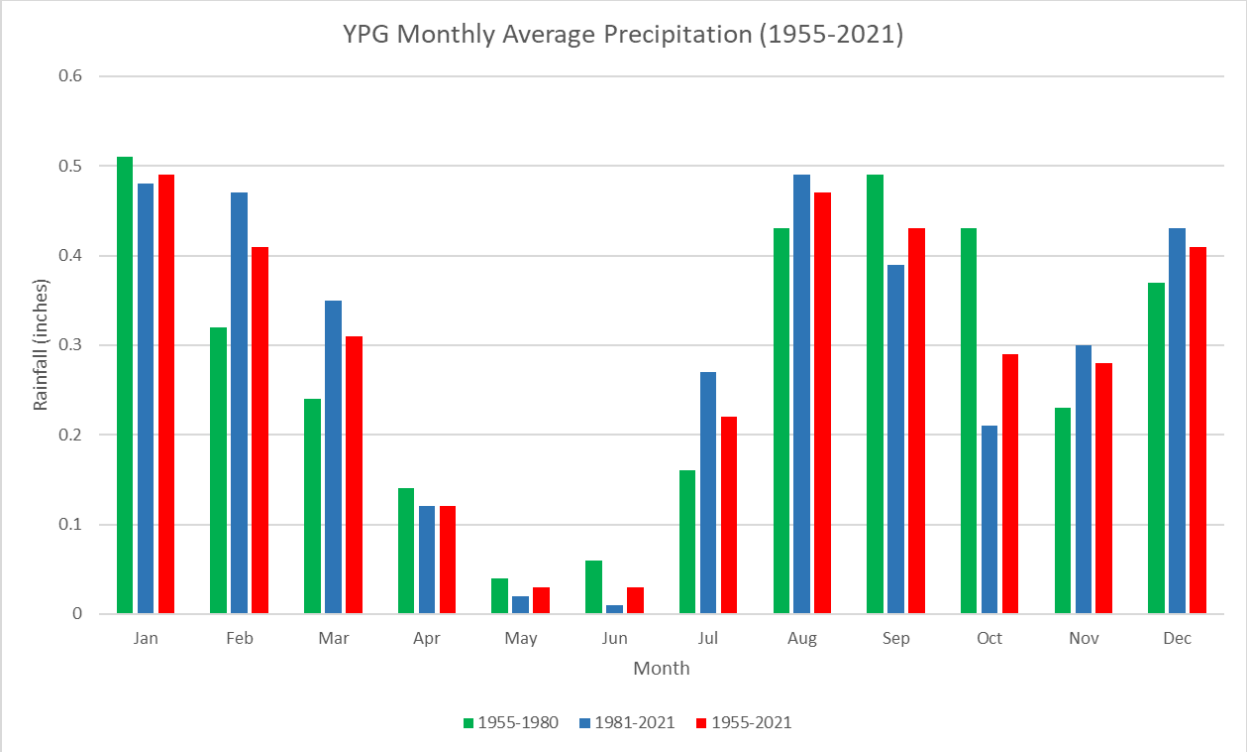
CLEOs are responsible for reporting wildlife injury or mortality from vehicle strikes or other accidents. They will also dispatch sick or injured wildlife. If it is necessary to dispatch an injured animal, it should be dispatched in the most humane manner possible as an act of mercy. A report will be taken. If the animal has general injuries that may not be life threatening, they will

coordinate with the YPG Natural Resource Manager for guidance. YPG police department, including CLEOs, may contact Natural Resource Managers through YPG Emergency Dispatch after hours.

3. Climate, Drought, and Climate Change

The climate on YPG is extremely hot and dry compared to other regions of the Sonoran Desert. Prolonged drought conditions are not unusual and can affect all forms of flora and fauna on the installation. Under normal conditions, ground vegetation cover is extremely sparse with most vegetation occupying washes. Rain events, particularly during summer monsoon season, often come in the form of storms with high winds and large volumes of storm water. Annual rainfall in the region averages approximately 3.5 inches per year marked by periods of drought and large monsoonal rain events affecting small areas.





YPG natural resources and infrastructure are managed in accordance with our extreme climate. Washes are avoided for construction activity and any road crossings are managed in such a way that water can flow over the road. DPW manages these wash crossings either through maintenance after rain events or by designing crossings to prevent erosion. It is difficult to assess the increase in severity of storm impacts over time due to the high degree of variability between locations, storm events, and infrastructure affected.

Wildlife populations can be adversely affected by prolonged drought conditions. In order to maintain population stability for bighorn sheep, Sonoran pronghorn, mule deer and other wildlife, AZGFD maintains approximately 32 wildlife waters across YPG. These water catchments consist of either man-made or natural water tanks that store water for wildlife use throughout the year. Waters must be monitored during warm-dry periods and if they get too low, then water must be hauled by truck or helicopter. In recent years AZGFD, in partnership with YPG, have been modifying many of these wildlife waters to increase storage capacity, thus reducing the need to haul water. AZGFD is also considering location access as a factor in siting new waters in an attempt to make future maintenance and water hauling more feasible.

YPG wildlife waters renovation project with members of Yuma Valley Rod and Gun Club (Photo by R. English)

Sonoran pronghorn recovery is particularly affected by drought and climate change as fawn survival is dependent on summer rainfall. If monsoon rain events arrive too late, the forage conditions will not support the mother's lactation. AZGFD may establish temporary feeding sites to support these pronghorn during extremely dry periods if there is no other forage sources available.

Recent climate modeling studies predict: (1) an increase of drought severity and most notably a very high risk for severe multi-decadal droughts or "mega-droughts", for the American Southwest by the end of the 21st century, driven by regional temperature increases corresponding to climate change (Ault et al. 2016); (2) a gradual and increasing decline in spring precipitation in the American Southwest associated with zonal mean atmospheric warming, from the near future to the end of the current century (Ting et al. 2018; IPCC AR6); and (3) a reduction in surface water in the Southwest during the warm months of the year, April to September (Ting et al. 2018).

YPG is preparing to address these expected changes in Southwest climate in the coming years with regard to wildlife management and to mitigate their effects to wildlife by: (1) developing the infrastructure and having the resources in place to build new or enhance existing wildlife waters as the need arises; (2) optimize the placement of wildlife waters for water delivery and maintenance, and for access by wildlife; (3) implement system wide and continuous remote monitoring of wildlife monitors; and (4) establish the means to quickly and effectively establish temporary feeding sites for Sonoran Pronghorn and other wildlife that will be adversely affected by increasing declines in spring and summer precipitation and surface water.

4. Soils, Erosion & Sedimentation

The predominant soils in deserts belong to the Aridisol Soil Order. Aridisols are soils defined primarily by the lack of plants-indicating the available soil moisture for most of the growing season (Natural Resource Conservation Service 1999). Over time, these dry conditions give rise to characteristic accumulations of soluble salts, carbonates, and clay, but organic matter deposition is minimal or lacking. As these soils mature, salts and carbonate may cement into soil layers, commonly known as caliches and hardpans. In addition, such soils generally develop some sort of surface mantle such as desert pavement as they age (King et al. 2004). Younger soils present in deserts, primarily dry Entisols, can be common in areas subject to wind and runoff. These soils are not in place long enough for pedogenic (soil forming) processes to develop distinctive horizons (Natural Resource Conservation Service 1999). Biological crusts bind particles under desert pavement and in most undisturbed soils without desert pavement.

The surface soils of YPG were surveyed, mapped, and described by the Natural Resources Conservation Service (formerly the Soil Conservation Service) in 1991 and have been classified by the U.S. Department of Agriculture as aridic and hyperthermic with lithic and typic torriorthents on the hills and mountains. The survey combines one or more soil types into mapping units at a management level scale of 1:24000. At that scale, it is impractical to separate closely aligned soil types such as the Carrizo family soil found in active wash channels

and the Riverbend family soil found in the adjacent banks, and benches within the wash floodplain and is instead displayed as Map Unit 1 (see Figure 3).

Table 6 contains a summary of Map Unit Numbers, soil families included in the mapping unit, and landforms most commonly associated with those soils.

Table 6: Summary of Soil Family and Associated Landforms Found at YPG

Map Unit	Soil Families	Associated Landform
1	Riverbend, Carrizo	Stream terraces, banks, and flood plains
2	Cristobal, Gunsight	Crests or summits and side slopes of fan terraces
3	Chuckawalla, Gunsight	Crests or summits and side slopes of fan terraces
4	Gunsight, Chuckawalla	Summits and side slopes of fan terraces
5	Superstition, Rositas	Relic beach terraces and dunes
6	Carsitas, Chuckawalla	Slopes and summits of dissected relic beach terraces
7	Tucson, Tremant, Antho	Alluvial fans
8	Gilman, Harqua, Glenbar	Basins and flood plains
9	Typic and Lithic Torriorthents	Hills and mountains

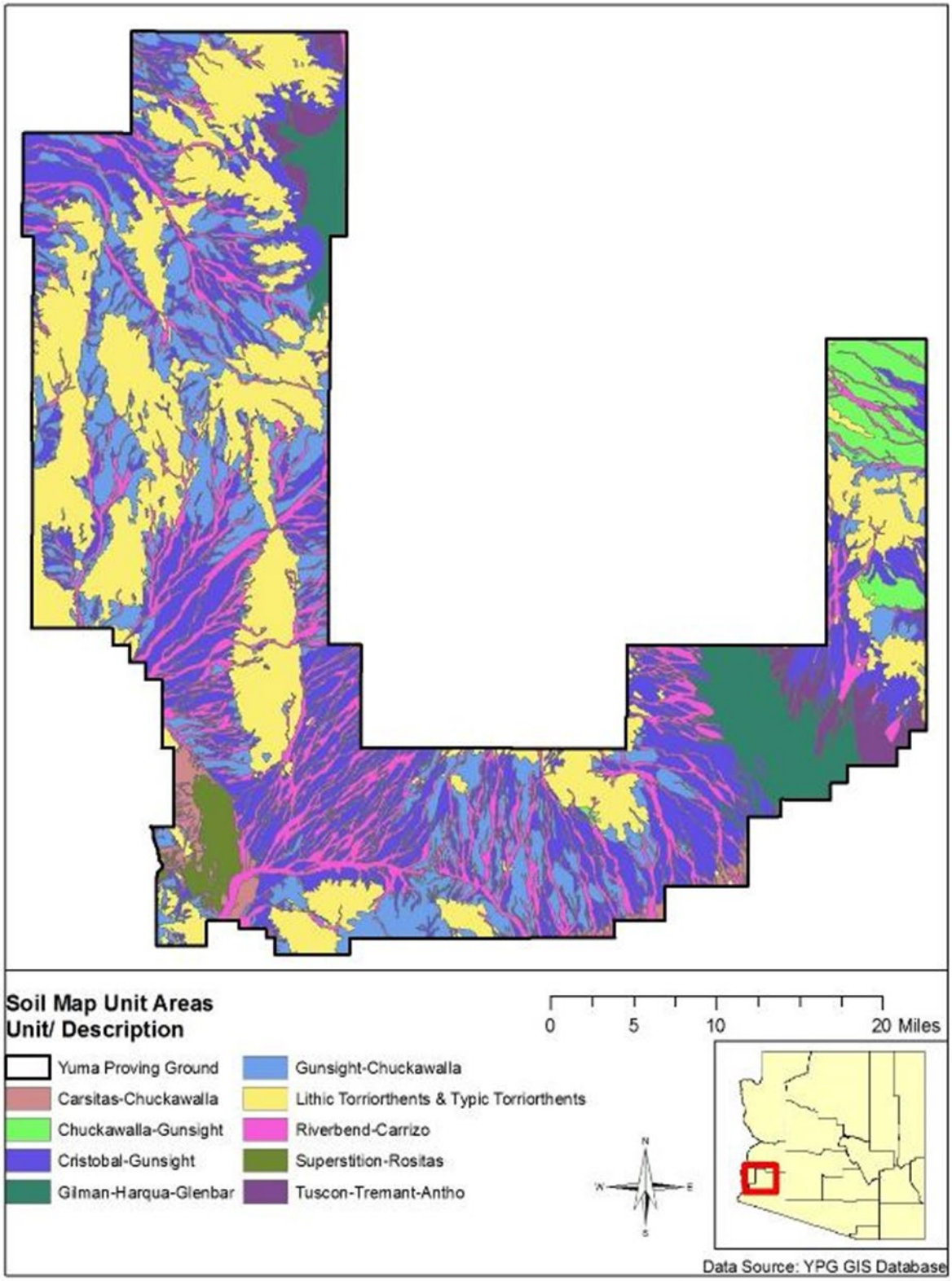


Figure 3: NRCS Soil Survey and Classification for Yuma Proving Ground

5. Geology

YPG is located within the Basin and Range physiographic province, which is characterized by numerous mountain ranges that rise abruptly from broad, plain-like basins. Altitudes of mountains range from approximately 300 ft. to more than 10,000 ft. above sea level. Mountain ranges and basins in the Basin and Range physiographic Province of Arizona generally trend north to northeast and range in length from a few miles to more than 60 miles and in width from 1 mile to more than 15 miles. In the Basin and Range physiographic province of Arizona, intermountain basins typically are through-flowing and this is the condition on YPG. Due to the proximity of the Gila and Colorado Rivers, basin washes on YPG tend to flow through to the rivers (Hendricks 1985; USGS 2004).

The mountain-basin features of YPG result from block faulting. Exposed mountain rock weathers and is deposited as sediments, forming broad flat valleys and alluvial fans (Hendricks 1985; USGS 2004). Typically, sediments in basins of the Basin and Range physiographic province result from terrestrial weathering, although some sediments in the Lower Colorado River Valley, including the YPG area, may be of marine origin (Hendricks 1985). In this province, basin sediment depths may extend to 10,000 ft. below ground surface (Hendricks 1985); on YPG the sediment depth in basins is typically much less, but still may extend to more than 1,300 ft. below ground surface (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation 2001).

The type of sediment and the rate of weathering of bedrock depend on the composition of the bedrock. Sediments within basins typically contain gravels, sands, silts, clays, marl, gypsum, and salt from combinations of fluvial, lacustrine, evaporite, colluvial, and alluvial fan deposits (Hendricks 1985).

The mountain ranges in and around YPG comprise mostly tertiary and quaternary volcanic materials. The mountainous areas cover approximately 25 percent of YPG, with a maximum elevation of 2,822 ft. in the Chocolate Mountains (US YPG 2012). Dome Rock, Middle Mountains, and Castle Dome Mountains are mainly sedimentary limestone from the Paleozoic and Mesozoic eras with some sandstone, siltstone, shale, and conglomerate. The Muggins Mountains are mostly Cambrian metamorphic rocks consisting of schist, granite, and gneiss. These metamorphic rocks also crop out in the Castle Dome, Chocolate, Trigo, and Dome Rock Mountains. Minor amounts of pre-Cambrian and post-Cretaceous granites occur in the Palomas, Dome Rock, Chocolate, and Trigo ranges (US YPG 2012).

Gold was historically mined from the Kofa, Trigo, Castle Dome, and Muggins Mountains, and also from the stream beds of the Laguna Mountains. Silver deposits, sometimes associated with lead and zinc, were mined from the Muggins and Laguna Mountains. Lead was mined in the Middle Mountains. Iron and copper were mined from the Palomas Mountains. Current mining operations are primarily limited to sources of gravel and sand for construction use. Borrow sites managed by YPG are in designated locations in developed areas, with one site in the northern Cibola Region leased to the U.S. Bureau of Reclamation for supply of fill materials (US YPG 2012).

The Lost Trigo Fault is 4 miles south of the Cibola Region, Arizona and approximately 31 miles northwest of the Laguna Region cantonment. The Sheep Mountain Fault is southwest of Wellton, Arizona and approximately 35 miles from YPG. The Salton periphery zone, including the Cargo Muchacho fault zone, is 6 miles northwest of the City of Yuma. The Algodones fault zone is in the southwest corner of Arizona. The proximity to seismically active faults in southern California puts the YPG area at risk of earthquakes, although the potential for health hazard and property damage is considered low (US YPG 2012). The chance of an earthquake with a magnitude greater than 5.0 within 50 years ranges from less than 10 percent to 40 percent across the installation. The greatest potential for earthquakes is in the southwest portion of YPG and the lowest potential for earthquakes is in northern Cibola and eastern Kofa Regions (Parsons 2011). The peak ground acceleration with a 2 percent chance in 50 years that would be expected from seismic activity ranges from 0.06 to 0.21 g (the acceleration due to gravity), which is considered minimal to moderate (USGS 2008).

Named Washes by YPG Region.

CIBOLA REGION - drains to the Colorado River through the following major washes and their tributaries.

- Ehrenberg Wash, north Cibola
- Lake Wash, north Cibola
- Weaver Wash, north Cibola
- Trigo Wash, north Cibola
- Pete's Wash, north Cibola
- Tyson Wash, northeast Cibola
- Mule Wash, northwest Cibola
- Crazy Woman Wash, northwest Cibola
- Mohave Wash, central Cibola
- Gould Wash, central Cibola
- McAllister Wash, central and south Cibola
- Yuma Wash, central and south Cibola
- West Fork Yuma Wash, south Cibola
- Lopez Wash, southwest Cibola
- Indian Wash, south Cibola
- Los Angeles Wash, south Cibola

LAGUNA REGION - drains primarily to the lower Gila River through the following major washes and their tributaries.

- Castle Dome Wash, adjacent to Highway 95 and Kofa Region
- Vinegarroon Wash, southeast Laguna
- Long Mountain Wash, southeast Laguna
- Nugget Wash, southeast Laguna
- Twin Tanks Wash, southeast Laguna

KOFA REGION - drains to the lower Gila River through the following major washes and their tributaries.

- Big Eye Wash, central Kofa Region
- Fuzzy Belly Wash, central Kofa Region
- Winston/Gravel Wash, northeast Kofa Region
- Cedric/Yaqui Wash, east Kofa Region
- Rutherford Wash, east Kofa Region
- Hoodoo Wash, north Kofa Region (East Arm portion)
- Unnamed/Majorwash-East, north Kofa (East Arm portion), slightly south of Hoodoo Wash

Source: Arizona Department of Quality eMaps (June 2011); Hydrography data layer-secondary streams, updated March 2009 and YPG GIS geodatabase.

6. Water Resources

YPG is within the Colorado/Lower Gila watershed (Figure 4). The Colorado River flows in a north-south direction west of the installation, while the lower Gila River flows in an east-west direction south of YPG.

a. Surface Water Resources

There are no perennial lakes, streams, or mountain springs within the boundaries of YPG. The dominant hydrologic features at YPG are ephemeral stream courses known as washes. These washes may be steep, stable, narrow channels in higher elevations, grading to wide, meandering, braided drainages in the surrounding plains. The text box lists the principal washes and watersheds associated with and found on YPG. Although these washes are dry on the surface most of the time, local and intense flash floods occur in response to storms. Even during flood events, surface flow in desert

washes is episodic, receding below ground along one reach of a channel and resurfacing in another reach downstream from where it disappeared (Ayers 1996).

The dynamic nature and ecological role of desert washes are topics of interest to scientists, military planners, and land managers. Washes perform important functions as geomorphic controls and areas of hydrologic recharge in the bedrock highlands. They provide habitats of high relative diversity and biomass compared to surrounding areas, and they serve as movement corridors as well as browse and cover sources for wildlife.

Rain events produce sheet-flow runoff that can cause localized flash-flooding and temporary ponding of water on the surface. Only after significant rainfall events do these washes carry surface drainage from the area towards the Gila River to the south and towards the Colorado River to the west.

Other surface water features are limited to naturally occurring tinajas and man-made structures, such as water tanks, wastewater treatment lagoons, and wildlife water catchments (Figures 4 and 5). Because of the limited availability of water in the arid southwest, such waters are critical assets in natural resources management.

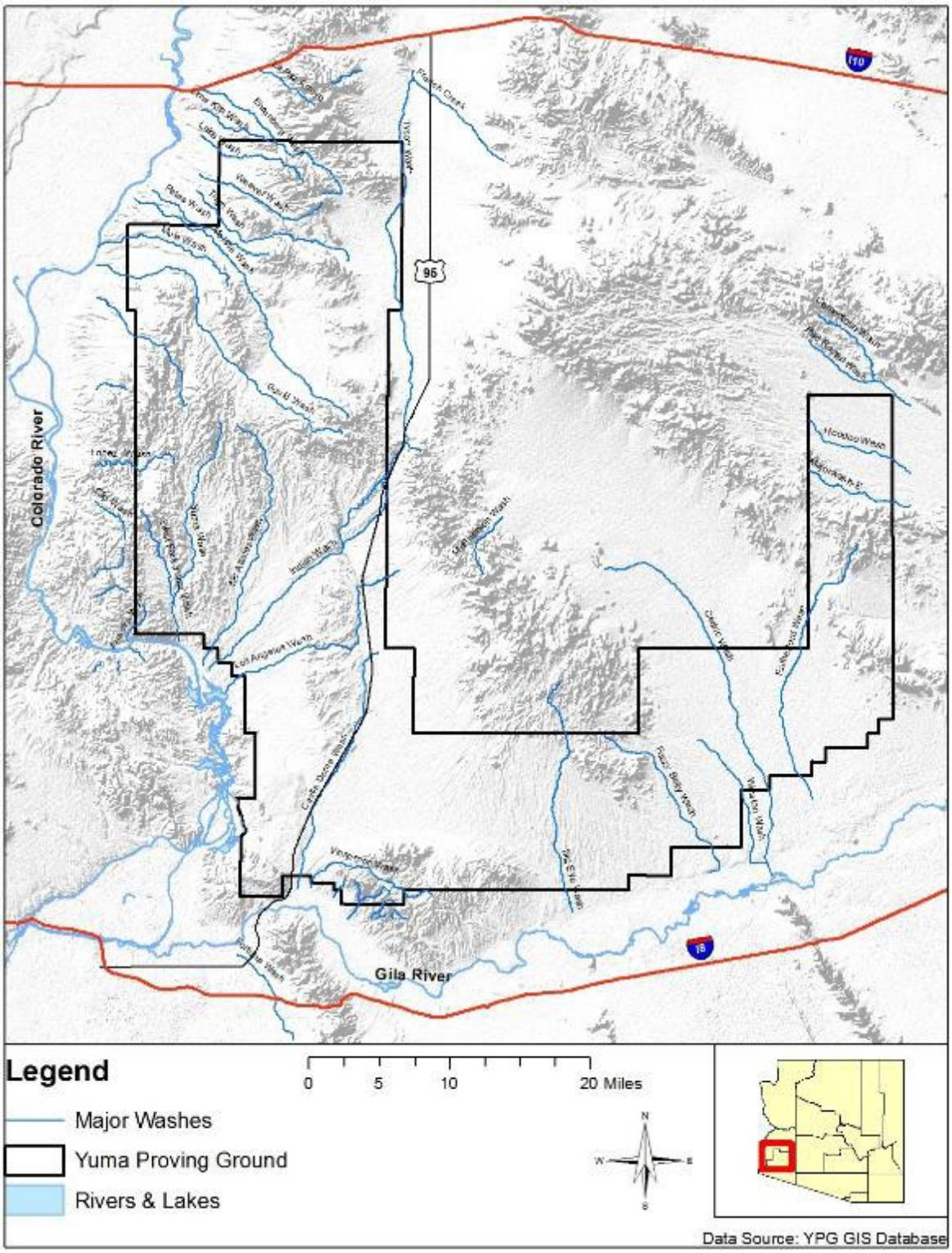


Figure 4: Surface Waters On and Adjacent to Yuma Proving Ground

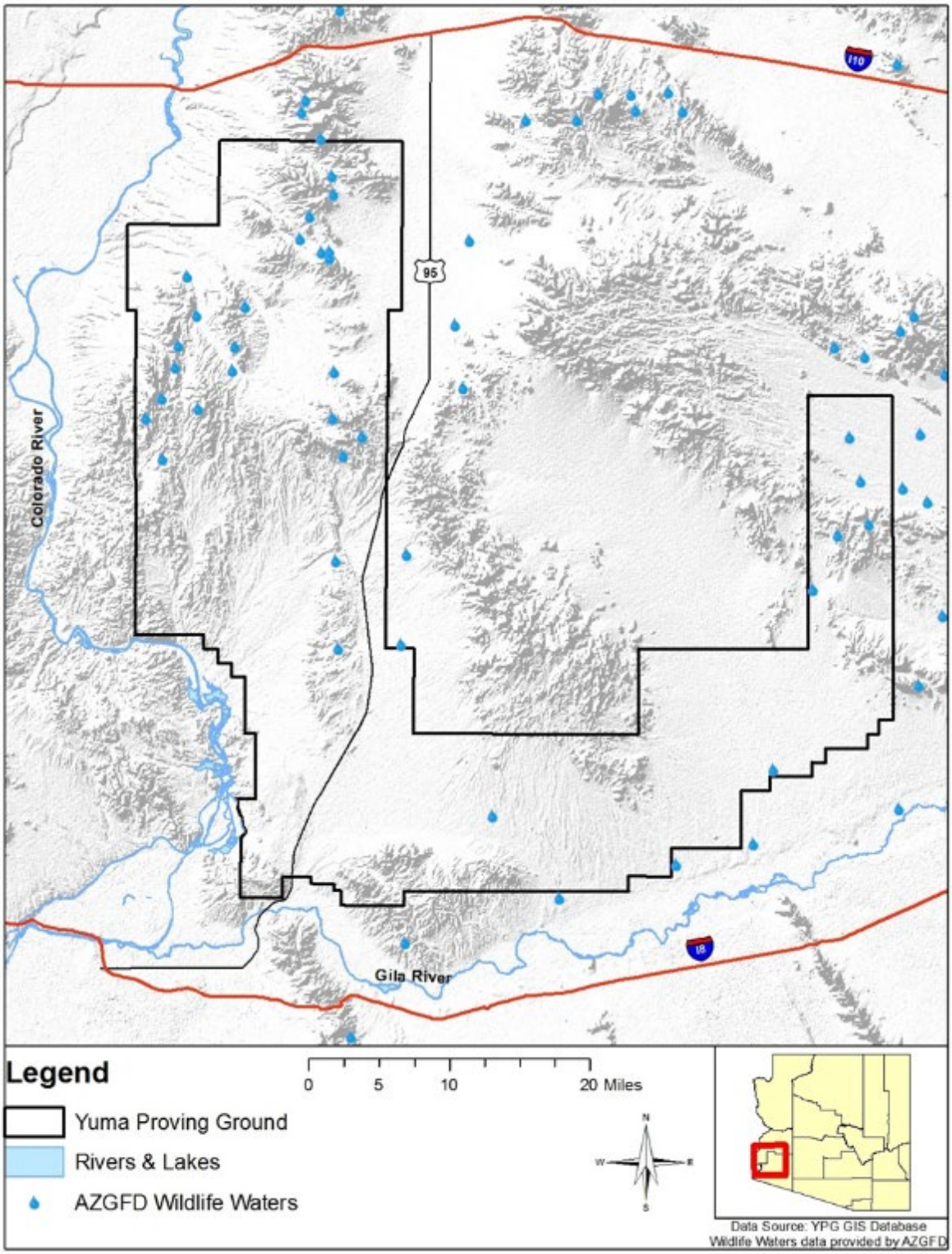


Figure 5: Wildlife Waters Map

Arizona Game and Fish Department manages more than 25 wildlife water catchments on YPG. Some of these waters are natural features that the department has modified with shade structures or sealants to enhance water storage. Many other systems consist of storage tanks that are filled by water catchments constructed in natural drainage features or manmade aprons. When rainfall is not adequate to provide the necessary water to the system, AZGFD will haul water to fill the system. In areas near roads, they will haul it by truck, but in remote rugged terrain, they may use a helicopter to deliver water.

b. Groundwater Resources

Groundwater is found in hydrologic basins located below the ground surface. In the Yuma area, the Colorado and Gila rivers contribute to the recharge of groundwater in the areas immediately adjacent to them. The large open basins between isolated bedrock highlands is recharged by recharge in the those highlands; either by direct recharge in the areas very close to the bedrock highlands or via flow from the surface to the water table via open fractures in the bedrock. Saturated basin fill sediment comprises the principal unconfined aquifer for YPG. Information concerning groundwater resources of the area is limited because there are 17 groundwater production wells located across YPG. Most of these are associated with the cantonment areas, but there are some that were constructed in more remote areas.

Depth to groundwater at the installation varies depending on proximity to the river and proximity to the isolated bedrock highlands where recharge is most significant. Known depths to groundwater on the installation range from 30 feet, in the southwest Laguna Region near the Colorado River, to greater than 750 feet, near Castle Dome Heliport (ENTECH 1988). In contrast with other basins in southern and central Arizona, long-term declines in water-table elevation have not been observed on YPG, probably due to lack of development.

c. Water Quality

Water distribution systems in the area depend on the Colorado River and its tributary, the Gila River, as both surface water and groundwater sources. Management of these resources is administered by federal, state, and local agencies through intergovernmental agreements. The major consumer in the region is agriculture. Despite tremendous population growth, water supplies appear sufficient to meet future needs, but poor water quality is an issue (Yuma Data Bank 2001).

Groundwater wells supply water for potable and non-potable uses to five separate water distribution systems serving each of the main complexes: Walker Cantonment Area, Howard Cantonment Area, Kofa Firing Range, Laguna Army Airfield, Castle Dome Heliport and Annex. Groundwater supplied by most wells is non-potable because of naturally occurring, elevated concentrations of fluoride and arsenic. Drinking water either is imported in bottles or, where possible, treated to bring it below the applicable regulatory limit (US YPG 2001). There are several remote wells, such as Lake Alex and Ivan's Well, augmenting range industrial uses where feasible. Water supplies are ample for both current and future use; there are no known potential limitations anticipated from aquifer drawdown, competing users, or increase in YPG's demand (Zillgens 1992).

7. Wildlife

YPG wildlife is typical for Sonoran desert scrub habitat. Lists of wildlife species known to occur in the vicinity of YPG are included in Appendix A. Desert wildlife may be endemic to the extremes of hot and dry conditions. Some species show slight variations aiding in adaptations to arid hot environments. In general, these characteristics tend toward physical changes such as lighter coloration, body armoring, and increased surface area to heat dissipating body parts, such as longer ears of a jackrabbit conforming to what is known as Allen's Rule. This rule[1] predicts that endothermic animals with the same body volume should have different surface areas that will either aid or impede their heat dissipation. Metabolic adaptations may include the ability to survive without free water, such as kangaroo rats (*Dipodomys* spp.), or to aestivate like spadefoot toads when conditions are too hot and dry. Nocturnal behavioral changes also help desert creatures adapt to the harsh conditions. Deserts are diverse wildlife areas in which birds, reptiles, and mammals are all well represented. The same is not true of fish and amphibians, other than in and near perennial streams such as the Colorado River.

Mammals: YPG is home to many mammal species including desert bighorn sheep (*Ovis canadensis mexicana*), mule deer (*Odocoileus hemionus*), Sonoran pronghorn (*Antilocapra americana sonoriensis*) (see Threatened and Endangered Species section below for more information), coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), badger (*Taxidea taxus*), and jackrabbits (*Lepus californicus*) as well as many smaller mammal species such as bats, mice, wood rats, and ground squirrels.

Desert bighorn sheep occur on various mountain ranges on YPG (Figure 6).

Desert bighorn sheep on Yuma Proving Ground (photo by R. English)

Overall, populations of Desert bighorn sheep have been fairly stable over the past 10 years, with numbers slightly decreasing, but remaining generally higher than in the 1980s. In AZGFD Game Management Units (GMU) 43A and 43B on YPG's western arm, combined population estimates showed sheep numbers generally increasing from 219 in 1993 to a high of 486 sheep in 2010, with a low population estimate of 206 in 2001. In GMU 41W, which includes YPG's east arm, the estimated population has fluctuated from 62 in 1992 to a high of 119 in 2003. In 2016 the population was back down to 61 (AZGFD 2016).

Mule deer (*Odocoileus hemionus*) are found throughout YPG, generally inhabiting open interstices between mountains. Combined population estimates in GMUs 43A, 43B, and 41 showed 1,256 animals in 1991 and 2,254 by 2007, with the highest estimate being 2,758 and

[1] https://en.wikipedia.org/wiki/Surface_area

the lowest being 994 in 1999 and 2002, respectively (AZGFD 2007). Mule deer populations continue to persist along these same trends (AZGFD 2017).

YPG has a number of predators including kit fox (*Vulpes macrotis*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), ringtail (*Bassariscus astutus*), and an occasional mountain lion (*Puma concolor*). Of the predators noted in surveys on YPG, the kit and gray fox and coyote are the most abundant (Ough and deVos 1986; deVos and Ough 1986).

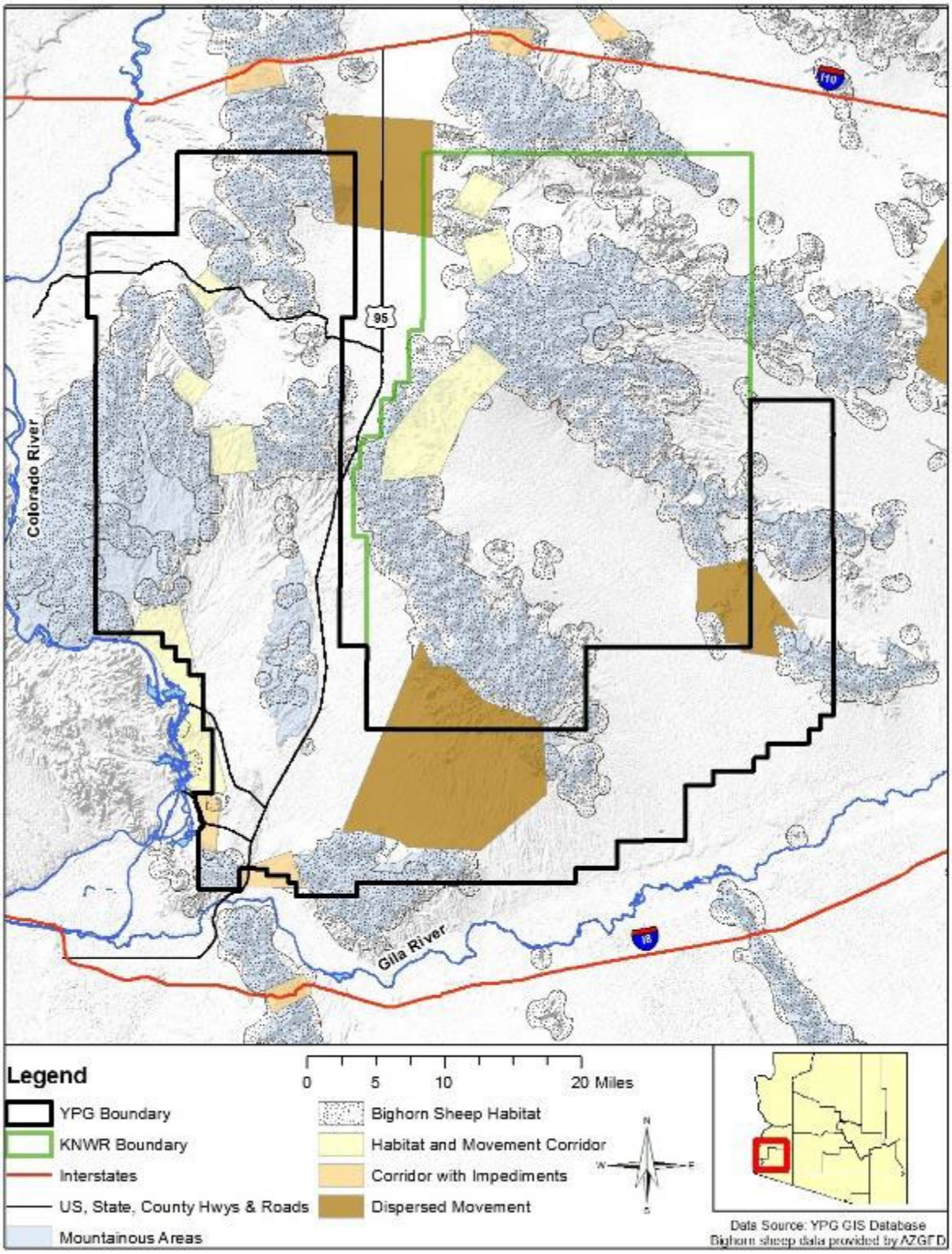


Figure 6: Desert Big Horn Sheep Corridors

Predator management is conducted in accordance with the Pest Management Plan for the YPG (US YPG 2016) and the AZGFD Predation Management Policy (AZGFD 2000). For example, management of the Kofa National Wildlife Refuge bighorn sheep herd has necessitated removal of one or more lions found to prey heavily (specialize) on sheep, as described in the Investigative Report and Recommendation for the Kofa Bighorn Sheep Herd white paper (Kofa National Wildlife Refuge and AZGFD 2007). Tracking and removal of lions on YPG by FWS and/or AZGFD will be coordinated with YPG Range Control, and the Garrison natural resource conservation office will be notified as soon as possible. If endangered species, migratory birds, horses, or burros are involved, YPG will coordinate with the appropriate FWS and/or BLM office. Nuisance or dangerous wildlife will be dispatched or removed by live-trapping and relocation, if relocation is a viable option for the species involved.

Of the terrestrial small mammals on YPG, rock pocket mouse (*Chaetodipus intermedius*) and Merriam's kangaroo rat (*Dipodomys merriami*) are most often observed during surveys (Ough and deVos 1986; deVos and Ough 1986; Romero 2021). The black-tailed jackrabbit *(Lepus californicus*) and desert cottontail (*Sylvilagus audubonii*) also are often noted. The most commonly observed bat species on YPG are the California leaf-nosed bat (*Macrotus californicus*), California myotis (*Myotis californicus*), and canyon bat (*Pipistrellus hesperus*) (Castner et al. 1993, 1995; AZGFD 2002, AZGFD 2021).

Reptiles and Amphibians: Most of the information regarding YPG herpetofauna is derived from surveys conducted by AZGFD on the North Cibola and East Arm areas of the installation (Ough and deVos 1986; deVos and Ough 1986, Romero 2021). Lizards, such as the desert horned lizard (*Phrynosoma platyrhinos*), western whiptail (*Aspidoscelis tigris*), and side-blotched lizard (*Uta stansburiana*), are commonly seen throughout YPG. Note that genetic analyses conducted by Mulcahy *et al*. (2006) indicated that desert horned lizards east of the Colorado River, including YPG, represent a distinct genotype compared to populations west of the Colorado. Resident snakes include the sidewinder (*Crotalus cerastes*), western diamondback rattlesnake (*Crotalus atrox*), and coachwhip (*Coluber flagellum*). In all, over 30 species of reptiles have been documented on YPG with the side-blotched lizard (*Uta stansburiana*) and western shovel-nosed snake (*Chionactis occipitalis*) being among the most common.

Couch's spadefoot (*Scaphiopus couchi*), red-spotted toad (*Anaxyrus punctatus*), and Sonoran desert toad (*Incilius alvarius*) comprise YPG's three amphibian species (Romero 2021). These species are listed by The Nature Conservancy as members of the ephemeral water-breeding amphibian guild identified as a preliminary conservation element in southwest Arizona (Nature Conservancy 2004).

Some species, such as Mohave fringe-toed lizard, are highly adapted to very specific and localized habitat types and are restricted to small areas on YPG (Diamond 2012). Other species, such as the western whiptail, occur in habitat types more common throughout YPG and are found virtually range-wide.

Invertebrates: Less is known about invertebrate species occurring at YPG and in the vicinity. Some incidental surveys have been conducted for scorpions. Another study that focused on both native and non-native pollinators, primarily bees, was conducted to determine the importance of their ecological role in the YPG area and to assess the effect of wildlife waters on native pollinators. The Sonoran Desert has one of the highest diversity assemblages of native bees in the world. In the first four months of trapping, the researchers found a total of 118 species of bees in 5 families. Among them were at least four bee species new to science (Buchman and Donovan 2002). Trapping efforts by AZGFD on YPG and Kofa NWR yielded more than 200 species, and native bees, unlike honeybees, were unaffected by distance from wildlife waters. This finding suggests that honeybees, primarily Africanized, are not negatively impacting native bees in desert lands of southwestern Arizona (Rosenstock *et al*. 2004). Considerable effort has been focused on some insects known to be disease vectors for both humans and wildlife. Specifically, mosquito sampling occurs annually in the Howard Cantonment Area to monitor adult populations and West Nile virus.

YPG has a wide range of desert fauna. Some species are restricted to specific microhabitats, whereas others range over a wide area. Several groups of animals are associated with the proximity of the Colorado and Gila Rivers and the inherent relationship to the Pacific Flyway. Refer to Appendix C for comprehensive species lists. For detailed data on each species, refer to the planning level surveys listed below:

- North Cibola Range Wildlife Inventory (Ough and deVos 1986)
- YPG East Wildlife Inventory (deVos and Ough 1986)
- Special Status Species Summary Report (Palmer 1986)
- Bat Inventory of USAYPG (Castner et al. 1993)
- Bat Inventory of USAYPG, Arizona (Castner et al. 1995).
- Planning Level Surveys To Determine The Distribution And Nesting Status Of Golden Eagles On Yuma Proving Ground In Southwestern Arizona (Sturla 2014)
- Long Term Wildlife Trends, Reptile Inventory (Romero 2021)
- Long Term Wildlife Trends, Mezopredator/Mammal Inventory (Romero 2021)
- Long Term Wildlife Trends, Small Mammal Inventory (in progress)
- Long Term Wildlife Trends, Raptor Inventory
- Bat inventory, Roost Monitoring (Mixan 2021)
- LeConte's Thrasher Inventory of YPG (Ingraldi 2020)

8. Species of Special Management Concern

Species of special management concern are those that have special designation by the FWS or AZGFD. Federally listed species include threatened, endangered, proposed, or candidates for listing under the ESA. The FWS also identifies Migratory Birds, (discussed in Section 9) that require additional conservation as Birds of Conservation Concern (BCC)[2].

[2] USFWS. 2021. Birds of Conservation Concern 2021 Migratory Bird Program. https://www.fws.gov/migratorybirds/pdf/management/birds-of-conservation-concern-2021.pdf Accessed on 2/28/2022

The AZGFD Arizona State Wildlife Action Plan ranks species based on their vulnerability for Species of Greatest Conservation Need (SGCN) The SGCN list was developed based on species vulnerability and is further is categorized into three tiers reflecting the Department's management commitments and priorities; tiers are ranked as follows:

Tier 1a: Federally endangered, threatened, candidate, or covered under a signed Candidate Conservation Agreement, recently delisted[3] and requiring monitoring, or closed season species (i.e., no take permitted) as identified in Arizona Game and Fish Commission Orders 40, 41, 42 or 43 (SWAP 2012).

Tier 1b: Species identified as vulnerable, but do not meet the criteria for Tier 1A (SWAP 2012).

Tier 1c: Species that do not have adequate data to address vulnerability. For the purpose of this INRMP, we are only including tier 1c species that also have a federal status, however YPG may cooperatively work with AZGFD to gather data needed for future conservation for some of these species. A full listing of Arizona SGCN is found in the Arizona State Wildlife Action Plan.

There is no waiver of sovereign immunity for endangered and threatened species so state laws regarding protected species are not applicable. DoD/DA policy is that garrisons/installations should provide for the protection and conservation of state protected species when practicable. That is to say, it should provide similar conservation measures for state-listed species as are provided to species listed under the ESA, as long as such measures are not in direct conflict with the military mission. When conflicts do occur, the consultations should be conducted with the appropriate state authority to determine if any conservation measures can be feasibly implemented to mitigate impacts. DoDI 4715.03, Enclosure 3(3)(d) and AR 200-1, 4-3(5)(w).

Table 7: Special Status Species Expected to Occur on YPG

Species	Federal Status	State Status	Occurrence on YPG	Comments
AMPHIBIAN				
Sonoran desert toad *Incilius alvarius*	None	1b	O	Infrequently encountered on YPG; usually found near water catchments. (1)(2)
Lowland Leopard Frog *Rana yavapaiensis*	None	1a	P	Occupies wetlands. Not present on YPG
BIRDS				
Sprague's pipit *Anthus spragueii*	BCC	1a	NE	Observed outside boundaries of YPG. No habitat on YPG supports this species
Southwestern willow flycatcher *Empidonax trailii extimus*	FE	1a	NE	Habitat occurs west of YPG along Colorado River

[3] According to the Arizona State Wildlife Action Plan, tier 1a includes recently delisted species.

Species	Federal Status	State Status	Occurrence on YPG	Comments
Yellow-billed cuckoo (western) *Coccyzus americanus*	FT	1a	NE	Habitat occurs west of YPG along Colorado River
Yuma Ridgeway's Rail *Rallus obsoletus yumanensis*	FE	1a		Habitat occurs west of YPG along Colorado River
Bald eagle *Haliaeetus leucocephalus*	FD BGPA MBTA	1a	O	Observed along Colorado River, west of YPG
Golden eagle *Aquila chrysaetos*	BGPA MBTA	1b	O	Observed in flight on YPG. Appropriate nesting structures have been found, but to date have not found golden eagle nesting on YPG.
Western burrowing owl *Athene cunicularia hypugaea*	BCC	1b	O	Observed on the installation
Ferruginous hawk *Buteo regalis*	BCC	1b	O	Observed outside boundaries but likely migrates through
Gilded flicker *Colaptes chrysoides*	BCC	1b	O	Breeds on installation
Lincoln's sparrow *Melospiza lincolnii*	None	1b	P	Observed outside boundaries
Gila woodpecker *Melanerpes uropygialis*	BCC	1b	O	Breeds on installation
Savannah sparrow *Passerculus sandwichensis*		1b	P	Observed outside boundaries. Belding's Savannah Sparrow is a BCC however they do not occur on YPG.
Abert's towhee *Melozone aberti*	MBTA	1b	O	Breeds on installation
Le Conte's thrasher *Toxostoma lecontei*	BCC	1b	O	Breeds on installation
Bendire's thrasher *Toxostoma bendirei*	BCC	1c	P	EBird shows records nearby
Pacific wren *Troglodytes pacificus*	MBTA	1b	P	unknown
Arizona Bell's vireo *Vireo bellii arizonae*	MBTA	1b	O?	Detected, subspecies not determined.[(1)]
Peregrine falcon *Falco peregrinus*	FD	1a	O	Observed occasionally on YPG; cliff nesting habitat limited on YPG
Prairie Falcon	BCC	1c	O	Breeds on installation
Crested caracara *Caracara cheriway*	None	WSC	NE	Observed at Cibola National Wildlife Refuge
MAMMALS				
Harris' antelope squirrel, *Ammospermophilus harrisii*	None	1b	O	Commonly observed on YPG

Species	Federal Status	State Status	Occurrence on YPG	Comments
Sonoran pronghorn *Antilocapra americana sonoriensis*	FE	1a	O	Pronghorn currently occupy portions of the Kofa firing range.
Desert bighorn sheep *Ovis canadensiss mexicana*	None	1b	O	Occupy rugged mountainous areas on YPG
Arizona pocket mouse *Perognathus amplus*	None	1b	O	[(1)] Observed on YPG during previous survey
Little pocket mouse *Perognathus longimembris*	None	1b	O	[(1)] Observed on YPG during previous survey
Colorado river cotton rat *Sigmodon arizonae plenus*	None	1b	P	Associated with river drainages found along the river near Ehrenburg. Not on YPG
Yuma hispid cotton rat *Sigmodon hispidus eremicus*	None	1b	P	Given their association with riparian vegetation (e.g., cattail, water hyacinths, sedges, rushes, etc.), the likelihood of occupancy on the withdrawal area is considered low
Harquahala southern pocket gopher *Thomomys bottae subsimilis*	None	1b	P	unknown
Kit fox *Vulpes macrotis*	None	1b	O	[(1)] Observed on YPG
Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*	None	1b	P	Observed on YPG
Greater western mastiff bat *Eumops perotis californicus*	None	1b	P	Observed at Cibola National Wildlife Refuge and Imperial National Wildlife Refuge
Western red bat *Lasiurus blossevillii*	None	1b	P	Observed at Cibola National Wildlife Refuge
California leaf-nosed bat *Macrotus californicus*	None	1b	O	Roosts in abandoned mines[(4)]
Western yellow bat *Lasiurus xanthinus*	None	1b	O	Observed on YPG
Cave myotis *Myotis velifer*	None	1b	P	Large roosts (250 or more individuals) have been found in the Kofa Wildlife Refuge.[(4)] Potential habitat exists on YPG
Yuma myotis *Myotis yumanensis*	None	1b	O	[(3)]Observed on YPG.
Pocketed free-tailed bat *Nyctinomops femorosaccus*	None	1b	P	Detected on Kofa NWR. Potentially on YPG
Big free-tailed bat *Nyctinomops macrotis*	None	None	P	Detected acoustically at Imperial National Wildlife Refuge

Species	Federal Status	State Status	Occurrence on YPG	Comments
Brazilian (Mexican) free-tailed bat *Tadarida brasiliensis*	None	1b	O	[3]Observed on YPG
REPTILES				
Sonoran desert tortoise *Gopherus agassizii,* now *G. morafkai*	Unwarrented for listing	WSC 1a	O	[4]Tortoise have been observed on YPG. YPG signed a Candidate Conservation Agreement for Sonoran Desert Tortoise in 2015.
Gila monster *Heloderma suspectum*	None	1a	O	Photographed on the East Arm. Habitat types documented on the installation. [1]
Sonoran coralsnake *Micruroides euryxanthus*	None	1b	O	[5] There are no known occurrences for this species on YPG although suitable habitat may be present
Variable sandsnake *Chilomensicus stramineus*	None	1b	P	Unknown
Sonoran collared lizard *Crotaphytus nebrius*	None	1b	P	unknown
Mohave fringe-toed lizard *Uma scoparia*	None	WSC 1b	O	Population present in sand dune complex in northwest Cibola Range.[4]
INSECTS				
Monarch butterfly	C	None	O	Observed on YPG
PLANTS				
Nichol's Turk's head cactus *Echinocactus horizonthalonius* var. *nicholii*	FE	NONE	NE	Reported to have been photographed on YPG in 1995; plant not relocated, though not expected to occur on YPG, included for historic reasons.
Federal and State Status FE-Listed Federally Endangered FT-Listed Federally Threatened C-Candidate for federal listing FD-Delisted BCC- Birds of Conservation Concern (BCC) Tier 1a and 1b refers to AZGFD state wildlife action plan This list does not identify all migratory birds protected by MBTA. Only those with SGCN or BCC status.			Occurrence on YPG O-Observed P-Potential NE-Not Expected [1] Ough and deVos 1986 [2] deVos and Ough 1986 [3] Castner et al. 1995 [4] AZGFD 2008 [5] Palmer 1986	

a. Threatened and Endangered Species

Sonoran Pronghorn: The Sonoran pronghorn (*Antilocapra americana ssp. sonoriensis*) is a subspecies of the American pronghorn that is listed as endangered under the federal ESA. The

2016 Recovery Plan for Sonoran Pronghorn includes detailed information about the species, as well as recovery objectives and actions (for further information on the plan or the species, see https://ecos.fws.gov/ecp/species/4750). The Sonoran pronghorn is a hoofed animal that resembles an antelope. It has a yellowish-tan color with white areas on the rump, throat, sides of the face, and underparts. The horns are black with a single prong. The pronghorn is North America's fastest land animal and its speed and eyesight help the animals avoid predators.

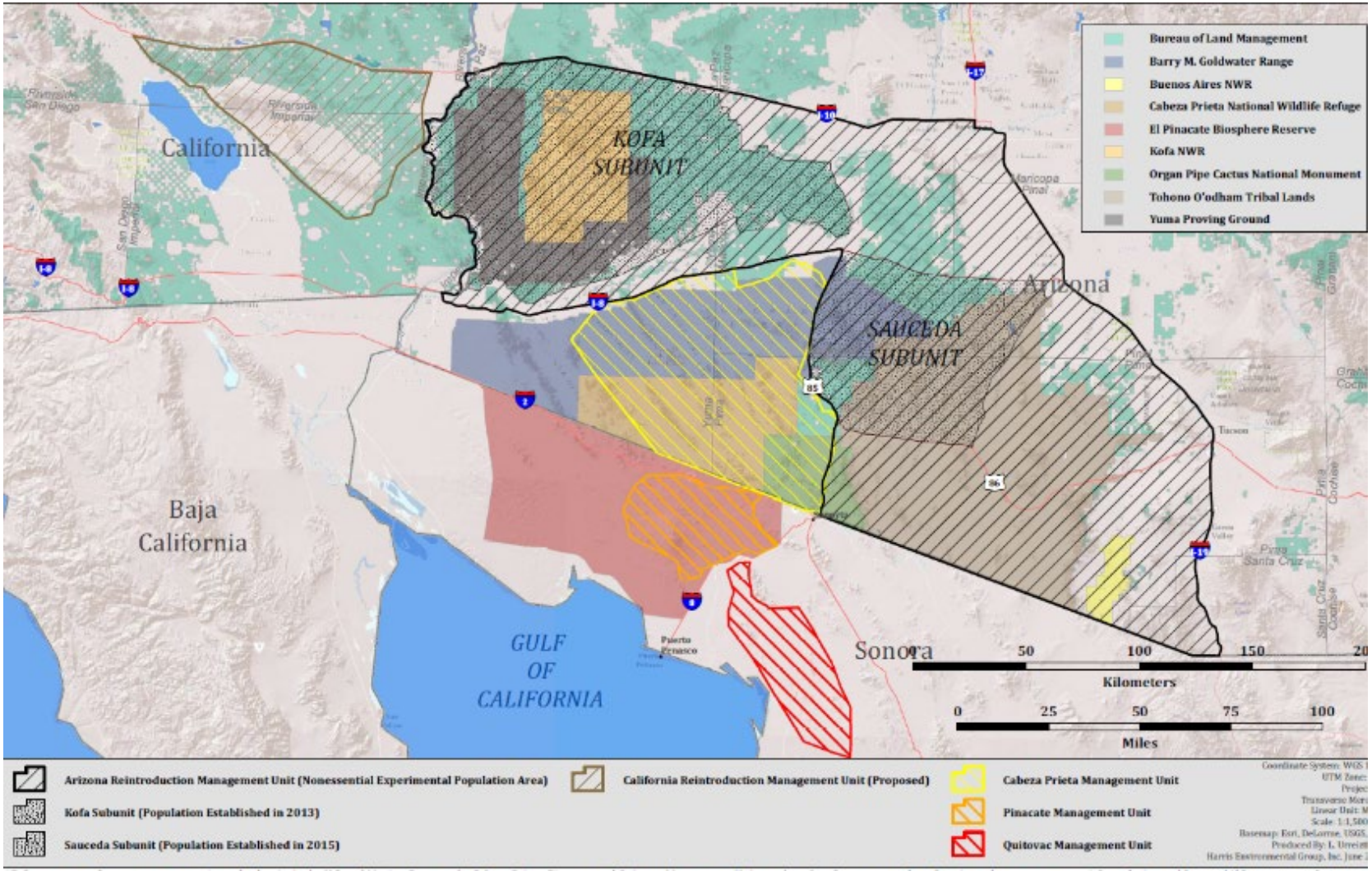
Flat to rolling topography is the preferred habitat for the subspecies, which includes broad intermountain alluvial valleys with creosote bush-bursage and palo verde-mixed cacti associations (US YPG 2012). Within its current range, the Sonoran pronghorn generally prefers creosote bush-bursage, palo verde mixed cacti, and ephemeral wash habitats. According to a model by FWS, more than 55 percent of YPG (approximately 757 square miles) is potentially suitable habitat for this species (USFWS 2009). Generally, bajadas are fawning areas and sandy dune areas provide food on a seasonal basis. Cacti, forbs, and shrubs are important food plants for the Sonoran pronghorn and the fruit of chain-fruit cholla (*Opuntia fulgida*) can be consumed to provide a water source (USFWS 2009).

The subspecies occurs in southwestern Arizona and Sonora, Mexico. In Arizona, the population listed as endangered (referred to as the "Cabeza Prieta" population in the 2016 Recovery Plan for the Sonoran Pronghorn) is known to inhabit the Barry M. Goldwater Range, Cabeza Prieta NWR, Organ Pipe National Monument, and the BLM-Ajo Block. In relation to YPG, the closest endangered population of Sonoran pronghorn is on the Barry M. Goldwater Range, which is across U.S. Interstate 8 (I-8) and approximately 10 miles south of YPG. The interstate highway and the extensive farming along the Gila River Valley effectively prevent movement of this population onto YPG.

To help recover the species, the Sonoran Pronghorn Recovery Team has been working to establish additional Sonoran pronghorn populations within its historic range in Arizona. As part of this effort, in 2010, the FWS designated a nonessential experimental population area for Sonoran pronghorn, as defined under Section 10(j) of the ESA within a portion of its historic range. This area is located north of I-8 and south of U.S. Interstate 10 (I-10) and encompasses all of YPG (USFWS 2011). YPG is specifically part of the Kofa Subunit of the Arizona Reintroduction Management Unit for Sonoran pronghorn (see Figure 17 in the 2016 recovery plan).

With the designation of the 10 (j) experimental population, the service has established an exception to section 9 of the ESA that applies to YPG that allows for take of pronghorn from the nonessential experimental population area: "...when it is incidental to, and not the purpose of, carrying out an otherwise lawful activity within the boundaries of YPG…" (FWS 2011). There is also no requirement for consultation or conferencing under section 7 of the ESA on DOD lands because the released animals are part of a population that, by definition, is not essential to the continued survival of the species. The only requirement on DoD lands is to report to the Service if incidental take occurs within one of the designated population areas because of military operations (FWS 2011).

However, for the purposes of section 7, an experimental population must be treated as threatened on National Wildlife Refuges or National Parks. Therefore, YPG must consult with the FWS for any project that may affect Sonoran pronghorn on Kofa NWR. YPG entered formal Section 7 consultation with FWS regarding its activities and operations relative to this experimental population and received a biological opinion on September 9, 2014.



17. Sonoran pronghorn management units and subunits in the U.S. and Mexico. Because the Cabeza Prieta, Pinacate, and Quitovac Management Units are based on Sonoran pronghorn locations, the management unit boundaries could expand if Sonoran pronghorn expa
nge in these areas. Because Sonoran pronghorn have not been documented outside of Cabeza Prieta Management Unit and south of I-8 and west of Hwy 85, there is an apparent gap in the map. Sonoran pronghorn could occasionally move outside of management units;
noran pronghorn occurring outside the Nonessential Experimental Population area is considered endangered.

Figure 7: Sonoran Pronghorn Management Units and Subunits in the U.S. and Mexico

As part of the recovery effort, the Sonoran Pronghorn Recovery Team has established captive breeding pens at Cabeza Prieta NWR and Kofa NWR, as well as soft release pens in various locations including YPG. Within the Kofa Subunit. Since 2013, 107 Sonoran pronghorn have been released from the breeding pens into King Valley on Kofa National Wildlife Refuge and 27 on YPG. Most of those animals have remained in King Valley and the Palomas Plane. A few individuals have been found west of U.S. Highway 95, and a small number of other individuals have moved into or through the Palomas Plain, the southern Ranegras Plain, and north of and near the Little Horn and Eagletail mountains (AZGFD 2014, 2015, 2016). Surveys in January 2021 estimated up to 144 pronghorn between Kofa NWR and YPG. The Palomas Plane had a minimum of 34 pronghorn. (Hervert pers com, personal communication).

Sonoran pronghorn have been observed on YPG using the man-made ponds Smart Weapons Test Range (SWTR) pond and Ivan's Well on the eastern portion of the Kofa Range, which is located toward the southern end of King Valley. These ponds are maintained to supply water for dust suppression or construction and maintenance activities on YPG. It is not fenced and is frequented by deer, horses, coyotes, and other wildlife. Normal dispersal of the nonessential experimental population of Sonoran pronghorn will likely result in additional animals occurring on YPG. As their population increases, so will pronghorn encounters on YPG.

Yellow-Billed Cuckoo: The western Yellow-billed cuckoo (YBCU, *Coccyzus americanus occidentalis*) was listed by FWS as a threatened species on November 3, 2014. Yellow-billed Cuckoos (YBCU) are fairly large, long, and slim birds. The mostly yellow bill is almost as long as the head, thick and slightly downcurved. They have a flat head, thin body, and very long tail. Wings appear pointed and swept back in flight. Yellow-billed Cuckoos are warm brown above and clean whitish below. Their blackish face mask is accompanied by a yellow eye-ring. In flight, the outer part of the wings flash rufous. From below, the tail has wide white bands and narrower black ones (USFWS 2016).

YBCU use wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. In the West, nests are often placed in willows along streams and rivers, with nearby cottonwoods serving as foraging sites. The western subspecies (*C.a. occidentalis*) has disappeared over much of the western U.S. and now occurs as a rare breeder in California, Arizona, New Mexico, and west Texas (USFWS 2016).

Critical habitat for this species has been designated by the FWS in 2021 (Federal Register / Vol. 86, No. 75). Critical habitat proposed along the Colorado River was excluded under section 4(b)(2) of the ESA. Potential YBCU habitat occurs along the Colorado River and associated wetlands west of the YPG boundary. There are no wetlands or associated shrublands on YPG that would support YBCU on YPG (Federal Register Vol. 86, No. 75, April 21, 2021).

Yuma Ridgway's Rail (previously Yuma Clapper Rail): The Yuma Ridgway's rail (*Rallus obsoletus (=longirostris) yumanensis*), one of the smaller subspecies of the Ridgway's rail, is classified as

endangered under the federal ESA. It is classified as a Species of Greatest Conservation Need in Arizona. Critical habitat has not been designated for this bird.

Note that the taxonomic classification of *R. longirostris yumanensis* has been modified, with all subspecies of clapper rails in parts of western Mexico, southern California, Arizona, and elsewhere in the lower Colorado River basin, including *yumanensis*, are now considered Ridgway's rail (*Rallus obseletus*) (BirdLife International 2021).

The Yuma Ridgway's rail is present along and near the Colorado River from the delta to the upstream end of Lake Mead. It is also present along the Lower Gila River and some other major tributaries of the Colorado River and in marshes in the Salton Sea. It is also uncommonly upstream of Lake Mead along the Colorado River and in nearby major tributaries and large marsh complexes. It is found in freshwater marshes with water greater than 12 inches deep and dense to moderately dense stands of cattails, bulrushes (*Scirpus* spp.), and other emergent plants (Great Basin Bird Observatory 2017).

There is no suitable wetland habitat for Yuma Ridgway's Rail on YPG; however there is habitat within a short distance of the installation boundary, particularly near the Howard Cantonment Area.

Southwestern Willow Flycatcher: The southwestern willow flycatcher (*Empidonax traillii extimus*) is listed as endangered under the federal ESA. This small bird is usually a little less than 6 inches in length, including tail. Conspicuous light-colored wingbars. Lacks the conspicuous pale eye-ring of many similar Empidonax species.

For nesting, the species requires dense riparian habitats (cottonwood/willow and tamarisk vegetation) with microclimatic conditions dictated by the local surroundings. Saturated soils, standing water, or nearby streams, pools, or cienegas are a component of nesting habitat that also influences the microclimate and density vegetation component. Habitat not suitable for nesting may be used for migration and foraging. Recurrent flooding and a natural hydrograph are important to withstand invading exotic species (tamarisk). Typically found below 8,500 feet of elevation. Critical habitat was finalized on January 3, 2013. No designated critical habitat for southwestern willow flycatchers is along the lower Colorado River.

No suitable habitat for southwestern willow flycatcher occurs on YPG.

Nichol's Turk's head cactus: The Nichol's Turk's head cactus (*Echinocactus horizonthalonius var. nicholii*), is the only federally endangered plant previously recorded on the installation – one plant was photographed on one occasion and was never relocated despite intensive searches by botanists. Most experts believe that the recording was in error (perhaps photographed elsewhere and erroneously included with YPG photos), or the individual plant failed to reproduce and has died. YPG is not within the native range of this species and the correct soil type to support a viable population is not found on the installation.

Table 8: Endangered Species Management Component

Species	Impacts from YPG Activities	Conservation provide by INRMP
Southwestern willow flycatcher (*Empidonax trailii extimus*) Federally Endangered	Minimal impact because SWFL only occur along the Colorado River and Associated wetlands. The only YPG activities that could impact is disturbances near canal west of the Howard Cantonment Area.	The integrated review process for all YPG actions ensures that we can find ways to avoid or minimize impacts in early planning. INRMP actions such as removal of invasive species and enhancing native vegetation at the HCA would contribute to the health of the surrounding ecosystem. Habitat does not occur on YPG, however the species could use the installation as a flyover.
Yuma Ridgway's Rail (*Rallus obsoletus yumanensis*) Federally Endangered	Minimal impact because YBCU only occur along the Colorado River and Associated wetlands. The only YPG activities that could impact is disturbances near canal west of the Howard Cantonment Area.	The integrated review process for all YPG actions ensures that we can find ways to avoid or minimize impacts in early planning. INRMP actions such as removal of invasive species and enhancing native vegetation at the HCA would contribute to the health of the surrounding ecosystem. Habitat does not occur on YPG, however the species could use the installation as a flyover.
Yellow-billed cuckoo (western) (*Coccyzus americanus*) Federally Threatened	Minimal impact because YBCU only occur along the Colorado River and Associated Woodlands. The only YPG activities that could impact is disturbances near canal west of the Howard Cantonment Area	The integrated review process for all YPG actions ensures that we can find ways to avoid or minimize impacts in early planning. INRMP actions such as removal of invasive species and enhancing native vegetation at the HCA would contribute to the health of the surrounding ecosystem. Habitat does not occur on YPG, however the species could use the installation as a flyover.
Sonoran Pronghorn (*Antilocapra americana sonoriensis*) Federally Endangered, YPG is within 10(j) population.	SPH occupy active test ranges on the Kofa and Cibola portions of YPG. They are subject to disturbance from vehicles and work crews along range roads and test sites. They are also subject to noise from low flying aircraft and explosive ordnance. Habitat disturbance may also occur from range preparation and cleanup, vegetation disturbance and fire risk.	The INRMP encourages interagency cooperation and participation with the SPH recovery team. YPG is an active partner in the recovery effort and provides funding and support for the captive breeding and release program including release of pronghorn directly onto the East Arm. YPG provides airspace and ground access for monitoring. YPG assists in the management of wildlife waters which are critical for SPH recovery. This INRMP supports both maintenance of existing and construction of new wildlife waters.

Species	Impacts from YPG Activities	Conservation provide by INRMP
		The INRMP also supports forage enhancement projects and supplemental feeding for pronghorn.
Sonoran desert tortoise *(Gopherus morafkai* Listing unwarranted	Tortoise primarily occupy rocky slopes and washes on the northern Cibola ranges on YPG, however tortoise have been observed on other parts of the range. They are susceptible to being crushed by vehicles and equipment or burrows collapsing.	This INRMP includes provisions for continued annual monitoring of tortoise population and this information will be provided to the Arizona Interagency Desert Tortoise Team as part of our collaboration under the Candidate Conservation Agreement. The INRMP restricts off road travel and the Conservation Law Enforcement Program (CLEP) enforces these restrictions including illegal trespass, poaching or collecting. YPGs environmental awareness program encourages increased reporting of tortoise sighting which enables better tracking of occupancy across the range.
Monarch butterfly (*Danaus plexippus*) Candidate	To date monarch observed on YPG have been during the late summer/fall migration period. Native milkweed (Asclepius sp.) occur on the YPG ranges however it is unknown how important these areas are for breeding. Monarch would be vulnerable to the use of pesticides on YPG. These impacts would be limited to the Howard Cantonment area.	This INRMP includes planning level surveys for vegetation and monarchs which will contribute to our understanding of the distribution of Monarch and their hostplants across the YPG ranges. The plan also has provisions for landscaping with native plants at the HCA to contribute to the health of the surrounding ecosystem and provide nectar sources for migrating monarchs.

b. Species of Concern

Arizona's State Wildlife Action Plan identifies a list of Species of Greatest Conservation Need. Under the plan, species are evaluated and assigned a tier rating in accordance with vulnerability (AZGFD 2012). YPG plays an important role in the conservation of many of these species. The following section provides detailed information on specific SCGN species that YPG is currently actively managing.

Sonoran Desert Tortoise: The Sonoran desert tortoise (SDT) is was previously considered candidate for federal listing and is managed under a Candidate Conservation Agreement. The Arizona State Wildlife Action Plan considers it a Species of Greatest Conservation Need (SGCN) tier 1a. The desert tortoise species present on YPG, *Gopherus morafkai*, is similar in appearance to Mojave Desert tortoise (MDT), *Gopherus agassizii*, the species present to the west and north

of the Colorado River. Murphy et al. (2011) list morphological differences between *G. morafkai* and other North American species of *Gopherus*.

Sonoran Desert tortoise on Yuma Proving Ground (Photo by R. English)

The two kinds of desert tortoise in the southwest, SDT and MDT are isolated from each other by the Colorado River. MDT, which tends to be more oval and have a higher domed carapace, is listed as Federally Threatened (FT) north and west of the Colorado River in California, and in southern Nevada, southwestern Utah, and northwestern Arizona (USFWS 1990). SDT are more pear-shaped, with narrower front ends, wider (flared) rear ends, and flatter carapaces.

SDT is a completely terrestrial species, requiring firm but not hard ground for construction of burrows, adequate ground moisture for survival of eggs and young, and grass, cactus, or other low-growing vegetation for food. Desert tortoises are diurnal, solitary, and dig burrows in which they hibernate from late fall until spring. According to the Arizona Interagency Desert Tortoise Team (AIDTT 2015), SDT live in patchy, small, distinct groups often on rocky bajadas and steep slopes, compared to Mojave tortoises, which live in an even distribution throughout the flats of the desert.

SDT have been observed at the East Arm and the Cibola Region of YPG (Ough and deVos 1986, Palmer 1986; LaDuc 1992). Figure 8 shows recorded sightings of the SDT on and adjacent to the installation. The distribution of Sonoran desert tortoise on YPG is very patchy. Within the Dome Rock and Trigo Mountains and Trigo Peaks, occupancy is limited to rocky hillsides and washes where adequate shelter can be found, and their movements are typical of the species throughout its range. That is, Sonoran Desert Tortoise use desert washes as movement corridors as well as traversing over steep ridges. They do not appear to be crossing the flats between ranges (Hoffman and Leavitt 2014). Surveys of the Middle Mountains, Muggins Mountains, and Red Cloud Mine Road areas of YPG indicate that populations are very low or non-existent. This is likely due to the overall poor habitat quality throughout the three study areas (Rubke and Leavitt 2016).

The SDT in southwest Arizona are thought to be threatened by roads, invasive plant species, drought, grazing by non-native mammals (including burros), fire, and other factors (AIDTT 2015). The presence of roads, particularly maintained gravel roads, has been shown to impact tortoise populations because of illegal collecting (Grandmaison and Frary 2012).

In 2015, as part of the AIDTT, YPG, became part of the Candidate Conservation Agreement for the Sonoran Desert Tortoise in Arizona. This conservation agreement is a cooperative effort between many federal and state agencies to provide commitments to provide conservation actions for Sonoran desert tortoise. YPG contributes to the team through continued monitoring

of tortoise populations on YPG, contribution of data to AZGFD, and reporting mortality and relocation associated with projects.

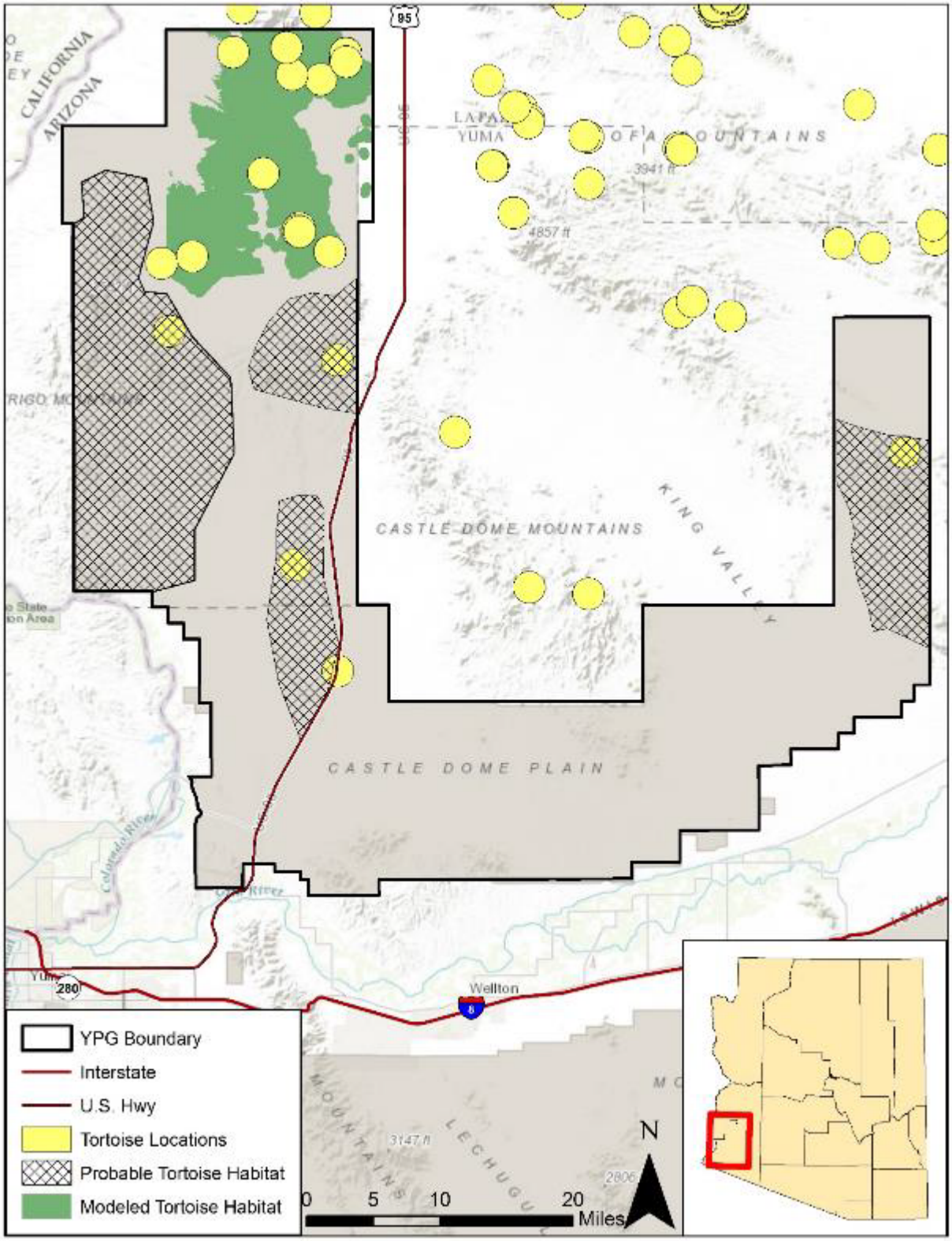


Figure 8: Habitat Area of the Morafka's Desert Tortoise on and Adjacent to YPG

Monarch Butterfly (*Danaus plexippus*): The Monarch butterfly is considered a candidate for listing under the ESA. Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side of the wings. (USFWS 2021)

During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily Asclepias spp.). There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live six to nine months. (USFWS 2021)

The western monarch butterfly population has declined by more than 99 percent since the 1980s. An estimated 4.5 million monarchs overwintered on the California coast in the 1980s, whereas in 2020, the population estimate for migratory overwintering monarchs was less than 2,000 butterflies. This extreme population decline is due to multiple stressors across the monarch's range, including the loss and degradation of overwintering groves; pesticide use, particularly insecticides; loss of breeding and migratory habitat; climate change; parasites and disease. (USFWS 2021)

In many regions where monarchs are present, monarchs breed year-round. Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. This migration can take monarchs distances of over 3,000 km and last for over two months. (USFWS 2021) In addition small populations of monarchs remain in the lower Sonoran Desert regions rather than migrating to traditional overwintering sites (Morris 2015). Monarchs may be found on YPG particularly in fall and winter.

Mohave Fringe-toed Lizard: The Mohave fringe-toed lizard (*Uma scoparia*) is distinguished by a conspicuous black spot on each side of the belly, black throat markings that are crescent shaped, and a belly usually tinged with greenish yellow. This lizard is highly adapted for life in the sand with a countersunk lower jaw, earflaps, and a fringe of projecting scales on the toes (Stebbins 1985). Fringe-toed lizard tracks are distinctive, consisting of alternating large, round dents made by the hind feet and occasional smaller ones made by the front feet in maintaining balance. The Mohave fringe-toed lizard is restricted to areas of fine, loose, windblown sand of dunes, flats, riverbanks, and

Mojave fringe-toed lizard on Yuma Proving Ground (Photo by S. Wernsten)

washes and is found in the Mojave Desert of California and in the extreme western portion of Yuma County, Arizona (Stebbins 1985, AZGFD 1996, Behler and King 1998, AZGFD 2008). Mohave fringe-toed lizard habitat on YPG is limited, occurring in the northwest portion of the Cibola Range, where an apparently stable population exists on a series of sand dunes (Palmer 1986, Diamond et al. 2009).

The Mohave fringed-toed lizard is categorized as a "Species of Greatest Conservation Need" in Arizona's State Wildlife Action Plan (AZGFD 2012) due to restricted habitat requirements and limited distribution. It is also listed as a preliminary conservation element in southwest Arizona (Nature Conservancy 2004). On YPG the species is threatened by illegal off-highway vehicle use of the dunes, military testing and evaluation of armored and wheeled vehicles, and invasive species, particularly Sahara mustard (*Brassica tournefortii*) and Mediterranean grass (*Schismus barbatus*) (Diamond et al. 2009).

California Leaf-nosed Bat: Burt and Grossenheider (1980) describe the California leaf-nosed bat (*Macrotus californicus*) as grayish with large ears and a distinctive flap of skin projecting up from its nose. It ranges from southern Nevada southward into Arizona and California and into Mexico (Burt and Grossenheider 1980). In Arizona, the California leaf-nosed bat inhabits mostly the Sonoran desert scrub (Hoffmeister 1986; AZGFD 1996). It roosts in several mines on YPG (Castner et al. 1993, 1995). California leaf-nosed bat has been detected in auditory surveys conducted at AZGFD catchment #529 on the North Cibola range (Rosenstock *et al*. 2010).

California leaf-nosed bat (photo by R. English)

The California leaf-nosed bat is listed as WSC in Arizona due to apparently limited winter roost sites and vandalism at roosts, compounded by its susceptibility to low temperatures (AZGFD 1996), and as a preliminary conservation element in southwest Arizona (Nature Conservancy 2004).

Mine on Yuma Proving Ground (photo by R. English)

Western Yellow Bat: The western yellow bat (*Lasiurus xanthinus*) is a medium-sized, pale, yellowish-brown bat that is distinguished by a tail membrane that is heavily furred only on the basal third (Burt and Grossenheider 1980). According to Burt and Grossenheider (1980), the western yellow bat reaches its northern range in southern Arizona and California. In Arizona, it is primarily known in

Phoenix and Tucson, but it is thought to occur year-round throughout southern Arizona (Hoffmeister 1986; AZGFD 1996).

Not much is known of the habitat needs of the western yellow bat. It is usually found near thick vegetation which is used for roosting. When found in urban areas, the bats are usually associated with palm trees, as ground crews trimming dead fronds have been a major source for specimens (Hoffmeister 1986; AZGFD 1996). In more natural settings, western yellow bats are found in low to middle elevations in riparian areas that have thick, leafy vegetation.

There are no records for the western yellow bat in Arizona prior to 1960 (Hinman and Snow 2003). Some biologists believe the bat is actually expanding its range into the United States from Mexico, aided by the wide use of ornamental palm trees (particularly fan palms, *Washingtonia* spp.) in urban landscaping (Barbour and Davis 1969; Spencer et al. 1988).

Although the biology and population status of the western yellow bat is not well known, it is listed as WSC due to its limited Arizona distribution and potential threats, such as the destruction of riparian forest and woodland habitat, trimming of urban palm trees, and burning of native palm trees (AZGFD 1996).

Western yellow bat occurrence and associated habitat are uncommon on YPG; however, one specimen from YPG was tentatively identified during a mist net survey in Vinegaroon Wash (Castner et al. 1993), and another was captured at Lake Alex (AZGFD unpublished). The species has been confirmed at Imperial National Wildlife Refuge (Johnson 2011).

American Peregrine Falcon: Udvardy and Farrand (1994) describe the American peregrine falcon (*Falco peregrinus*) as a large falcon, slate-gray above and pale below, with thin black bars and spots and a black hood and wide black mustache. It breeds from Alaska and Canada southward throughout the western mountains (Udvardy and Farrand 1994). In Arizona, these birds have been observed over the entire state, with subspecies *tundrius* being a transient and subspecies *anatum* breeding in the state (AZGFD 1996). American peregrine falcons inhabit areas with cliffs and steep terrain, often near water (Udvardy and Farrand 1994). While aquatic habitat does not exist on YPG, it is found nearby along the Colorado River. Peregrines have been observed on cliff faces and in flight over YPG. Peregrine falcon has been observed breeding at Picacho State Recreation Area along the Colorado River west of the YPG boundary, and on the Kofa National Wildlife Refuge, east of the Cibola Range on YPG (Zaun 2014).

The American peregrine falcon was listed as endangered in 1970 as a result of reproductive failure (eggshell thinning) due to organochlorine pesticides (mainly Dichlorodiphenyltrichloroethane [DDT]) and polychlorinated biphenyl poisoning (35 FR 16047-16048). USFWS (1999b) subsequently delisted the American peregrine falcon due to its recovery following restrictions on organochlorine pesticides and following implementation of successful management activities. The species is listed as WSC (AZGFD 1996).

Other Species of Concern Observed on YPG: Several species listed as Birds of Conservation Concern (BCC) by USFWS (2021) occur on installation. Section 9 of this plan provides further description of BCC on YPG. The Partners in Flight Landbird Conservation Plan (Rosenberg et al. 2016) evaluated population trends and distributions for all North American landbirds. Species that are "red-listed" within this plan (most urgent conservation need) that occur or have potential to occur on YPG include: Bendire's thrasher *(Toxostoma bendirei*), LeConte's thrasher(*Toxostoma lecontei*). Vulnerable species "yellow-list" includes Gilded Flicker *(Colaptes chrysoides*) (documented) and Black-chinned Sparrow *(Spizella atrogularis*) (potential). The Plan also includes common birds in steep decline, of note on YPG are Loggerhead shrike*(Lanius ludovicianus)*, Verdin(*Auriparus flaviceps*), and Cactus Wren*(Campylorhynchus brunneicapillus*).

Additional SGCN found on YPG include the western red bat (*Lasiurus blossevillii*), greater western mastiff bat (*Eumops perotis*), big free-tailed bat (*Nyctiomops macrotis*), and Brazilian (Mexican) free-tailed bat (*Tadarida brasiliensis*) (Appendix C, Fauna List).

The flat-tailed horned lizard (*Phrynosoma mcallii*) occurs west of the Gila Mountains and south of the Gila River (Foreman 1997). They have not been observed on YPG but are a species of regional importance. The flat-tailed horned lizard was proposed for federal listing by FWS as a threatened species on four separate occasions between 1993 and 2010. FWS withdrew its proposal for listing each time, citing primarily that threats to the species originally identified in the proposed rule were not as significant as earlier believed, and that safeguards provided within the 1997 Conservation Agreement and Rangewide Management Strategy (Foreman 1997) are adequate to prevent extinction of the species.

9. Migratory Birds

c. MBTA Covered Species

Resident species common to most of the desert areas of YPG include the verdin (*Auriparus flaviceps*), cactus wren (*Campylorhynchus brunneicapillus*), black-throated sparrow (*Amphispiza bilineata*), loggerhead shrike (*Lanius ludovicianus*), and black-tailed gnatcatcher (*Polioptila melanura*). Raptors found commonly throughout the area are the American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), and red-tailed hawk (*Buteo jamaicensis*). White-winged (*Zenaida asiatica*) and mourning doves (*Zenaida macroura*) may be seasonally abundant. Many other species migrate through the area as a part of the Pacific Flyway. Appendix B provides a listing of birds observed on or around the installation.

Sonoran Desert scrub habitats support abundant and diverse avifauna. Most information about YPG's birds is derived from surveys conducted by AZGFD on the North Cibola and East Arm areas of the installation (Ough and deVos 1986; deVos and Ough 1986), the Arizona Breeding Bird Atlas Program, and personal observations. Certain bird species are specific to certain habitat types and may be locally abundant. In montane areas dominated by paloverde/mixed cacti plant communities, rock wren (*Salpinctes obsoletus*) and canyon wren (*Catherpes mexicanus*) are common, with seasonal visitation by Costa's hummingbird (*Calypte costae*) and phainopepla (*Phainopepla nitens*). The sparsely vegetated lower bajadas dominated by

creosote (Larrea tridentata)/white bursage (*Ambrosia dumosa*) series and at some sites by the creosote/big galleta (Pleuraphis rigidaplant communities, resident black-throated sparrow (*Amphispiza bilineata*), and horned lark (*Eremophila alpestris*) are commonly observed. The larger washes representing the paloverde/smoketree (*Psorothamnus spinosus*) plant association support the highest densities and richest diversity of desert avifauna. Associated primarily with this habitat on YPG are the lesser goldfinch (*Spinus psaltria*), common yellowthroat (*Geothlypis trichas*), red winged blackbird (*Agelaius phoeniceus*), and, seasonally, Lucy's warbler (*Vermivora luciae*), yellow warbler (*Dendroica petechia*), and a number of others on a transient basis.

In addition to desert conditions, man-made alterations related to grounds keeping and the proximity of the Pacific Flyway have influenced composition of YPG's avifauna. The first instance allows the presence of cosmopolitan species such as house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and great-tailed grackle (*Quiscalus mexicanus*). Long-billed curlew (*Numenius americanus*) feed regularly on Cox Field in winter. The second results in migrant passages or accidental occurrences due to climatic events, like that of the California brown pelican (*Pelecanus occidentalis californicus*).

YPG follows 2017 Office of the Secretary of Defense Guidance for Addressing Migratory Bird Management in INRMPs which includes: determining Birds Species of Concern; describing their interrelatedness with the mission; developing goals, objectives, and conservation measures; survey and monitoring requirements; Bird Airstrike coordination; outreach; and review of goals. Many of these criteria are addressed in other sections of this plan and are referenced in this section.

Step 1: Determine the Bird Species of Concern on Your Installation
The USFWS maintains a list of Birds of Conservation Concern that identifies migratory bird species that represent their highest conservation priorities. Bird Conservation Region 33 (Sonoran and Mojave Desert) has approximately 27 species on the 2021 list of Birds of Conservation Concern (USFWS 2021). See Table 7 for a listing of BCC that have been observed or are likely to occur on YPG.

Step 2 Describe Interrelatedness between the Mission Sensitive Species and Installation Mission Activities
Many of the BCC species occupy the nearby Colorado River and associated wetlands, others migrate through the area. For the purpose of management under the INRMP we focus our management on species that are likely to occur on the installation and that our management could affect. These include: Burrowing Owl (BUOW), Costa's Hummingbird, Gila Woodpecker, Gilded Flicker, LeConte's Thrasher, and Long-Billed Curlew. We contribute to their habitat protection as well as coordinate with AZGFD and FWS on regional research and monitoring efforts. While we do not manage each BCC species individually, we do prioritize protection of their habitat.

The YPG mission mostly involves testing on existing facilities. Construction of new facilities or maintenance of infrastructure are the activities most likely to impact migratory birds. On YPG the most important habitats for migratory birds including BCC are desert washes and mesquite bosques. We limit disturbance within these habitat types. Vegetation management activities have the highest likelihood of impacting nesting birds. We avoid ground clearing or vegetation management when possible from March 15 to September 15. If there is a likelihood of breeding birds in a project area, we conduct surveys for active nests including burrows for BUOW during breeding season to identify avoidance areas for protection of breeding birds. Long Billed Curlew occasionally forage during winter on the Howard Cantonment Area within Cox Field. This species is counted and reported annually with the Christmas Bird Count. Cox field is used for community events, as well as Military Free Fall School Parachute Drop Zone. Continued maintenance of Cox field will continue to provide foraging habitat into the future.

LeConte's Thrasher is identified on the DOD Partners in Flight Tier 2 listing as a species that may have relevance to future mission impacts rangewide if they become federally listed in the future. In Arizona, the Desert Thrasher Working Group (DTWG) was established to address negative population trends and improve our knowledge of these species to promote their conservation. YPG participates with the DTWG and contributes data from surveys conducted on the installation.

Step 3 Develop Specific Goals, Objectives, and Conservation Measures to Manage the Installation-Specific Mission Sensitive Priority Bird Species
See Goals and Objectives in Section 4 for comprehensive list of goals and objectives including those for migratory birds.

Step 4 Determine Survey and Monitoring Requirements
YPG performs routine pre-construction avoidance monitoring during breeding bird season (generally March 15-Sept 15) to ensure that any active bird nests are avoided by ground or vegetation disturbing activities. YPG participates with the Arizona Bird Conservation Initiative for guidance and incorporation of YPG data to regional conservation efforts. YPG participates annually in the local Christmas Bird Count. Through annual Sikes Act coordination, AZGFD and FWS are able to provide recommendations for upcoming monitoring priorities.

Step 5: Ensure Collaboration with the Installation's Bird Air Strike Hazard (BASH) Program
The YPG Environmental Sciences Division works directly with airfield operations and safety personnel to address wildlife aircraft strike hazard concerns. (See section 15 for Wildlife Aircraft Strike Hazard Management).

Step 6: Summarize Outreach and Public Access Programs
YPG provides outreach and education to the YPG workforce, housing residents, and local community. (See section E Implementation/Environmental Awareness)

Step 7: Review and Maintain the Bird Conservation Goals in the INRMP

We review the INRMP annually with FWS and AZGFD as part of our annual Sikes Act coordination. The INRMP receives routine updates as well as a 5-year update or revision as appropriate. See section A Management Overview / 5. Review, Revision and Reporting

d. Bald and Golden Eagles

Eagles are afforded protection under the Bald and Golden Eagle Protection Act (BGEPA), which defines unlawful "take" as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb without a permit from the FWS. Furthermore, the act expands its definition of disturb to include agitate or bother a bald or golden eagles (GOEA) to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. Therefore, in order for the DoD to comply with BGEPA, it is imperative to evaluate the impact of military training activities on GOEA nesting habitat.

Southwestern Bald Eagle: The USFWS (1982) presented the Southwestern Bald Eagle Recovery Plan considering the population of the Southwest; this INRMP refers to that population. The bald eagle (*Haliaeetus leucocephalus*) has an average wingspan of 6.5 to 7.0 feet and a dark brown body. Adults, five years or older, are characterized by a white head and tail (Udvardy and Farrand 1994). According to Udvardy and Farrand (1994), bald eagles historically occurred throughout the United States, Canada, and northern Mexico. The geographic area of concern for the southwestern bald eagle includes Oklahoma, Texas west of the 100th meridian, all of New Mexico and Arizona, and that part of California bordering the lower Colorado River. This population probably extends into Baja California and mainland Mexico.

Southwestern bald eagles require large trees, snags, or cliffs near water for nesting, with abundant fish and waterfowl for prey. They winter along major rivers and reservoirs in areas where fish or carrion are available (Ehrlich et al. 1988; Udvardy and Farrand 1994). This habitat does not exist on YPG but is found nearby along the Colorado River. Currently, wintering eagles are found along rivers and major reservoirs in Arizona, particularly in the White Mountain region, with small resident population nests primarily along the Salt and Verde rivers (Phillips et al. 1983). New nest sites along the Colorado, Gila, Bill Williams, and Agua Fria drainages indicate that the population may be increasing. However, this increase may reflect an increased search effort rather than population expansion. The southwestern bald eagle is occasionally observed on the installation.

The USFWS listed the bald eagle as endangered in 1967. It was subsequently delisted due to recovery (Federal Register Vol 76 No 171, 54711) Although threats to the southwestern bald eagle have declined since its original listing, they include degradation and loss of riparian habitat, pesticide-induced reproductive failure, ingestion of lead-poisoned waterfowl, poaching, timber harvest, loss of foraging perches, and other human disturbance.

Golden Eagle: Golden Eagles (GOEA) are a globally distributed species with a range including North America, Europe, Asia and North Africa (Kochert et al. 2002). Within North America, this species occurs from Alaska and Canada to central Mexico, primarily west of the 100th meridian from sea level to 3,600 m (Corman and Wise-Gervais 2005, Wheeler 2003, Kochert et al. 2002) with nesting locations associated with rugged terrain (McIntyre et al. 2006). GOEA have been seen on YPG and are occasionally observed at wildlife water developments.

Golden Eagle (GOEA)

GOEA are primarily a cliff nesting species but will occasionally nest in trees or on the ground (Kochert et al. 2002, Menkens and Anderson 1987). Nest sites are usually located in positions that offer high visibility of surrounding areas or are situated on conspicuous escarpments or rocky outcrops (Smith and Murphy 1982). Nest sites are usually within close proximity to hunting grounds (Bates and Moretti 1994, Beecham 1970, Camenzind 1969). Nests are constructed of sticks and lined with soft vegetation including shredded yucca (Yucca spp.), grasses, leaves, mosses and lichens (Gabrielson and Lincoln 1959, Jollie 1943, Dixon 1937, Slevin 1929). GOEA nesting habitat provides areas for population recruitment and must be monitored and protected to meet the requirements of BGEPA (Figure 9).

AZGFD has inventoried potential GOEA nesting areas on YPG in 2012 and 2014. They found a total of 28 suitable nesting structures; however, were unable to locate active GOEA nests (Sturla 2014). While no GOEA were observed on nest, at least one eagle was seen near a group of nests in the Chocolate Mountains indicating potential breeding. AZGFD documented several large nests occupied with incubating Red-Tailed Hawks (RTHA). This indicates that RTHA may use GOEA structures or alternatively, some of the potential GOEA nests were not built by GOEA at all (Sturla 2014). RTHA are capable of building large stick nests similar to GOEA characteristics described by Dixon (1937) and large RTHA built nests may overlap with small GOEA built nests.

GOEA nesting is dependent on the interaction of a series of suitable prey and climatic factors and in many years, these factors fail to meet the nesting requirements of GOEA. During years when conditions are less suitable for GOEA to clutch, other raptor species (e.g., RTHA) may take advantage of these large existing nests. (Steenhof et al. 1997).

The lack of confirmed nests suggests that nesting attempts likely occur irregularly across space and time possibly in relation to prey density (Sturla 2014). Surveys conducted on BMGR East

identified 5 active nests in 2020 and 2 in 2021 in areas with similar climate and habitat (Shepherd pers com, personal communication 2021). Additional occupancy and productivity surveys would need to be conducted by YPG to detect breeding pairs or identify active nesting areas for specific avoidance and protection.

Due to the remote rugged nature of the potential nesting areas for GOEA on YPG, the only disturbance to these areas during breeding season is from infrequent low level aircraft such as helicopters. Most of that flight activity is for monitoring and maintenance of wildlife water catchments. Low level military helicopter flights in those areas generally occurs when pilots are avoiding airspace hazards in other areas.

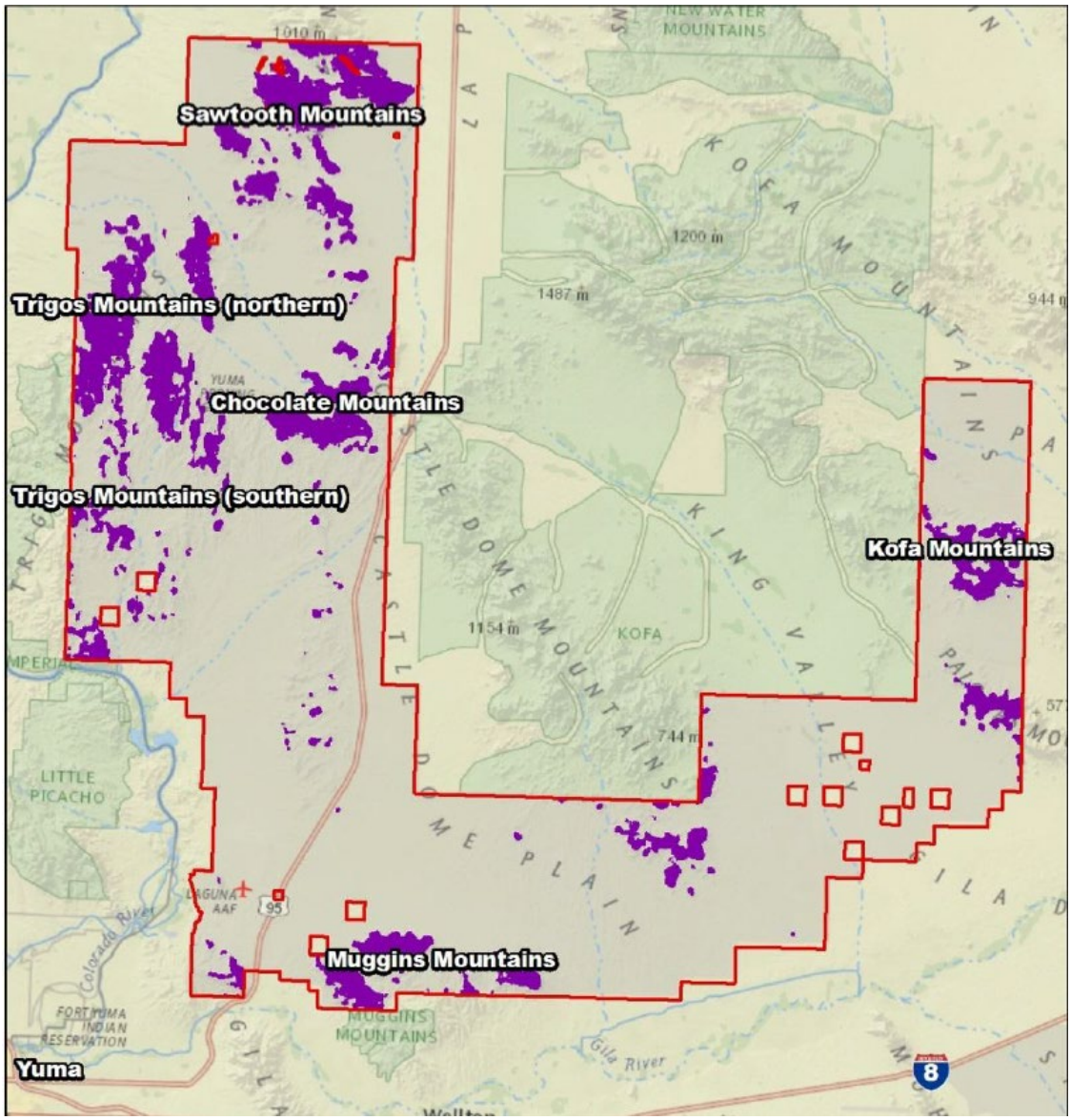


Figure 9: Potential Golden Eagle Nesting Habitat on YPG

The YPG Environmental Sciences Division provides safety training to air crews for hazards and avoidance. When military test, maintenance, or wildlife management activities require low level flight into potential nesting areas, they will coordinate with the YPG environmental sciences division to determine the best method to reduce potential impact to GOEA. When Active GOEA nests are detected, they will be provided a 1000 foot buffer from flight activities during nesting season (FWS 2007).

10. Vegetation

Vegetation in the Yuma area is within the Lower Colorado Valley Subdivision of the Sonoran Desert, the largest and most arid portion of the desert. Figure 10 shows biotic communities of the Sonoran Desert. The extreme aridity characterizing this region is reflected in open plains covered sparsely with drought-tolerant shrubs, grasses, and cacti. Most common is the creosote bush, found in widespread stands or mixed with combinations of ocotillo (*Fouquieria splendens*), bursage (*Ambrosia deltoidea*), teddy bear cholla cactus (*Cylindropuntia bigelovii*), and foothills paloverde trees (*Parkinsonia* spp.), depending on landform features (Turner and Brown 1994; Shreve and Wiggins 1964).

Sandy soil formations support big galleta grass (*Pleuraphis rigida*) plant communities along with foothill paloverde trees (*Parkinsonia microphylla*), honey mesquite trees (*Prosopis glandulosa*), or bursage (*Ambrosia deltoidea*). Hillsides support brittlebush (*Encelia farinosa*) in various combinations with other plants such as cacti, in particular the saguaro cactus (*Carnegiea gigantea*). Foothills and mountains provide habitat for mixed shrubs. Desert washes and channel banks support many trees and shrubs, including blue paloverde (*Parkinsonia florida*), ironwood (*Olneya tesota*), smoke tree (*Psorothamnus spinosus*), mesquite (*Prosopis* spp.), and catclaw acacia (*Acacia greggii*). Vegetation found on the highest mountain slopes appears similar to Arizona Upland Subdivision portions of the desert. Exposed rocky slopes provide habitat for saguaros and other cacti, and paloverde trees (*Parkinsonia* spp.). For further description of the Lower Colorado River Valley and Arizona Upland Subdivisions of the Sonoran Desert, see Shreve and Wiggins (1964) and Turner and Brown (1994).

Table 9: Current Land Cover Percentages per Classification (Kaya 2011)

Landform	Square Meters	Square Kilometers	Acres	Percent of Land Cover
Badlands	44,330,949.35	44.33	10,954.18	1.32%
Creosote w/Trees Alluvial Fans	580,323,842.42	580.32	143,400.19	17.12%
Desert Pavements	965,263,411.64	965.26	238,520.94	28.46%
Disturbed	70,602,641.18	70.60	17,445.64	2.09%
Dunes	7,887,969.62	7.88	1,207.45	0.21%
Creosote Flats Valley	156,959,021.01	156.95	29,317.75	4.62%
Floodplains	164,627,447.95	164.62	38,783.19	4.85%
Mesquite Bosques	5,055,229.13	5.06	1,250.35	0.15%
Mountain Highlands	704,250,585.32	704.25	174,023.96	20.77%
Rolling Hills	391,286,295.10	391.29	96,689.86	11.54%
Watercourses	300,687,010.99	300.69	74,302.11	8.87%
Totals	**3,391,151,448.96**	**3,391.15**	**827,971.77**	**100.00%**

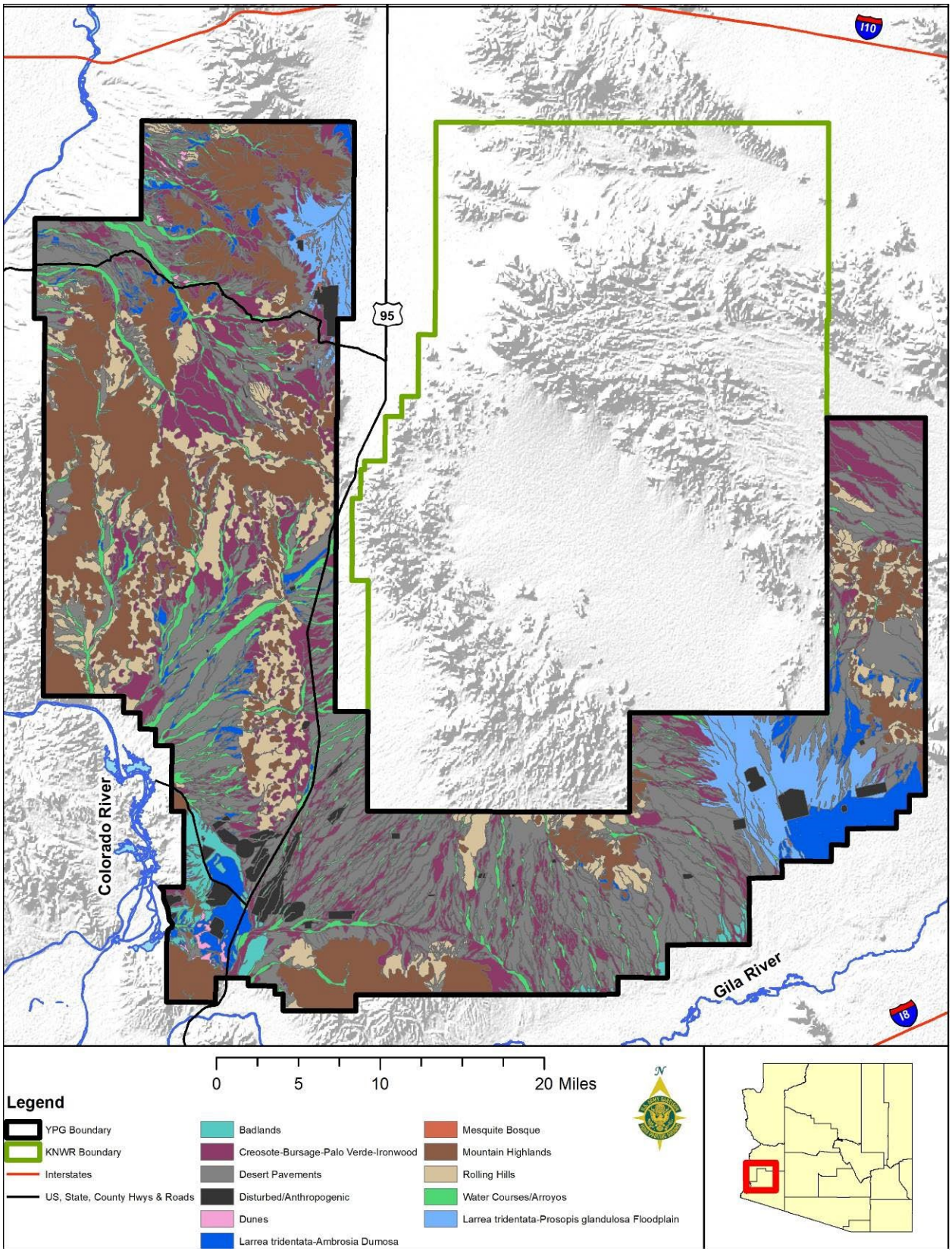


Figure 10: Vegetation Cover on YPG

Mesquite bosques (woodlands) are a particularly valuable habitat type on YPG. These isolated woodland patches usually occur in otherwise monotypic creosote plains, and provide food and cover for wildlife. Surveys of mesquite bosques were performed in 2008 (Cibola and Laguna regions) and 2009 (Kofa region). A total of 185 bosques were found in the Cibola and Laguna regions. These bosques were less than ½ acre to over 40 acres in size. Ten bosques are more than 5 acres in size, and the remaining 175 bosques average 1.14 acres each. In the Kofa region, only 23 mesquite bosques were found, and only 3 of these were natural. The others were there as a result of soil disturbance (the creation of depressions in the landscape that allowed soil fines to be deposited and increased the potential for water retention). In the Kofa region, the bosques were much smaller. Mean size of the 3 natural bosques was 2.6 acres, and the 20 artificial bosques, 0.7 acres. In all three regions, mesquite bosques were almost all restricted to the Gilman-Harqua-Glenbar soil complex, a type that is limited in distribution in the Cibola and Laguna regions but more abundant on Kofa. It is not known why there are so many fewer and smaller bosques on Kofa. The 2009 survey included detailed vegetation community characteristics of 19 bosques in the Cibola and Kofa regions (U.S. YPG 2008, 2009a).

The importance of mesquite bosques to wildlife was apparent in the surveys discussed above, where researchers noted signs of use by deer, coyote, birds, and other taxa (US YPG 2008, 2009a). Through the use of wildlife cameras, AZGFD researchers have documented 24 taxa utilizing mesquite bosques, some seasonally and others year-round (Rosenstock and Yarborough 2010, 2011). Because of the limited distribution and the importance of the bosques, their conservation needs to be a priority in land use planning. Further, 8 of the 23 bosques in the Kofa region included tamarisk (*Tamarix* sp. or spp.), an invasive weed that may outcompete native trees; removal of these trees would enhance survival and growth of native plants in the bosque communities.

Much of the open terrain areas used for testing are covered with the creosote-bursage vegetative type. Plants are sometimes cleared during construction of new testing areas or before construction of buildings and roads. Creation of new impact zones may require clearing and leveling vegetation to facilitate projectile recovery. Sometimes trees and shrubs are pruned to create a clear line of site to targets from gun positions. Ironwood cleared from drop zones have been provided free of charge to selected nonprofits for fundraising events.

Typically, plants are salvaged in accordance with the Arizona Native Plant Law. Saguaros are high-priority must-salvage plants. Smaller cacti and ocotillos are easy to salvage and should be moved rather than destroyed. Ironwoods and other trees are salvaged if possible, although transplanting mature trees is usually unsuccessful.

11. Sensitive Plant Species at YPG

Plant Species of Concern Observed Near YPG: The following rare plants are known to occur near YPG but have not been observed within the YPG boundaries: flat-seeded spurge (*Chamaesyce platysperma*), Algodones sunflower (*Helianthus niveus*), sandfood (*Pholisma sonorae*), giant Spanish needle (*Palafoxia arida var. gigantea*), and Alverson's foxtail cactus

(*Coryphantha [Escobaria] alversonii*). Appendix A lists plants species which have been found on the installation.

Native Plant Protection and Salvage: Native Plants in Arizona are protected by the Arizona Native Plant Law (3.A.A.C. 3 Article 11). Under this statute many native plants including, but not limited to, agave, cacti, and ocotillo may be protected from destruction or salvage. Private and state agencies must provide a notice of intent to the Arizona Department of Agriculture to destroy or remove protected native plants. Federal agencies are not required to file notice of intent for removing protected plant species; however, if those plants are being transported outside federal lands, then specific permits or tags would be required for salvage.

YPG will relocate protected plants when possible to other areas on the installation for native plant restoration. YPG may also partner with other local agencies to salvage plants for conservation projects. If plants are transported off YPG, then the appropriate permits would be required.

Saguaro Protection: Saguaro (*Carnegiea gigantea*) is a Salvage Restricted Protected Native Plant under Arizona law. Saguaros are high-priority must-salvage plants. Several bird species nest within cavities in saguaro and red-tailed hawks and other species build nests on their branches.

Although saguaros can be moved, if necessary, it is expensive and risky. Cacti over 10 feet in height often do not survive transplanting. Further, transplanting should not be done during nesting season (March 15 to September 15), if birds are nesting on or in the cactus in question. It is almost always preferable to leave the plant in place. Saguaros have a taproot which stabilizes the plant, and feeder roots which are shallow and radiate out from the plant. Feeder roots take up water and nutrients from the soil and are most dense closest to the stem. It is critically important to avoid compacting the soil containing the feeder roots, because the damage to soil structure (and to the function of the root system) remains after the disturbance ends, permanently impeding the survival of the plant.
To protect the plant:

- Avoid impacts to above ground parts, and
- Protect the roots from disturbance including soil compaction.
- Maintain a traffic-free buffer zone around the cactus at a distance equal to twice that of the height of the plant, e.g., if the saguaro is 15 feet tall, create a 30-foot diameter circle surrounding the plant. The buffer zone can be delineated by stakes and flags or by a temporary fence, as appropriate.
- Do not allow pedestrian or vehicle traffic within the buffer zone.
- Do not compact wet soil.
- Do not dig within the buffer zone.
- If trenching for a utility line, the trench can be as close as six feet from the stem of the saguaro. The trench must be closed and refilled with native soil as soon as possible.

12. Wild Horse and Burro

Some of the most conspicuous animals found on YPG are wild horses and burros. Both are managed by the BLM under the Wild and Free Roaming Horse and Burro Act of 1971. YPG provides habitat for wild burros and horses (*Equus* spp.). Neither animal is considered wildlife by the AZGFD, as defined in the Wild and Free-Roaming Horse and Burro Act (1971). Management for both species is guided by the Cibola-Trigo Herd Management Area Plan as the Resource Management Plan, Yuma Field Office, BLM (BLM 2010).

Wild burros (photo by C. Fiddes)

The burros and horses mainly occupy those portions of YPG that are included within the Cibola-Trigo HMA. BLM is responsible for the management of these animals including census, monitoring, and removal of animals when the populations exceed the Appropriate Management Level (AML). In the 2010 plan, portions of the HMA east of Highway 95 were eliminated for safety reasons and the HMA now includes portions of the Cibola and Laguna regions on YPG, and public lands managed by BLM adjacent to these areas (Figure 10).

The Herd Management Area Plan (HMAP) established the AML for wild burros at 165. In 1980, the population on the HMA was estimated at 1,200 (Phillips 1980) and was subsequently reduced. In 1983, surveys indicated a population estimate of 372 burros (BLM 1997). Between 1989 and 1997, the herd grew from 351 to nearly 900 (BLM 1997). After a series of removals between 1997 and 2002, the population was reduced to an estimated 210 (BLM 2003). A survey in 2010 estimated that there were 625 burros and 69 horses within the HMA. Because the burros in the HMA average about 16 percent annual recruitment, the BLM Yuma Field Office plans to continue regular gather operations to maintain the burro population at the 165 AML.

During the hot dry periods, wild burros concentrate primarily within three miles of perennial water (Ohmart et al. 1975). The principal water is the Colorado River; however, other perennial waters include Ivan's Well and Lake Alex on YPG. During the cooler months, burros disperse throughout the HMA, including on YPG lands. Illicit water sources appear where borrow pits fill during storms, plumbing leaks develop, or personnel drain water into water troughs or natural basins. These water sources attract burros to areas where they are a hazard to motorists. The BLM and the Garrison ESD have cooperated for many years in repairing leaks and fencing off water sources near Highway 95 for public safety. These efforts have required near continuous attention.

The wild horse population appears to be stable. Currently, the population is estimated at 160 (BLM 2003). A study conducted by the YPG veterinarian throughout the 1970s and 1980s concluded the horses were in excellent health and that no diseases were present. The study also found that foal mortality in the herd was high, with few surviving as yearlings. Wild horses are more territorial than burros and will use one or two water sources year-round. YPG continues to cooperate fully with BLM in implementing the current HMAP.

Wild horse (photo by C. Fiddes)

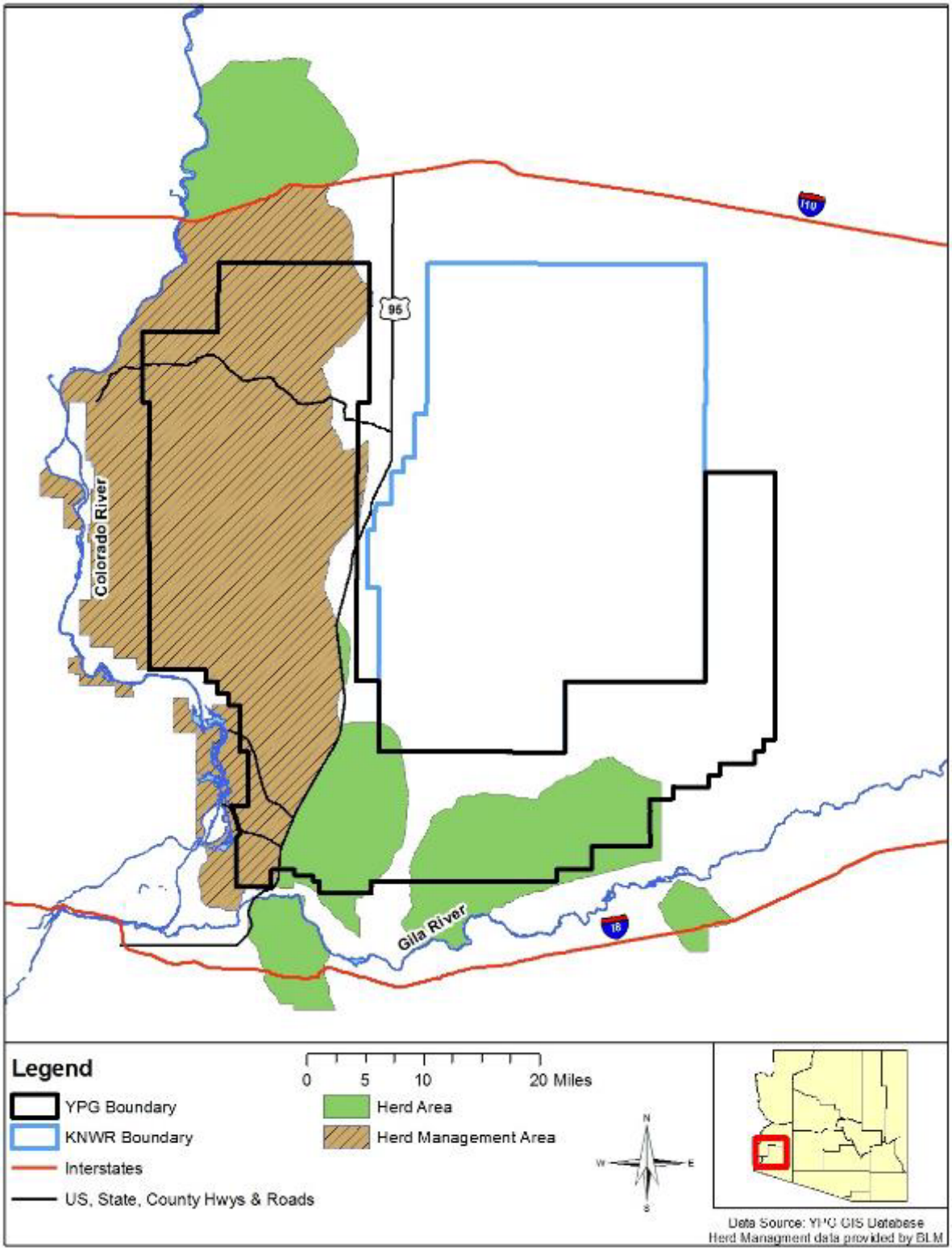


Figure 91: Cibola-Trigo Herd Management Area

13. Wildland Fire

Native vegetation of the Sonoran Desert is not considered to be fire adapted or dependent. Typical pre-settlement wildfires in the southwestern deserts were of low intensity and confined to small areas, minimizing their impacts. YPG has an Integrated Wildland Fire Management Plan dated 2017(Appendix B), which presents a description of climate, fuels, and fire ecology and risk for the installation. YPG does not implement any prescribed burning or fuel breaks on the installation because there are generally not enough fuels to spread fires. Due to the apparent low risk of wildland fires and the lack of prescribed burning, YPG plans to submit a waiver for having an IWFMP in the future, in accordance with the 2021 Army Installation Wildland Fire Program Implementation Guidance. The YPG Fire Department maintains mutual aid agreements with other fire agencies in the region, including but not limited to BLM, USFWS, Rural Metro Fire Department, and Imperial County Fire Department.

Wildfires on YPG are generally too infrequent and limited in extent to pose a significant threat to the sensitive ecosystems, cultural sites, and testing/training lands of USAG YPG. The vast majority of USAG YPG is unburnable except under extreme vegetation growth conditions. However, following unusual periods of excessive rainfall, such as occurred in 2005, very large and destructive wildfires are possible due to the prodigious vegetation that can be produced following such precipitation events. If and when fires of this magnitude do occur, they can be a hindrance to operations (US YPG 2016).

Fire prevention and reporting are important tools for management of fire risk on the installation. The YPG Fire Department issues a “Hot Work Permit” for any activity that generates sparks or flame such as welding or cutting. All YPG personnel are instructed to report any fire on the range to Range Control. Wildland firefighting response on YPG ranges are often limited for safety due to UXO contamination. In those instances, the fire would be monitored by YPG and appropriate coordination would take place between the YPG fire department, BLM, and USFWS.

Invasive species are a concern for wildland fire on YPG because some species, such as buffelgrass have been show to alter natural fire cycles. YPG manages invasive species in accordance with this INRMP and the Integrated Pest Management Plan.

14. Integrated Pest Management

Some pests can pose a safety risk to health, YPG equipment, infrastructure and the natural environment. The Natural Resources program at YPG evaluates these risks and works with proponents and tenants to manage risks in balance with the needs for conservation. Pest management is conducted in accordance with the YPG Integrated Pest Management Plan in Appendix B (US YPG 2016).

Wildlife often enter cantonment areas seeking food and water. These animals can become a nuisance if they cause damage or present a hazard to people and pets. Providing food for wildlife on YPG is strictly prohibited with the exception of bird feeders. However, landscaping

plants such as palms and mesquites provides an unintentional food source which will continue to attract wildlife including but not limited to coyotes, raccoons, foxes and an assortment of prey species.

In general, pest management is conducted by the Directorate of Public Works- Operation & Maintenance and Housing Divisions. Nuisance wildlife or animal damage control is conducted by ESD or the YPG police department. Control of vertebrate animals is coordinated with AZGFD and FWS, as appropriate, to ensure effective control and adherence to state and federal wildlife laws.

Lethal control of coyotes may be warranted if animals are sick, injured, or exhibit bold/aggressive behavior. YPG Conservation Law Enforcement Officers, in coordination with ESD and AZGFD, may conduct lethal control operations if necessary. Use of lethal methods would be coordinated as appropriate with Range Control, DPW, and facility managers.

We maintain facilities to prevent pest or nuisance wildlife problems by covering garbage containers, properly sealing building roofs, and keeping areas free of debris. We avoid rodenticide use by applying snap traps or gopher traps.

Venomous snakes commonly found on installation include the western diamondback and the sidewinder . The species often enter work sites and housing areas. ESD and the YPG Safety Office provide the workforce and residents information on snake avoidance. Venomous snake encounters are reduced by managing landscaping and grounds keeping to reduce brush, wood piles, or other attractants for prey species (rodents). If a snake poses a nuisance, then authorized individuals may capture and relocate the snake in accordance with YPG handling protocols.

In order to protect YPG residents from West Nile Virus and other mosquito-borne pathogens, YPG conducts mosquito control in the housing and travel camp areas of Howard Cantonment Area. Treatments are limited to ultra-low volume fogging from May to October based on mosquito abundance and resident complaints.

Vegetation on YPG is generally very sparse due to the extremely arid climate. Roadside mowing or broad scale vegetation management is unnecessary. Herbicides are used to control undesired vegetation on xeriscape areas of the cantonment areas. The individual areas are spot sprayed by either backpack or truck mounted hand sprayer. At times, test ranges, facilities or targets become overgrown. Vegetation is normally removed mechanically, however in some instances spot spraying of individual bushes is used to reduce frequency of cutting.

Non-native or invasive species: Invasive plant species are considered to be one of the most serious threats to the Sonoran Desert ecosystem (Marshall et al. 2000). Plants of concern in the YPG area include buffelgrass (*Pennisetum ciliare*), Athel tamarisk, (*Tamarix aphylla*), salt cedar (Tamarix spp. and/or hybrids), common Mediterranean grass and Arabian schismus (*Schismus barbatus* and *arabica*, respectively), Sahara mustard (*Brassica tournefortii*), and several other

species. Sahara mustard is an example of rapid changes brought by a species that initially seemed innocuous, exploded in numbers when environmental conditions were right, and is now as widespread as Schismus on the installation. Figure 11 shows the general locations where non-native invasive species occur on the installation.

YPG uses an integrated approach to pest management and we employ a variety of techniques to control invasive species based on the biology of the pest and best available science. We use spot spray herbicides to control buffelgrass where mechanical removal may impact archaeological sites. We use cut stump application of herbicides for control of tamarisk.

YPG is also home to several non-native animal species, such as the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), Eurasian and possibly African collared-doves (*Streptopelia decaocto* and *S. roseogrisea*, respectively), and Mediterranean house gecko (*Hemidactylus turcicus*). The Colorado River corridor also has its share of non-native species such as southern watersnake (*Neroidia faciata*) and bullfrog (*Lithobates catesbeianus*). Watersnake and bullfrog have been observed YPG lands near the river however, the habitat is not suitable to sustain them outside the river and associated wetlands.

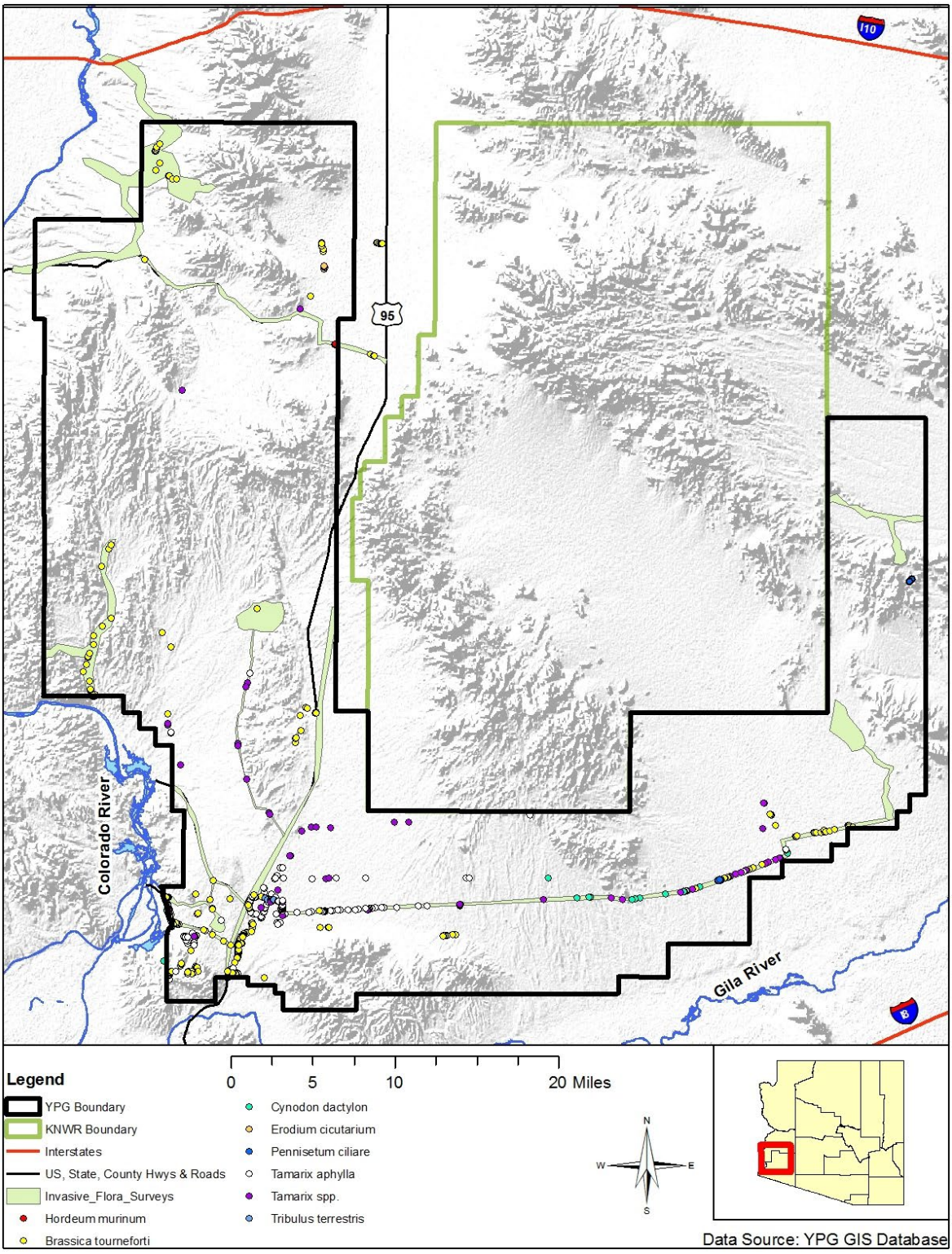


Figure 102: Invasive Flora Observed and Recorded at Yuma Proving Ground

15. Wildlife Aircraft Strike Hazard

In general, the risk of wildlife aircraft strike hazards are generally lower at YPG due to the extreme dry climate and sparse vegetative cover. YPG, through cooperation with AZGFD conducted, a Wildlife Aircraft Strike Hazard Assessment to identify potential wildlife and attractants that present a risk to aircraft and personnel. Most risk is mitigated through fencing and control of vegetation or other wildlife attractants. The most notable wildlife attractant near the airfield is the LAAF sewage lagoons (Clark and Ingraldi 2018).

The LAAF implements a Wildlife Aircraft Strike Hazard Management Plan (Appendix B) in accordance with IMCOM Pamphlet 385-90-1. This plan identifies and provides recommendations for managing wildlife attractants near the airfield as well as control methods, monitoring, and reporting.

The management of day-to-day wildlife hazards is mostly conducted by airfield personnel who monitor conditions and report hazards or strikes. Airfield personnel may also haze wildlife that present a risk. The ESD provides technical support as needed and maintains the appropriate permits and reporting for depredation of migratory birds or other wildlife.

16. Off-Road Driving

Access across YPG ranges varies from paved roads, maintained gravel roads, and unmaintained trails or wide wash bottoms. Some off-road driving occurs within impact areas and drop-zones as needed for setting targets, instrumentation, or recovery of UXO and payloads. YPG mission support for testing, survey, instrumentation, and demolition occasionally requires off-road driving in other areas. For specific YPG activities, these requirements are identified and analyzed as part of the Record of Environmental Consideration (REC) or other associated NEPA analysis. Off Road driving is prohibited unless specifically authorized through environmental sciences. Off Road Driving is not permitted for recreation or Hunter access. Hunter access is only authorized on existing roads.

Risks associated with driving off-road include:

- Exposing employees to unexploded ordinance
- Damage to natural features such as desert pavement and rock formations
- Possible damage to natural resources such as habitat, burrows, nests, and vegetation
- Damage to archaeological sites, many of which are unrecorded and unmarked.
- Inadvertently creating trails that may be followed by others in the future which may result in further damage, safety, or security concerns.

In order to mitigate these potential impacts, restrictions on the use of vehicles off-road to the absolute minimum necessary and monitor activities to ensure resources are not degraded. The following minimization measures are implemented to protect people and prevent adverse effects to natural and cultural resources:

- Careful consideration of the necessity of driving off-road. This is not something that can be done for simple convenience.

- If possible, plan the route ahead of time. The route should be provided to Environmental Sciences, who can assist with routing to avoid known sites or features to avoid.
- Use of existing trails or wash bottoms to the maximum extent possible. Only driving off trail where there is no other option.
- Limit off-road driving to current operational areas as much as possible. Existing Drop-zones, impact areas, or other disturbed areas are already used for military operations and higher levels of use are expected. In remote, seldom-used areas of the range there are pristine resource values that may be damaged, so off-road travel should be avoided if at all possible.
- Limit flagging or staking sites to the minimum necessary. Flagging a trail runs the risk of unauthorized persons following the trail out of curiosity thus causing more damage.
- Limit the number of vehicles going off road. If a work crew needs to travel together to a site, consolidate persons and equipment to one vehicle if possible for travel off-road.
- Use ATVs if possible to reduce weight, and limit the tracks left behind.
- Limit speed to reduce the damage, dust, and maintain better control to avoid vegetation, wildlife or other features that may be present.
- Demo escort is necessary for driving off road in potential hazard areas.
- Report any off-road activity with location to the Environmental Sciences Division (outside of Drop Zones and Impact Areas).

17. Outdoor Recreation

The Yuma area's diverse ecological surroundings and proximity to Mexico and California offer numerous recreational activities. Citizens and visitors are afforded year-round availability of venues for all their outdoor recreational needs, with a community center, fairgrounds, numerous athletic centers, golf courses, and local parks. YPG is surrounded by public lands administered by Bureau of Land Management as well as three National Wildlife Refuges. MCAS-Yuma hosts a recreational facility at Martinez Lake for the local military and their families, including YPG personnel. Picacho State Recreation Area along the Colorado River provides opportunity for various activities – fishing, boating, hiking, camping, swimming, birding, and sightseeing. Imperial Sand Dunes Recreation Area is a 40-mile-long dune system with picturesque scenery and areas for ORVs.

Recreational use on YPG is regulated to the extent necessary to safeguard public health and safety, to provide for national security and the military mission of YPG, and to preserve environmental quality and other natural and cultural resource values.

As a closed installation, public use of YPG is prohibited unless expressly authorized. Examples of prohibited activities include:

- target shooting
- prospecting or mining
- materials collection of any kind (e.g., plants, artifacts, gravel, soil, rocks, petrified wood;

- cultural artifact disturbance of any kind
- geocaching
- hiking
- recreational Off Highway Vehicle travel
- privately owned drone flight.

Opportunities for outdoor recreation on YPG are limited. Developed recreational facilities, such as a swimming pool, basketball, and tennis courts, are under the jurisdiction of the FMWR Division of the Directorate of Personnel and Community Activities and are not addressed in this plan. Only those recreational opportunities managed by the Conservation Program staff of the ESD are addressed in this plan.

A Legacy Program Nature Trail adjacent to the Main Administrative Area provides opportunity for interpretive wildlife viewing. A brochure and curriculum have been developed in cooperation with the local elementary school and childcare programs. The Wahner Brooks military equipment exhibit located by Imperial Dam Road near the intersection with Highway 95 was also developed through the Legacy Program.

The Army regulates the private use of ORVs on the lands it administers in accordance with the guidelines set forth in EO 11644, Use of Off-Road Vehicles on Public Lands, and AR 200-1. An ATV course was analyzed near HCA, however it was not implemented due to logistic issues of access control and safety. Any future off road vehicle recreation authorization on YPG must take into account the impact these vehicles could have on natural and cultural resources as well as the military mission (US YPG 2009b).

Hunting is a primary recreational activity on YPG and in the regional community. YPG issues approximately 200 hunting permits per year. All hunters visiting YPG are required to complete a safety briefing, sign a hold harmless agreement, and be acquainted with regulations before entering YPG property. Hunting on YPG is further described in Section E.

Firewood gathering is restricted to dead and down materials. It may be gathered for individual hunting camp use. Native American Tribes may also collect firewood in accordance with section D 19 of this plan. Any other collection of firewood on the installation must be coordinated through the Environmental Sciences Division and receive approval from the Garrison Manager.

Other recreational activities, such as organized group events, may be authorized by the Senior Commander pending appropriate coordination with ESD, mission stakeholders, and range operations. Anyone entering the installation to participate in such events must adhere to range access procedures as determined by YPG.

18. Public Use (Hunting) Management

YPG, in cooperation and coordination with AZGFD, has administered hunting in some parts of the installation since 1979. Hunting on the installation currently is administered under the Sikes

Act, USAYPG Regulation No. 210-11 (2015) and in accordance with 10 U.S.C 2671; AR 200-1, 210-21, and 385-63; DoDI 4715.03; DA Pamphlet (PAM) 420-7; TM-5-633; DA Memoranda SFIM-SW-Z (May 6, 2003) and SFIM-OP-P (March 13, 2003); and other related guidance. Most of YPG functions as wildlife habitat and can be managed as such. However, due to military mission and safety constraints, only a portion of the installation is open to recreational hunting by the public. Table 10 provides a description of the designated hunting areas currently available on the installation.

Table 10: YPG Designated Hunting Areas

Hunting Area	Acreage	Hunting Opportunities
Ehrenberg	12,306	All game species
Gould	20,285	All game species
Trigo North	9,683	All game species
Heart Mine	16,663	All game species
Trigo South	17,313	All game species
Arrastra East	20,221	All game species
Arrastra West	11,629	All game species
Chocolate Mountains	12,816	Bighorn sheep only
Highway 95	8,093	All game species
Martinez Lake	2,604	All game species
East Arm	55,114	All game species
Mohave	16,559	All game species
Weaver	25,017	All game species
Cibola	18,898	All game species
Restricted Access	590,530	No hunting

Figure 13 shows the hunting areas on YPG, which are managed by AZGFD as portions of GMUs 41, 43A, and 43B, as established by the Arizona Game and Fish Commission. Hunting is permitted on the installation south of the Arizona Public Service (APS) transmission line wherever it crosses the southern boundary of the installation; in other words, between the APS transmission line and the southern boundary of YPG. This area along YPG's southern border, south of the APS transmission line, is the only YPG hunting area where range clearance is not required.

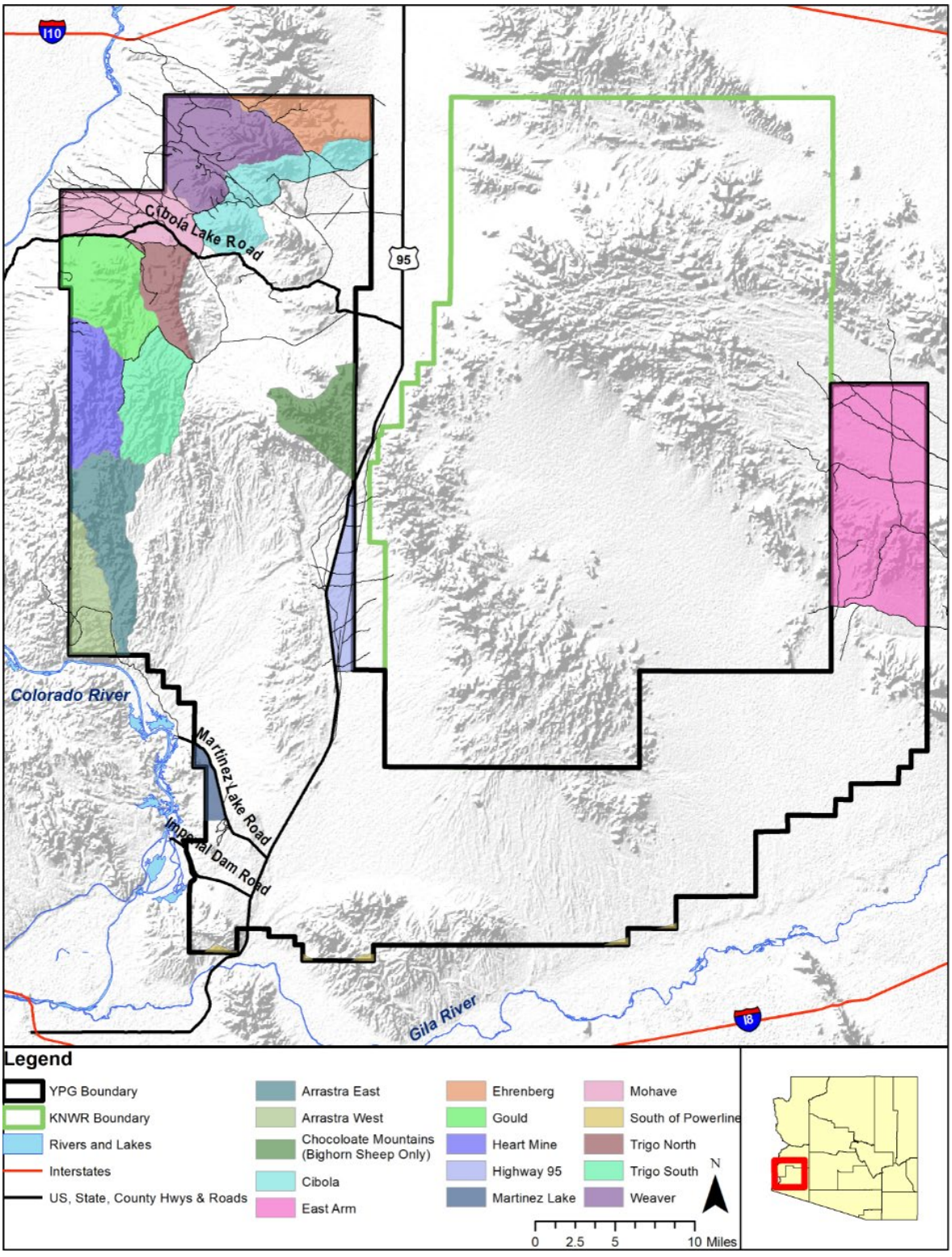


Figure 113: Designated Hunting Areas on U.S. Army Yuma Proving Ground

In order to hunt on YPG, users must obtain a YPG Hunting Access Permit. Hunters must receive a safety briefing, hold harmless notification and background check in order to be eligible for the permit. YPG may charge a fee for the permit in accordance with DoDI 4715.03 Enclosure 3(6)(c)(3). Hunting Access Permits are valid for the hunting season September-February. Hunters are required to check in by telephone with YPG Range Control for an area access clearance. Clearances are issued on a first-come-first-served basis, subject to availability. Clearances are valid only for the dates and areas specified, and hunters must check out when departing a hunting area. All weapons brought on YPG must be registered in accordance with YPG regulation USAYPGR 190-11.

Camping is authorized for hunting on YPG in accordance with the YPG Hunting Regulation. Areas may be closed to camping based on resource sensitivity or safety concerns. Parking and camping are only authorized within 100 feet of existing roads or navigable washes.

All game, including mule deer, desert bighorn sheep, Gambel's quail (*Callipepla gambelii*), mourning dove (*Zenaida macroura*), white-wing dove (*Z. asiatica*), and Eurasian and African collared doves (*Streptopelia decaocto* and *S. rosogrisea*, respectively) allowed under state law may be hunted on YPG. Hunters must possess annual YPG hunting access permits in addition to required state licenses , permits, and tags.

Hunting recreation on YPG has gradually increased, in both available acreage and number of hunter days, since its inception in 1979. The potential for additional hunting on YPG is limited due to mission constraints and security. Even if testing were terminated in certain areas, extensive clearing of spent munitions and other associated debris would be required before access could be granted. In areas open to hunting, YPG will consider allowing the maximum number of days for hunting according to state law. YPG meets annually with AZGFD to assess the opportunity for additional hunting areas in locations where little to no military activities have taken place or are expected to take place, and safety concerns are properly mitigated.

All of YPG is designated for military use. Military activities take precedence over wildlife management activities and over all hunting management areas. However, important wildlife habitats such as wildlife watering sites and hunting areas will be considered during planning and conduct of military activities and avoided to the extent practicable. Unavoidable impacts will be minimized or mitigated, as determined through compliance with NEPA (40 CFR 1500–1508).

Wildlife harvest quotas (permit numbers) are determined by the Arizona Game and Fish Commission, based on the recommendations of AZGFD and the results of its surveys, including aerial surveys for desert bighorn sheep and mule deer, call count transects for dove, and post-hunting season surveys. YPG contributes to this process as appropriate.

All law enforcement, informational, and other control actions required during or because of the hunting program shall be the primary responsibility of AZGFD and YPG. FWS will participate if federal wildlife laws are involved. YPG, in cooperation with AZGFD, is responsible for proper

warning of danger areas and conditions to hunters. Posting of installation boundary signs is also the responsibility of YPG. Policing harvest and game law enforcement are conducted by AZGFD, FWS, and YPG security personnel. Checkpoints on YPG are random and mobile; permanent stations are not manned except for those that ban all public access for mission security.

There is no recreational fishery on YPG since naturally occurring waters are ephemeral and do not provide sustainable fish habitat. Man-made water storage ponds are not feasible from a mission or management standpoint to sustain recreational fishing. The proximity of the Colorado River to the installation affords ample fishing recreation for YPG personnel and the public. There is also a recreation area for DoD personnel operated by the MCAS-Yuma at Martinez Lake, about 10 miles north of the YPG main post.

19. Tribal Access for Traditional Native American Use

YPG has ongoing communication and coordination with the Tribes. As they indicate interest in visiting locations on YPG for traditional purposes, YPG will facilitate tribal access. YPG has established a program that grants access to sacred sites for the observance and practice of religious or traditional ceremonies or for the collection of natural resources. Native American tribes are also permitted to gather and collect traditional resources, if available.

Because of the potential that unexploded ordnance (UXO) is present within YPG, access to many areas of the installation requires coordination with YPG and permission from YPG's Range Control and Security offices. Written guidance for access to YPG is based on YPG SOP YPY-RO-P1000, which pertains to general range control precautions and personnel safety. This guidance has been applied to Native American access as well, in particular for access to the White Tanks Conservation Area. Access is coordinated through the Cultural Resources Manager in consultation with YPG Range Control, the Installation Commander, and the Public Affairs Officer.

E. IMPLEMENTATION

1. Environmental Awareness

The YPG ESD reaches out to the YPG Workforce, residents, and local community to address conservation, safety, and environmental issues. YPG Environmental Requirements are communicated to the workforce through Policy Statements, and SOPs, and YPG regulations. We partner with the Safety Office, individual work units, and Public Affairs Office (PAO) distribute this information. We also engage with the public through community events and speaking invitations.

The YPG Safety Office distributes safety messages to the YPG workforce through emails, notices, and training events. ESD provides safety messages such as venomous snake information, nuisance animal, and vehicle strike hazard information. Annual safety training events on YPG include briefings from ESD staff on wildlife hazards as well as natural resource including migratory bird conservation. A booth is provided during the annual safety fair for AZGFD or other agencies to provide information to participants.

ESD staff often brief individual work units on YPG for a broad range of topics such as general environmental training, project planning, natural and cultural resource conservation, and best management practices. These work units include the various military test divisions, contractors, or new employees. We are often invited by mission proponents to provide briefings, but we also will schedule with a group if we identify a specific need.

The YPG PAO produces the installation newspaper, The Outpost. ESD staff provides interviews and articles for publication in The Outpost as well as publication through social media such as Facebook. These articles are often distributed to other news outlets for publication in other newspapers or magazines. At times local community groups contact ESD through the PAO with Natural Resource or other environmental interests. ESD may either provide information or attend speaking engagements.

YPG environmental staff also participates in various community events such as the YPG Open House, County Fair, Earth Day events, and Birding/Nature Festivals. ESD can provide information, activities, presentations, or lead tours as appropriate for the venue.

2. Natural Resource Staff & Training

The YPG ESD maintains a staff of subject matter experts on a broad range of conservation and compliance matters. The Compliance staff consists of Environmental Protection Specialists and Environmental Engineers with expertise in Air, Water, Geology, Hazardous Materials, and Remediation. The Conservation staff manages Natural and Cultural Resources on the installation. Environmental staff are cross-trained between fields to ensure complete coverage for interdisciplinary assistance and reviews.

The YPG Natural Resource management team includes three or more ESD employees with knowledge, skills and abilities related to Wildlife Biology, Botany, Ecology, and Conservation

Science. Additional assistance for natural resource management comes from the YPG Sustainable Range Program.

Funding is reserved each year for training and related travel expenses for the Environmental Sciences Division. Training courses are offered through Installation Management Command and the U.S. Army Environmental Command on a broad range of topics including but not limited to T&E species consultation, INRMP preparation, and Pest Management. As need arises, the YPG ESD can request additional trainings be offered. Training workshops are held annually through the National Military Fish and Wildlife Association workshop. Training for surveying or handling specific species can be obtained from AZGFD, FWS, or other sponsored organizations.

3. Funding

The YPG Natural Resource program is funded primarily through Operation & Maintenance 131 VENQ "Garrison Environmental". The amount of our recurring annual funding is based on modeling performed by IMCOM. The model for funding is based on the results of data calls in which ESD reports the implementation of various environmental requirements. Funding for non-recurring projects is funded through a 5 year Program Objectives Memo cycle in which projects can be submitted several years in advance of the funding need. Once a budget is issued, it is the responsibility of the Environmental Sciences Division to prioritize how those funds are distributed.

The ESD submits a Garrison Environmental Requirements Build (GERB) each year to IMCOM in order to identify specific projects and costs. Eligible projects will then be loaded into a "Spend Plan." The ESD will distribute the available funding to projects on the spend plan in the appropriate month for execution.

YPG works cooperatively with AZGFD and FWS in developing INRMP projects for inclusion to the GERB. We maintain a list of projects ready for execution in our contracts or cooperative agreements to facilitate timely implementation.

F. Five Year Implementation Plan

The following table identifies projects needed for implementation of the INRMP. This table will be updated periodically through coordination with AZGFD and FWS as new priorities or opportunities arise.

Table 11: Five Year Implementation Plan

INRMP Objective	Driver (Law/Reg/Agreement)	Proposed Project Title	Execution Timeframe	Effectiveness Indicator	Reporting
1,2,3,5	*ESA Section 7a(1) SWAP*	*Wildlife Water Monitoring, Maintenance, and Hauling*	*Continuous*	*Critical Wildlife Waters do not go dry*	*Email and phone calls*
1,2,3,5	*ESA Section 7a(1) SWAP*	*Construction of New Wildlife Waters*	*4 new water catchments by 2027*	*New Catchments are built as funding becomes available*	*During Annual INRMP review*
1,2,3,5	*ESA Section 7a(1) SWAP*	*Authorize Emergency Feeding Stations for Sonoran Pronghorn*	*As Needed*	*Feeding stations are authorized in a timely manner*	*During Annual INRMP review*
1,2,3,5	*ESA Section 7a(1) SWAP*	*Forage Enhancement for Sonoran Pronghorn*	*1 new Plot by 2027*	*New forage enhancement plot established*	*During Annual INRMP review*
1,2,3,5	*ESA Section 7a(1) SWAP*	*Existing Water Catchment Storage Enhancement*	*As needs are identified by AZGFD*	*Critical wildlife waters do not go dry. Reduction in emergency water hauling*	*During Annual INRMP Review*
1,2,3,5	*ESA Section 7a(1)(2) SWAP*	*Sonoran pronghorn captive breeding/release assistance*	*Annual*	*Pronghorn released to wild*	*Monthly status reports from AZGD*
1,2,3,5	*ESA Section 7a (1)(2) SWAP*	*Sonoran pronghorn monitoring*	*Monthly*	*Meeting Recovery plan population goals*	*Monthly status reports*
2,3	*SDT Candidate Conservation Agreement*	*Sonoran Desert Tortoise Monitoring*	*Annual as funding allows*	*Establish long term monitoring plot*	*Annual report*
2, 3	*ESA Section 7a (1)(2) SWAP*	*Planning Level Surveys for Monarch Butterfly*	*As funding allows*	*Projects executed to identify monarch habitat and phenology.*	*During annual INRMP Review*
1,3, 5	*SWAP*	*Desert Bighorn Sheep Monitoring*	*3 year cycle by GMU*	*Range time is allotted for monitoring*	*Continual feedback from AZGFD and FWS personnel and During Annual INRMP Review*
1,3,5	*SWAP*	*Desert Bighorn Sheep Capture/Relocation*	*Based on population and statewide conservation goals*	*Air Space is supported*	*During Annual INRMP Review*
1,3,5	*SWAP*	*Enhance movement corridors for Desert Bighorn Sheep*	*As funding allows*	*One corridor improvement project completed*	*During Annual INRMP Review*

INRMP Objective	Driver (Law/Reg/Agreement)	Proposed Project Title	Execution Timeframe	Effectiveness Indicator	Reporting
3,4	*MBTA DoD & FWS MOU*	*Planning level surveys for migratory birds*	*As funding allows and based on Arizona Bird Conservation Initiative*	*Projects executed to identify Migratory bird habitat for target species*	*During Annual INRMP Review*
3, 4	*MBTA DOD & FWS MOU*	*Survey for Desert Thrashers*	*As funding allows and based on coordination with Desert Thrasher Working Group*	*Project Executed in accordance with DTWG protocols*	*During Annual INRMP Review and through the Desert Thrasher Working Group*
3,4	*BGEPA*	*Planning level surveys for Eagle occupancy and nesting.*	Annual as funding allows	*Projects executed, Inventory conducted*	*During Annual INRMP Review*
1,2,3,4,5,6	*SWAP 7 U.S.C. § 2801 EO 13112*	*Native vegetation restoration and enhancement*	*Annual as funding allows*	*Project executed, Acres of habitat enhanced*	*During Annual INRMP Review*
1,2,3,4,5,6	*SWAP 7 U.S.C. § 2801 EO 13112*	*Planning Level Survey for Vegetation on YPG*	*As funding allows*	*Vegetation layer for YPG Updated*	*During Annual INRMP Review*
1,2,3,4,5,6	*7 U.S.C. § 2801 EO 13112*	*Invasive Species Control*	*Annual as funding allows*	*Project Executed*	*During Annual INRMP Review*
3,4	*MBTA, ESA section 7a(1)(2)7 U.S.C. § 2801 EO 13112 SWP*	*Enhance native vegetation planting on cantonment areas*	*Annual as funding allows*	*Projects executed*	*During Annual INRMP Review*
7	*Wild Horse and Burro Protection Act YPG R 385-1*	*Wild Horse and Burro nuisance gather*	*Based on safety hazards and damage*	*Reduction in safety hazards and damage to facilities and habitat*	*During Annual INRMP review*
7	*Animal Damage Control Act YPG R 385-1*	*Management of nuisance wildlife*	*continuous*	*Reduction in safety hazards and damage to facilities and habitat*	*Annual reporting per applicable permit (e.g. MBTA permit) o*
8	*Sikes Act DoDI 4715.03*	*Administer YPG hunting program*	*Sept-Feb Annually*	*Number of permits issued/compliance of hunters*	*During Annual INRMP Review*
8	*Sikes Act DoDI 4715.03*	*Special Access Request*	*As needed*	*Activities do not conflict with safety, security, or mission.*	*During Annual INRMP Review*
9	*DoDI 5525.17 10 U.S.C. §2671*	*CLEO Patrols*	*Continuous*	*Reduction in Natural and Cultural resource Damage*	*During Annual INRPM Review*
10	*National Environmental Policy Act ESA Section 7a(2)*	*DPW Workflow Reviews (Record of Environmental Consideration, Work Order, Dig Permit*	*Continuous*	*All proposed projects on YPG have documented environmental review within project timeframe.*	*Annual EQ data call, Monthly Work Order reviews by DPW*

INRMP Objective	Driver (Law/Reg/Agreement)	Proposed Project Title	Execution Timeframe	Effectiveness Indicator	Reporting
10, 3, 4	*NEPA, Sikes Act, P1000*	*Provide Briefings on Natural Resource Conservation, Migratory Birds, and other species of special concern*	*Annual and upon request*	*Briefings provided annual to YPG workforce and residents*	*Reported through YPG safety office and during Annual INRMP meeting.*
11	*Sikes Act* *Sikes Act Tripartite MOU* *DoDI 4715.03*	*Annual INRMP Review*	*annual*	*Annual INRMP Review*	*Annual INRMP Review*

All requirements set forth in this INRMP requiring the expenditure of YPG funds are expressly subject to the availability of appropriations and requirements of the Anti-Deficiency Act (31 USC section 1341). No obligation undertaken by YPG under the terms of this INRMP will require or be interpreted to require a commitment to expend funds not obligated for a particular purpose.

G. APPENDICES

Appendix A. References

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A1. List Acronyms and Abbreviations

AIDTT	Arizona Interagency Desert Tortoise Team
AML	Appropriate Management Level
APS	Arizona Public Service
ATEC	Army Test & Evaluation Command
AR	Army Regulation
ARS	Arizona Revised Statute
AZGFD	Arizona Game and Fish Department
BGEPA	Bald and Golden Eagle Protection Act
BLM	U.S. Bureau of Land Management
CAMA	California Arizona Maneuver Area
CFR	Code of Federal Regulations
CG	Commanding General
CLEO	Conservation Law Enforcement Officer
CLEP	Conservation Law Enforcement Program
DA	Department of the Army
DNR	Department of Natural Resources
DoD	Department of Defense
DoDI	Department of Defense Instruction
DoO	Directorate of Operations
DPW	Directorate of Public Works
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESD	Environmental Sciences Division
FD	Federally Delisted
FE	Federally Endangered
FMWR	Family, Morale, Welfare, and Recreation
FR	Federal Register
FT	Federally Threatened
FWS or USFWS	United States Fish and Wildlife Service
FY	Fiscal Year
Garrison	U.S. Army Garrison Yuma Proving Ground
GERB	Garrison Environmental Requirements Build
GIS	Geographic Information Systems
GOEA	Golden Eagle
GPS	Global Positioning System
GMU	Game Management Unit
HMA	Herd Management Area
HMAP	Herd Management Area Plan
HCA	Howard Cantonment Area
I-8	U.S. Interstate 8
I-10	U.S. Interstate 10
ICP	Integrated Contingency Plan
IMA	Individual Mobilization Augmentation/Individual Mobilization Augmentee
IMCOM	Installation Management Command
INRMP	Integrated Natural Resources Management Plan

ITAM	Integrated Training Area Management
JTAC	Joint Terminal Attack Controllers
LAAF	Laguna Army Airfield
LRAM	Land Rehabilitation and Maintenance
MBTA	Migratory Bird Treaty Act
MCAS-Yuma	Marine Corps Air Station at Yuma
MEDEVAC	Medical Evacuation
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NGO	Non-Governmental Organization
NWR	National Wildlife Refuge
ORV	Off-Road Vehicle
PAM	Pamphlet (Department of Army)
PAO	Public Affairs Office
PEIS	Programmatic Environmental Impact Statement
PLO	Public Land Order
RTD&E	Research Test Development and Engineering
RTLA	Range and Training Land Assessment/Analysis
SGCN	Species of Greatest Conservation Need
SOP	Standard Operating Procedure
SOTACC	Special Operations Terminal Attack Controllers Course
SRA	Sustainable Range Awareness
SRP	Sustainable Range Program
SWPPP	Storm Water Pollution Prevention Plan
T&E	Threatened and Endangered
TRI	Training Requirements Integration
USAYPG or YPG	United States Army Yuma Proving Ground
U.S.C.	United States Code
USGS	U.S. Geological Survey
WASH	Wildlife-Aircraft Strike Hazard
WCA	Walker Cantonment Area
WSC	Wildlife of Special Concern in Arizona
YBCU	Yellow-Billed Cuckoo
YTC	Yuma Test Center

A2. Summary of Changes to INRMP

The U.S. Army Yuma Proving Ground's Integrated Natural Resources Management Plan (INRMP) meets the Sikes Act and Department of Defense Instruction (DODI) 4715.03 requirements. The plan is reviewed annually by YPG, AZGFD, and USFWS. We update or revise the plan the plan as necessary with new information and changes to activities.

We are revising the INRMP to reorganize the document to better capture the ongoing natural resource management on YPG. This revision will follow updated guidance and templates for better consistency with other Army installations. The goals and objectives have been revised to better align with natural resource priorities of YPG, AZGFD and USFWS. This revision includes more detail of the integration of natural resource management into other plans and activities on YPG.

Program elements have been updated with new information including, conservation law enforcement, wildlife aircraft strike hazard, and wildland fire. A new element is included for off-road driving in support of mission activities which occasionally occurs but in limited conditions.

The implementation plan has been revised to identify the actions that are necessary for ongoing natural resource management and provide for flexibility for changing priorities. The clarification of the implementation plan is intended to better justify and direct funding for future projects.

Appendix B. Associated and Component Plans

B1. Integrated Wildland Fire Management Plan (2017)

B2. YPG Protection Standard Operating Procedure: Conservation Law (2019)

B3. Wildlife Strike Hazard Plan for Yuma Proving Ground Laguna Army Airfield (2018)

B4. Integrated Pest Management Plan for US Army Garrison Yuma Proving Ground (2021)

B5. Environmental Assessment and FONSI for 2023-2027 INRMP

Appendix C. Flora and Fauna List

Appendix D. Implementation Report

Appendix E. Implementation Actions and Estimated Cost