

ENVIRONMENTAL AWARDS

*NATURAL RESOURCES CONSERVATION LARGE INSTALLATION AWARD:
JOINT BASE ELMENDORF RICHARDSON*

INTRODUCTION

Joint Base Elmendorf-Richardson (JBER) is located in southcentral Alaska. The installation is bordered by the town of Eagle River, Chugach State Park, Anchorage residential areas, and on the north and west by Cook Inlet. As of 2010, Anchorage had an estimated population of 291,826, a 12.1% growth since 2000.

Proximity to Asia, Europe, and North America makes JBER strategically important to global military operations; ideal for deployment of aircraft, troops, and equipment, it provides front-line air defense and is the gateway to Alaska’s 1.6 million acres of military land. The JBER host is the 673d Air Base Wing (ABW) responsible for expeditionary combat support and daily installation operations including providing deployment and support for active duty military, as well as planning, building and sustaining the \$11.4-billion infrastructure.

to the north; JBER is highly unique, with elevations ranging from sea level to over 5,000 feet. At sea level, the tidal flux is one of the highest in the world at almost 40 feet. There are 10 major watersheds on JBER, including a glacially-fed river and four active salmon spawning streams. Abundant salmon runs sustain healthy populations of brown and black bears and over 15 active bald eagle nests on the installation. Undisturbed low- and mid-elevation JBER forest stands are some of the best preserved and last remaining in Anchorage. They are also home to a wide range of wildlife including a moose herd and two wolf packs. High-elevation areas include a glacier training site that provides training opportunities distinctly applicable to current global military operations. JBER lands provide a multitude of recreational opportunities including camping, salmon fishing, moose hunting, rafting and kayaking in Class III waters, dog mushing, and alpine mountaineering.



Joint Effort – Joint basing requires the natural resource conservation office to sustain in the mission multiple ways. Supporting ground training activities and an active impact range frequented by an endangered marine mammal requires diligent cross cultural coordination both internally and externally. Conservation is committed to sustaining the mission by providing a realistic training environment while protection ecological integrity.

Roughly 43,000 acres are available for consumptive (hunting, fishing, berry picking, etc.) and non-consumptive (hiking, wildlife viewing, etc.) recreation when not used for military training. Hunting is an important form of recreation with moose, small game, upland bird, and waterfowl seasons offered. Fishing is a popular year-round activity, centered primarily on stocked lakes, but seasonal saltwater salmon fishing is popular with the community and JBER resident anglers.

JBER has 78 ecosystem types ranging from saltwater estuaries to alpine tundra. Nearly 700 species of vascular plants are found in these varied habitats. The installation provides home or breeding ranges to 134 bird species and 33 species of land mammals, including bears, wolves, wolverines, Dall sheep, and moose.

JBER contains 17.5 miles of saltwater coastline, 134 miles of streams, and nearly 700 acres of lakes and ponds – habitat for 14 fish species including all five Pacific salmon species. There are also 6,499 acres of wetlands accounting for nearly 9% of the installation area.

The Sixmile Lake system is a critical biological and recreational resource on JBER. Beaver, loons, grebes, swans, bald eagles and osprey are all active in this area. Summer recreational opportunities include recreation cabins, boating, and floatplane operations; ice fishing is

Total personnel	40,965	Total Acreage	74,600
Service members	16,152	Unimproved	59,499
Civilians	2,915	Semi-improved	10,071
Family members	21,898	Improved grounds	5,040

Located within the Cook Inlet-Susitna Lowlands, and situated in a transitional zone between the maritime climate effects to the south and the interior continental climate zone

popular in winter. It is a very productive system, with a trophy rainbow trout fishery in addition to large numbers of spawning sockeye. Conservation personnel maintain a public education wildlife viewing platform at the salmon weir that averages over 200 visitors each year.

The confluence of Eagle River and Cook Inlet, has silt-laden shallow waters, influenced by the second highest tides in North America, creating a tidal zone with minimal vegetation, with exception of the Eagle River Flats (ERF) estuary, an active impact range. ERF has seven major physiographic zones and 15 vegetation classes (representing 67 species of vascular plants); its associated tidal wetlands are ecologically important and critical for military training. No change has occurred in the ERF training area from its 1941 establishment, preserving much of the ecosystem.

Munitions and Explosive Ordnance Disposal (EOD) areas to the south and ERF marshlands to the east effectively isolate the 1,200 acre EOD Creek Natural Area. This area supports a unique and relatively undisturbed old-growth mixed forest, which is the last remnant of this vegetation type remaining in Anchorage. This area is also an important travel corridor for brown bears and is close to wolf denning and rendezvous areas. Black and brown bears and bald eagles heavily use its anadromous stream and saltwater shoreline as feeding areas.

Alpine areas are essential for training and also important ecological components sensitive to disturbance and susceptible to damage.

Within three general alpine areas, vegetation ranges from low-elevation forest to treeless areas of short shrubs with mosses and lichens dominating. Biologists and researchers have noted that the alpine area of JBER's Snowhawk Creek watershed is a virtually pristine example of a southern Alaskan alpine ecosystem.

BACKGROUND

Congress directed combining Fort Richardson and Elmendorf Air Force Base with management provided by the Air Force, effective 1 October 2010. In conjunction with agency input, biologists combined two separate Integrated Natural Resource Management Plans (INRMPs) into a cohesive joint 673 ABW/CC endorsed document in 2011. In Fiscal Year (FY)12, the INRMP was rewritten with agency input, and endorsed by 673 ABW/CC and cooperating agencies. Key conservation goals are to:



Alpine Training Areas – High-elevation areas provide training opportunities distinctly applicable to current global military operations and are critically important not only for mission but for wildlife. Conservation personnel conscientiously monitor these areas to ensure not net loss in training capabilities while maintaining biodiversity and ecosystem functionality. Although an active training area, researchers have noted that the alpine area of JBER's Snowhawk Creek watershed is a virtually pristine example of a southern Alaskan alpine ecosystem.

- Increase salmon production by 20%; salmon are considered a primary constituent element for endangered Cook Inlet Beluga Whale (CIBW) conservation; as identified by Federal Register Designation of Critical Habitat for CIBW, 8 Apr 11 filing. Maintain or improve native vegetative patterns, successional stages, and biodiversity for ecosystem integrity and function
- Achieve no-net loss of military training by identifying risk and coordinating and cooperating with internal users and external agencies.

During FY11-12, JBER maintained 10 significant Environmental Management System (EMS) aspects, including "Non-Industrial Land Use." The INRMP acted as an operational control to manage and direct activities in support of conservation program goals and targets. Within the framework of EMS, JBER developed and maintained an Environmental Management Plan for the military conservation agents (MCA) program that defined objectives and targets closely aligned with the INRMP.

Primary responsibility for JBER natural resources conservation and stewardship belongs to the 673 Civil Engineer (CE) Squadron acting primarily through Natural Resources Conservation (CEANC). The Conservation staff includes six biological scientist, a cultural manager, four support staff, three conservation law enforcement officers (CLEOs), four military police (MPs) and an average of 30 active-duty volunteer MCA.

Promoting and preserving natural resources is a CEAN shared goal. Program goals are achieved by INRMP and EMS implementation. The JBER EMS is patterned after international environmental standards and focused on sustainability and preservation of natural resources. An integral component of the JBER EMS is the commander's environmental policy statement establishing environmental sustainability goals. In this policy, natural resources are key assets to be preserved and protected. In FY12, JBER underwent a rigorous and independent EMS audit to gauge the health of the program – no major non-conformances were found. Two positive EMS audit findings included effective dissemination of natural resources awareness information and the management of the voluntary MCA program.

Conservation personnel work closely with many different federal and state agencies:

- Conducting aerial avian and wildlife surveys with U.S. Fish and Wildlife Service (USFWS) and Alaska Department of Fish and Game (ADFG)
- Teaming with U.S. Department of Agriculture-Wildlife Services on Bird Aircraft Strike Hazard (BASH) concerns
- Partnering with National Marine Mammal Laboratory and National Marine Fisheries Service (NMFS) on passive acoustic monitoring
- Working closely with U.S. Army Corps of Engineers (USACE) on project and wetlands management
- Collaborating with ADFG on fisheries monitoring and management.

Conservation support is provided through a 2012 cooperative agreement with the Center for Environmental Management of Military Lands at Colorado State University (CSU). This organization supports the integrated training area management (ITAM) program, natural resources inventories, planning, and data management. During the award period, JBER established a partnership with Alaska Pacific University to develop a long-term ecological monitoring program including: historic land-cover change analysis, development of vegetation associations with species of concern, and assistance with plant, animal, and ecosystem surveys.

SUMMARY OF ACCOMPLISHMENTS

Natural Resources Management for Mission Support

Conservation personnel support the military mission through direct natural resources management and by

reviewing, preparing, and coordinating permits and analyses. Proactive planning is evident by the 1,000 work orders/dig permits reviewed, 100 plus environmental analyses conducted, one Environmental Impact Statement (EIS) and four Environmental Assessments (EAs) prepared, and more than 40 Endangered Species Act analyses/consultation completed including securing NMFS concurrence to the bed down of six plus one additional F-22s during the past two years. Additionally, installation natural resources data is continually updated through field surveys and integrated into the installation GeoBase system, providing a natural resource Geographic Information System (GIS) reference for military leaders and planners on issues such as wetlands, essential fish habitat, eagle nest locations, bear movement corridors, etc.



F-22 and BASH Support – JBER is home to the state-of-art Air Force fighter jet, the F-22. The natural resource conservation office secured endangered species consultation concurrence from the National Marine Fisheries Service to bed down 6 plus 1 additional F-22s in 2011. Conservation remains a vigilant supporter of the BASH program by monitoring and managing habitat associated with the 2,400 acre bird exclusion zone.

INRMP

The 2012 INRMP includes new metrics with goals and objectives that support multiple uses (e.g., maintain military mission, minimize conflict, sustain ecosystem integrity and provide recreation opportunities). Although the INRMP is new, there have already been significant achievements. In-house preparation of the Interim INRMP and considerable input and oversight of the 2012 re-write is noteworthy, given the merging of installation cultures and that other conservation requirements were accomplished simultaneously. The Air Force Legal Operations Agency (AFLOA) and the Pacific Air Forces Judge Advocate Office (PACAF/JA) categorized the 2012 JBER INRMP as “excellent” during their review. Effective long-term partnership culminated in JBER being the first INRMP in Alaska to receive concurrence from NMFS, thus securing critical habitat exemption for an essential mission impact range.

The INRMP also stresses regional collaboration. Working to achieve this goal, personnel are active on local wildlife and invasive species planning teams - Anchorage Waterways Task Force and the regional Landscape Conservation Cooperative. The JBER forester was appointed the Wildland Fire Program Manager, which unifying Army, JBER Fire Emergency Services, ADNR, Bureau of Land Management (BLM) Alaska Fire Service, and the Municipality of Anchorage wildfire response planning.

Conservation Law Enforcement

JBER CLEOs, detailed MPs, and MCAs provide critical resource and trespass protection. Volunteer MCAs were a force multiplier adding three full time equivalents in staff over the past two years.

Enforcement staff provided 1,546 field hours, responded to 859 wildlife calls, issued 975 warnings/citations, and made 7,174 recreation contacts in FY11-12. CLEOs led 17 remote search & rescue efforts; all missing were found safely the same day. They conducted 942 staff-hours towards public education. CLEOs also revised and staffed ABWI 32-7001, the JBER regulation governing INRMP implementation. JBER CLEOs conducted six joint investigations with the Alaska Wildlife Troopers resulting in successful prosecutions.

JBER CLEOs and biologists developed a bear incidence prevention and response plan and dumpster relocation guidance to privatized housing to eliminate safety concerns. Conservation personnel were instrumental in proactively retrofitting dumpsters to bear resistant types throughout the installation, substantially reducing risk of encounter and nuisance response calls. Additionally, CLEOs developed a conflict reduction plan and tracked wildlife conflict response using GIS tools to identify patterns.



Brown Bear on Golf Course – Two golf courses are located along Ship Creek on JBER. This riparian area is an active travel corridor heavily used by bears in summer and wolves in winter. Through conservation efforts, leadership designated the Ship Creek riparian zone as a critical wildlife corridor in the installation’s 50-year vision, thus ensuring an emphasis of long-term area sustainability.

CLEOs were responsible for the development and integration of the new recreational access system enabling online issuance of recreational access permits, an Air Force first. Implementation of this recreational access system reduced access costs by \$40,000 annually. In coordination with the Office of the Secretary of Defense (OSD), CLEOs also initiated a system of record notice for the Federal Register, applicable to all Department of Defense (DoD) recreational access user programs; approval is expected in early 2013.

Bird Aircraft Strike Hazard Avoidance and Avian Monitoring

JBER biologists and technicians assessed avian presence and BASH risk by conducting in-house migratory and breeding bird, raptor, and cavity surveys to identify breeding density and habitat usage. In FY11-12, this information was evaluated against regional and historic migration and weather data to develop a survey process that accurately identified the spring migratory waterfowl period, thus reducing BASH risk and greatly increasing mission capability.

Conservation personnel partnered with CE operations to remove and replace invasive or ornamental bird-attracting vegetation in airfield areas. This partnership also resulted in the innovative use of excess cantonment soils to build earthen berms, deflect noise, and deter grazing birds from bird-exclusion-zone areas.

In 2012, JBER biologists worked closely with federal and state biologists to conduct aerial bald eagle nest surveys and included this information in GIS layers for use in mission and installation development planning. Proactive eagle management helped CEANC obtain federal permits to remove two bald eagle nests, one a BASH risk and one impeding mission operations.

Cook Inlet Beluga Whale and Fisheries Management

The endangered CIBW seasonally frequents waters adjacent to the installation and Eagle River, a waterway that bisects an active impact area. JBER continues to be a major partner in multi-agency monitoring projects, coupling acoustic and visual behavior studies to develop presence data. In 2012 this collaborative effort led to the implementation of an innovative passive acoustic monitoring system capable of autonomously and remotely detecting CIBW presence in real-time and broadcasting detections to a home base.



Cook Inlet Beluga Whale (CIBW) – JBER continues to be a major partner in multi-agency projects to monitor the endangered CIBW. An innovative passive acoustic monitoring system capable of autonomously and remotely detecting presence in real-time and broadcasting detections to a home base was implemented in 2012. This information is critical since CIBW frequent Eagle River, a waterway that bisects an active impact area on JBER.

In FY12, JBER biologists installed and operated the first-ever fish wheel and sonar to identify salmon run timing/strength in Eagle River. This information is critically important given absence of fisheries monitoring in upper Cook Inlet and because ADFG imposed emergency salmon season closure for this region in 2012.



Eagle River Fish Wheel – In 2011, JBER installed the first-ever fish wheel and sonar to gather information on fish populations in Eagle River. Over the next several years this will be continued to develop long-term population data. Biologists partner with AK Department of Fish and Game to manage this critical resource.

Biologists also partnered with CE operations to enhance Sixmile Lake system salmon spawning beds by placing 16 cubic yards of gravel at four hillside groundwater outfalls. Salmon smolt out-migration from this system is monitored by trained volunteers; in 2012 the highest number in seven years was tallied at 22,000 fish. Collaboration with community partners resulted in \$180K of Port of Anchorage wetlands mitigation funding being allocated to complete projects on JBER that upgrade fish passage into the Sixmile Lake system. An additional \$550K was allocated to restore Otter Lake by removing invasive northern pike and outfall obstructions, designing and

building an improved fish passage, and stocking the lake with Coho Salmon. Through partnership with ADFG Sport Fish Division, a \$100,000,000 fish hatchery was established on JBER in FY11 and now stocks installation and area lakes with over 100,000 fish annually.

Forestry and Invasive Species Management

Nearly half of JBER (37,054 acres) is commercially-valuable forest land. In 2011-12, the forester developed an inclusive forestry plan with the Army's ITAM program and BLM fire service. He worked closely with CE operations exploiting resource recovery from construction and disturbance sites; results were the recovery of 700 cords of firewood and 500 Christmas trees yearly. This resource was donated to the public because these resources are under BLM domain.



Coordinated Air and Land Support – Beyond BASH, conservation identifies and minimizes operational conflicts such as airfield obstructions (trees) and wildlife conflicts (bears, moose) on ranges. Conservation works closely with Army Range personnel to design and execute joint management activities, clear fire trails, and provide expertise for projects that enhance mission operations while reducing wildlife conflict and safety concerns by promoting moose browse away from ranges. In 2011, drop zone obstructions were expeditiously cleared in-house, saving thousands of dollars and valuable training time.

The forester worked closely with Army Range Control and the ITAM program to design and execute joint management activities, clear fire trails, and provide expertise for projects that enhance mission operations while reducing wildlife conflict and safety concerns by promoting moose browse away from ranges. In 2011 conservation and Army range personnel cleared three acres of airfield/drop zone obstructions in-house in a week, saving \$20K in clearing costs.

Conservation assisted in protecting infrastructure and trees in a high-beaver-activity riparian area by removing partially fallen trees or placing fabric around the base of vulnerable trees. In 2011, volunteers planted more than 3,000 seedlings to restore beetle-killed white spruce habitat. Three acres of semi-improved land were reforested and allowed to return to native forest types to reduce open space BASH risk and mowing costs in the past two years. The first cantonment-area ornamental trees inventory was initiated in 2012. This GPS-based inventory catalogs the species, health, condition and value. Information is useful to maintenance schedules that include BASH and invasive species management, tree replacement, and beneficial landscaping requirements.

JBER also has an active invasive species program. As of FY12, the installation has been completely inventoried; management plans and implementation efforts are focused on prioritized species eradication and control to reduce mission impact. Around 400 invasive ornamental trees were targeted for future removal and roughly 1 acre of orange hawkweed was removed in FY12.

Wildlife Management and Monitoring

Biologists working with ADFG, CLEOs, and MCAs manage several moose hunts with an average of 142 muzzle loader and archery participants annually. The hunt enjoys the highest Alaskan success rate, 50% and generates over \$15K yearly. This moose hunt not only provides game meat but also reduces vehicle/moose collisions on local highways and installation human/moose conflicts. Through a novel ITAM and range wildfire management partnership, conservation improved 80 acres for moose browse and habitat for less than \$500/acre.



Moose – Biologists and conservation law enforcement officers manage several moose hunts with an average of 142 muzzle loader and archery participants annually. The JBER moose hunt (highest Alaskan success rate at 50%) generates over \$15K revenue yearly. This moose hunt not only provides game meat for human consumption but also reduces the number of vehicle/moose collisions on local highways and human/moose conflicts on the installation.



Collared Black Bear – Brown and black bears are difficult and expensive to monitor but are an important management species in terms of ecosystem and human interaction. Data useful for population estimates is sparse since annual numbers of sightings offer only rough indicators of population trends near road accessible areas. Partnership with AK Department of Fish and Game allows JBER to study the populations and identify bear travel corridors on the cantonment, thus aiding mission planning and safety by adjusting conservation patrols and managing attractants.

Partnership with ADFG allowed JBER to study predator and prey migratory patterns and identify cantonment bear travel corridors, thus aiding mission planning and safety by adjusting CLEO patrols and managing attractants. In FY12, through cooperation with ADFG biologists, personnel were successful in radio collaring wolverines and brown bears to monitor travel patterns in training areas.



Alpine Areas – Alpine areas are essential for training and distinctly applicable to current global military operations. They are also important ecological components, providing habitat for many sensitive species of plants and animals. In 2011, JBER partnered with AK Department of Fish and Game to research wolverines, the one in this picture is undergoing medical testing and tagging before being released.

An additional three brown bears were collared with video-GPS devices, providing visual activity data. Several cow moose on JBER were radio-GPS collared in cooperation with ADFG and University of Alaska researchers to provide a better understanding of the movement patterns, preferred habitat and reproductive rates. This information is critical to mission planning in terms of infrastructure growth, training area availability, and wildlife conflict risk reduction.

In 2011, following many dangerous installation human/wolf interactions, biologists and CLEOs working under a ADFG special permit removed wolves from two packs to alleviate imminent safety hazards. Wolf abundance and activity are monitored to determine behavioral change (human acclimation); no additional conflicts have occurred following this proactive action.

JBER biologists, technicians and volunteers monitored key wildlife species and habitat in FY12; completing the first Alaskan DoD little brown bat baseline survey in anticipation of emergency endangered status listing of this species. Conservation trained volunteers conducted small mammal track surveys; results highlighted six previously unknown high-use habitat areas. An innovative use of volunteer trappers provided a detailed beaver cache inventory, as well as population reduction and infrastructure damage control. CEANC personnel worked with Eagle Scout candidates to establish an artificial bat lodge, place 13 owl and duck boxes, and create three more miles of signed interpretive trail. Volunteer surveys documented loon and grebe nesting patterns on lakes and posted signs to help protect eggs and nestlings from disturbance.

Wetlands and Watershed Management

A recent remote sensing, field-verification, and USACE alliance resulted in an updated/clarified wetland inventory. Results and data were uploaded to GeoBase to aid in jurisdictional wetland determinations, enhance mission planning and reduce project mitigation costs. Volunteers helped monitor wetland ecological system health and conducted roadside avian and wood frog surveys during this timeframe. DoD Legacy projects conducted by USFWS identified habitat on JBER for over 20 pairs of rusty blackbird, a species whose numbers are down more than 90% globally.

In FY12, ADFG praised JBER stream bank stabilization projects as exemplary erosion control. JBER also hosted a stream bank rehabilitation field training session for state and local agencies. These projects were conducted on Ship Creek, a critical salmon and wildlife habitat. This riparian area is an active travel corridor heavily used by bears, moose and wolves. Through conservation efforts, leadership designated this riparian zone as a critical wildlife corridor in the installation's 50-year vision, thus ensuring an emphasis of long-term area sustainability.

Visitors and Volunteers

Conservation awareness is effectively promoted with

natural resources staff giving tours to thousands yearly, especially school-aged kids. CEANC personnel provide bi-monthly newcomer briefings for more than 2,000 people per year; presentations focus on recreation and human/wildlife safety and conflict information, stressing child/animal confrontation protection measures.



Wildlife/Human Interaction – Encroachment from local and regional development places additional operational pressures on JBER. Conservation works closely with military operators and agency officials to help minimize conflict and controversy. Wildlife conflicts are primarily caused by human negligence; resident and contractor education is a continuous objective for conservation.

The unique Wildlife Education Center (WEC) equipped with over 200 mammal, fish, bird mounts and displays illustrating the installation's rich Alaska biodiversity. Conservation personnel maintain an active JBER WEC Facebook page and have authored or coauthored four conservation articles annually. JBER also hosts an avian recovery center and a bald eagle viewing center for injured eagles to promote awareness at no cost due to volunteer and food donation.

Conservation maps and maintains over 50 trail miles for ATVs, snow machines, hikers, skiers, whale and bird watchers, and for angler access. Hunting, fishing and outdoor recreation opportunities are promoted digitally on the JBER webpage, multiple JBER social media pages, in print, and on the I-Sportsman recreational access system. I-Sportsman, the benchmark Air Force recreation access system recently deployed by JBER, tracks recreation activity, area usage and potential violation trends. In less than a year, 9,600 permits (41% DoD employees and dependents, 35% civilian/non-DoD, and 24% military) were issued by this online system since its 2012 launch, saving over 100 man-hours and drastically reducing paperwork for three offices. Managing recreation access in this way de-conflicts military training areas and enhances visitor safety by providing location information if needed for search and rescue.