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NATURAL RESOURCES CONSERVATION—LARGE INSTALLATION

Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

As the largest training center for Minnesota Army National Guard (MNARNG), Camp Ripley is notable for its wealth of natural resources and its critical role in the training and readiness of not only MNARNG, but of the entire northern Midwest region. Encompassing 53,000 acres, Camp Ripley is home to 665 plant, 203 bird, 51 mammal species, incredible habitat diversity and 18 miles of Mississippi River frontage. The training site is home to 88 species of greatest conservation need (SGCN). The installation's Natural Resources Conservation (NRC) program supporting this critical environmental and training resource has a long record of excellence, distinguished by an unwavering commitment to the Army's Triple Bottom Line: Mission, Environment and Community. With a comprehensive approach to wildlife and land management, forestry, encroachment protection, and community outreach and partnerships, Camp Ripley is exemplary in balancing an unparalleled NRC program with support of over 365,000 annual man-days of training and employment of 850 full-time employees.

-  Program Management
-  Technical Merit
-  Orientation to Mission
-  Transferability
-  Stakeholder Interaction
-  Program Impact

 Camp Ripley has consistently been a leader in NRC activities, but the past 2 years are particularly distinguished by innovation in wildlife and land management. The installation NRC staff have partnered with the Department of Natural Resources (DNR) and Audubon Minnesota to launch a satellite tracking effort for rare golden eagles. Proactively responding to the listing of the northern long-eared bat, the NRC staff also initiated telemetry tracking of female bats in addition to ongoing bat monitoring and habitat support activities. These projects build on Camp Ripley's ongoing telemetry programs for wolves and bears. With one of the most successful Army Compatible Use Buffer (ACUB) programs in the nation, Camp Ripley is building on this expertise to launch the Camp Ripley Sentinel Landscape (CRSL) program that engages other federal and state agencies in joint conservation and habitat preservation goals on a regional level. Through CRSL, the installation simultaneously protects the mission and protects the land, stacking the public benefits of wildlife promotion, clean water protection and greenspace preservation with the backing of the broader community.

 Camp Ripley's NRC staff provides comprehensive expertise in wildlife management and biology, forestry, land management, prescribed fire, training, GIS and compliance; the NRC specialist staff is further supported by the MNARNG Environmental Office, which emphasizes cross-training to provide the ultimate continuity and capability for the training center's programs. NRC staff is further augmented by a team of interns from Central Lakes College (CLC) and St Cloud State University (SCSU) that assists in fieldwork as well as by staff partners from the DNR and The Nature Conservancy (TNC). The NRC program has the full support of MNARNG and Camp Ripley command, trainers, range control, and facilities and engineering directorates. Coordination with the Integrated Training Area Management (ITAM) program has contributed greatly to the program's success. The NRC staff for the installation participates in all planning and construction activities to ensure that NRC considerations are fully integrated into all operations.

Camp Ripley's NRC program has developed an alternative to the conventional Integrated Natural Resources Management Plan, implementing a more effective Annual Conservation Report that reflects integration of NRC activities into the complete operations of the post,

including ITAM and LRAM. The report outlines all accomplishments in the context of greater range planning and coming year goals, functioning as a truly working document to incorporate continuous updates in management and regulatory input. Not surprisingly, Camp Ripley enjoys an exceptionally positive relationship with regulatory agencies. Through the conservation program reporting process, all regulators have become true stakeholders in the installation's success, and responsibility for achieving program goals is shared among all contributors. These partnerships have helped the NRC program to maintain constant compliance and management excellence. Regulatory and planning partners include the DNR, USFWS and TNC. The ACUB and CRSL programs incorporate many more partners as well as installation neighbors.



With a focus on partnerships, Camp Ripley has been successful in leveraging funding and resources to save or avoid costs without sacrificing program priorities. The NRC program routinely takes advantage of interagency and regulatory partnerships to complete projects at minimal or no cost to MNARNG. Outside private contracting is rarely necessary anymore, thus avoiding tens of thousands of dollars in program costs each year. With forestry projects completed in-house, Camp Ripley generates significant revenues from annual timber harvests; in 2015, the installation earned \$133,305 in timber sales. The NRC program is also augmented by university intern fieldwork crews and numerous volunteers. Though some students receive educational funding and/or pay, these costs are much lower than comparable private sector hiring and the students volunteering receive the benefit of hands-on experience. Cooperative agreements and partnerships have been integral to ACUB success; in 2015, 39 ACUB land transactions totaling 3,457 acres were completed by the Minnesota Board of Water and Soil Resources (BWSR) at no cost to MNARNG. Though the ACUB is primarily funded by the Department of Defense, BWSR secured \$1,200,000 in state funding in FY15 to support ACUB acquisitions through the Lessard-Sams Outdoor Heritage Council. The establishment of the CRSL will also allow MNARNG to compete more effectively for federal funding outside of the Department of Defense, engaging the resources of the Department of Interior and Department of Agriculture, for instance. Camp Ripley will also now be eligible to compete for special funding from the Regional Conservation Partnership Program and Readiness and Environmental Protection Integration program.



Wildlife Management, Threatened & Endangered (T&E) Species: Camp Ripley has a tremendous amount of unfragmented, high quality natural habitat that supports a wide range of wildlife, including several T&E species. With this biological diversity, the NRC staff has implemented several ground-breaking programs in wildlife monitoring and research. In response to federal Comprehensive Wildlife Conservation Strategy mandates, Camp Ripley has developed the Minnesota Wildlife Action Plan 2015-2025 to protect SGCN, of which 88 have been identified on the post.



The rare **golden eagle** is one such species, which was known to travel through Minnesota on its migratory path, but was recently found to also maintain winter populations along the Mississippi River valley. The golden eagle is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Working with the National Eagle Center, NRC staff on Camp Ripley began participating in the Golden Eagle Project to better understand the bird's habitat and prey needs and its breeding and migration habits. In 2014, Camp Ripley baited camera stations with road-killed deer, intending to survey gray wolf populations; in addition, the cameras caught golden eagles. Once a golden eagle was observed feeding regularly

at one of the bait stations, a capture and release project was implemented in 2015. The eagle, a female, was trapped using a remotely triggered bow-net and fitted with a solar-powered satellite backpack transmitter, with support from DNR, Audubon and CLC. The eagle, aptly nicknamed “Ripley,” was then tracked, revealing her progress as she traveled 1,800 miles north in just 1 month, settling for the summer above the Arctic Circle. In September, Ripley began her journey south to the installation, reaching Camp Ripley in December. Through the National Eagle Center website, her movements can be viewed along with all other eagles outfitted with transmitters.

Radio telemetry collars have also allowed the NRC staff to track **wolves and bears** on Camp Ripley, projects that also have an educational component: local schools have helped to purchase radio collars with classes “adopting” particular wolves and bears. Area teachers have actually used grant funding to participate in this project with Camp Ripley, and their students then participate in tracking their animals’ movements. The NRC staff has also hosted school classes on post, inviting students to observe wolf capture and collaring using helicopters. The tracking data has shown that the ACUB is particularly beneficial to the wolves, which depend on both Camp Ripley and its buffer for their range. Aerial and ground radio tracking is also used to monitor reproduction, movement and mortality of Camp Ripley’s black bears. The installation bear population may also be involved in potential medical breakthroughs for humans: Minnesota-based Medtronic, a medical device company, and researchers from the University of Minnesota are conducting research on bears’ heart and respiratory changes as they hibernate. Using the telemetry data, researchers are actually tracking bears’ heart rates over months of activity and hibernation, data that could help to better engineer heart regulation devices.



Managing for declining **bat** populations is at the forefront of many installations’ efforts. Of the seven bat species identified in Minnesota, six have been determined to be present on Camp Ripley. On the installation, the in-house program to monitor and protect bats, and the **northern long-eared bat** (NLEB) in particular, is exemplary. Ahead of the NLEB listing as a threatened species, the NRC staff had conducted biological assessments and formal consultation with USFWS. Mobile acoustic bat surveys had been conducted since 2010, obtaining monitoring data on all bat species present. In 2014 and 2015, the mobile surveys were augmented with stationary acoustic surveys in forest understory habitat. While these techniques are valuable, however, they are not necessarily ideal for the relatively quiet NLEB, which can be drowned out by noisier bat species. Nonetheless, NRC staff identified NLEBs at four out of the six survey sites addressed in 2015.



The in-house program to monitor and protect bats, and the northern long-eared bat in particular, is exemplary. Learning about maternity roosts is particularly critical in combating bat population decline. In partnership with other agencies, Camp Ripley was able to make use of state funds to construct mist nets along bat travel corridors, capture female bats, and fit them with radio telemetry transmitters.

Last year, a new effort was launched to study NLEB and other bat species maternity roosts and habitat requirements. Learning about maternity roosts is particularly critical in combating bat population decline and ensuring that forest management is providing the resources the bats need. In partnership with DNR, the University of Minnesota Duluth – Natural Resources

Research Institute (NRRI), and the USDA-Forest Service (USFS), Camp Ripley was able to make use of state funds to construct mist nets along bat travel corridors, capture female bats and fit them with radio telemetry transmitters. In total, 25 transmitters were attached to female bats in the hope of identifying as many maternity colonies on post as possible. The bats were then tracked daily to their roosts until the transmitters fell off or the signal was lost; individual bats were tracked for 6 to 7 days on average, allowing NRC staff to positively identify 73 unique roost locations. With the roosts determined, NRC staff was able to effectively conduct emergence surveys to confirm the specific trees being utilized. In total, 76 emergence surveys were completed in 2015 using the telemetry data for guidance and employing acoustic detectors. This year, the NRC staff began employing military-grade night-vision equipment to dramatically improve emergence survey count accuracy. The surveys, thus far, have helped to identify preferred roosting tree species in states of decline. As the CRSL program continues to develop, the NRC staff will be able to collaborate more closely with other area land managers to compare NLEB data and survey results.

The installation also continues its well-established Blanding's turtle monitoring program, with habitat enhancement and protection of nests. Additional monitoring is conducted for woodpeckers, ospreys, ducks, swans, hawks and more. The NRC program routinely works with USFWS to complete biological monitoring or assessments. The NRC program is part of a statewide research project to examine fisher and marten ecology in Minnesota. The NRC program also employs six scent stations to detect the presence of Canada lynx, cougars and bobcats on post.



Forestry and Prairie Restoration: Forestry and prairie restoration are closely coordinated at Camp Ripley, particularly as both habitat types benefit from prescribed fire and invasive species eradication. Often, where tree stands are targeted for harvest, it is with the intent to not only improve forest health, but also to restore or enhance historic prairie habitat that directly benefits training.



Camp Ripley conducts timber harvests on about 300 acres annually, generating between \$50,000 and \$300,000, depending on prevailing commodity prices and contracting costs; these revenues are reinvested into the installation's NRC and forestry program. Timber revenues in FY15 totaled \$133,305 on 5 timber tracts over 266 acres. All forestry activities are done in partnership with DNR, including harvests, rehabilitation, replanting, nursery development and invasive species control. Camp Ripley also offers around 50 fuel wood permits each year as part of harvesting operations; last year, 110 cords of firewood were harvested. The NRC program and the MN Department of Corrections also facilitate a fuel wood program for the families of deployed soldiers, which incorporate assistance from Soldiers, Boy scouts and citizens.



Prescribed fire is used not only to manage forest health, but also to enhance prairie habitat and training ranges and to decrease fuel loads in areas susceptible to wildfire. The NRC program conducted burns on around 12,392 acres in FY15 to sustain ecological health, maintain training resources and minimize wildfire hazards. In partnership with SCSU, Camp Ripley began a project using assisted succession and prescribed fire to restore areas dominated by invasive plant species. NRC staff continue to monitor and test control methods for invasive plants.

The NRC program routinely consults with Camp Ripley trainers to align conservation priorities with range operations, for instance, identifying tracts of forest that need thinning that could also create maneuver lanes. The NRC program also works closely with ITAM to conduct yearly assessments on erosion throughout the installation and to prioritize repair areas with

regard to habitat and training needs. Erosion repairs are completed immediately after each major training event using locally sourced native seed.



Invasive Species and Pest Management: Prescribed fire is just one method the NRC program employs to eradicate invasive species on post. Working with SCSU, Camp Ripley continues to conduct invasive species inventories and implement eradication plans that combine fire, mowing, herbicides and biological controls on different test plots. Students provide research and fieldwork assistance. Through this research, the NRC program continues to reduce the pounds of active ingredient employed in chemical controls and fine tune a hybridized approach to invasive species eradication.



Water Resource Protection: In 2015, Camp Ripley continued to implement its Wellhead Protection Plan (WHPP) by sealing wells, sampling source water, groundwater monitoring and protective measures. Two new wells were added to the range complexes and both were monitored and sampled prior to opening for use. The NRC staff worked closely with project managers to appropriately buffer new vehicle storage lots to prevent runoff or contamination issues. Camp Ripley recently conducted an in-depth water conservation study, specifically focused on infrastructure, to identify potential points of water loss, stormwater management and water reuse feasibility throughout the cantonment area. The study identified key infrastructure that needed repair or replacement; several measures from the study were immediately implemented, including a stormwater infiltration basin designed to retain 100% of a 1.5-inch rainfall event and eliminate all stormwater discharge to the Mississippi River. An active leak detection system is also being installed to monitor and locate leaks and avoid excessive passive water loss. Construction on Camp Ripley's Education Center was completed in 2015; the facility includes three 20,000-gallon cisterns for stormwater capture and reuse in irrigation for the buildings' landscaping. Additional catchment systems were installed beneath the parking lot to infiltrate runoff and reduce discharge to the stormwater system.



Camp Ripley runs its own wastewater treatment plant, processing around 100,000 gallons daily. In 2015, the NPDES permit was renewed allowing up to 1.4 million gallons/day. This permit included additional monitoring and sampling to prevent release of phosphorus and nitrogen to the river. Design of a complete renovation to the WWTP was complete in 2015 with construction starting in 2016. The renovation includes code upgrades, enhanced filters and increased treatment capabilities. NRC staff also collaborated with DNR, Morrison County Soil Water Conservation District and the Minnesota Pollution Control Agency to generate a GEO Atlas for Morrison County and establish the Total Maximum Daily Load target for the Mississippi Brainerd Watershed.



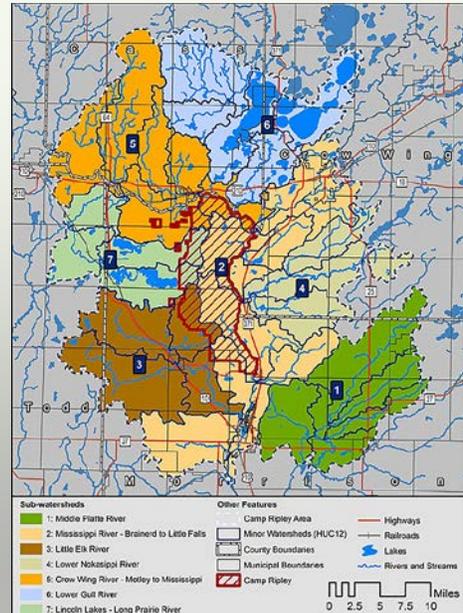
The NRC program at Camp Ripley is designed to support and enhance the MNARNG mission in every aspect. In the short term, projects like forestry and prescribed fire create more usable training areas, while sustaining the area ecology. The NRC program, however, takes a much longer view on the installation's sustainability and suitability as a training center. The ACUB has been a critical piece of Camp Ripley's long term plan for training, readiness and environmental excellence since 2004. Encroachment poses not only a threat to training capacity, but also to natural resources and critical habitat. Camp Ripley remains one of the largest tracts of undeveloped land in the region, and as a result, its biological diversity far surpasses that of

neighboring areas; the ACUB helps to expand the same standards of ecological preservation beyond the installation's borders and minimize future fragmentation of a pristine landscape.

Since its inception in 2004, the installation has been uniquely successful in promoting and expanding the holdings within the 3-mile ACUB buffer. To date, over 20,000 acres have been completed through MNARNG and its partner agencies. Currently, 406 landowners representing over 27,000 acres have indicated interest in participation, particularly in establishing permanent conservation easements rather than outright acquisition. Partners in this effort include BWSR, DNR, USFWS, TNC, regional conservation groups, Natural Resources Conservation Service (NRCS) and neighboring city and county governments.

Camp Ripley is now the vanguard in simultaneously promoting and protecting both mission and conservation practices, as it became the first state sentinel landscape in the nation in 2015. The Sentinel Landscape program is intended to augment the ACUB program and capitalize on existing partnerships and land management relationships. With the Sentinel designation, Camp Ripley established a state coordinating committee in March 2016 comprised of representatives from BWSR, DNR, Minnesota Department of Military Affairs and Minnesota Department of Agriculture (MNDA), as well as federal agencies such as the NRCS, USFS and USFWS who envision enhancing their program priorities and interests that are complementary to the CRSL. The CRSL planning area is defined by approximately 34 minor watersheds grouped in 7 sub-watersheds within an approximate 10-mile radius from Camp Ripley encompassing 719,463 acres. This planning process is an outgrowth of Camp Ripley's ACUB Program to limit future incompatible land uses around Camp Ripley. To achieve the program goals, all of the organizations involved have set specific goals for the CRSL which is to protect Camp Ripley's military training mission, DNR's wildlife management areas, BWSR watersheds and MNDA agriculture. All partners will be operating with a shared set of best management practices and conservation priorities and goals. Working in collaboration, all these agencies will be able to pool their expertise and resources, coordinate their efforts and pursue lines of funding that may not be available to a single agency on its own. For MNARNG and its partners, the CRSL represents a clear meeting of shared missions.

For Camp Ripley, this collaboration also means expanding the tools available to limit encroachment; rather than focusing on easements and acquisitions as the primary—and very expensive—tool, MNARNG will be able to leverage options open to its partners, including zoning restrictions, incentive programs, tax-abatement programs, grants and cost-sharing opportunities.



A map depicting the CRSL. ***"For more than 30 years the Department of Natural Resources has worked in partnership with the Minnesota National Guard. Together, we have successfully blended natural resource conservation and restoration with high quality military training. With the addition of the Sentinel Landscape Program, our partnership has grown. The DNR is enthusiastic and committed to helping create a buffer around Camp Ripley that serves both a military mission and protects significant natural areas."***

- Tom Landwehr, Commissioner,
Minnesota Department of Natural
Resources



The long-term viability of Camp Ripley’s NRC program is unquestionable. With full support of MNARNG command and a thriving network of community and regulatory partners, the NRC program is a fixture and regional leader in environmental management. Standardization and digitization have streamlined all documentation and maximized accessibility throughout MNARNG. The NRC program and facilities management office have implemented a MNARNG-wide conforming system for file structures and information sharing, simplifying environmental compliance processes across all operations while creating a common compliance language for all MNARNG facilities and directorates to share.



The installation’s Sentinel Landscape approach is the future of protecting mission and environment. While the ACUB program has obviously been greatly successful, the possibilities that open up when multiple landowners and agencies cooperate are dramatic. Sentinel Landscape models also lift some of the burden that the Department of Defense has been shouldering through the ACUB program. The model established by MNARNG in launching this program will absolutely be replicated by other states looking to further leverage their ACUB programs and contribute to regional land management partnerships. For many installations, however, Camp Ripley’s ACUB expertise is still invaluable; MNARNG Environmental Program Manager Marty Skoglund leads the ACUB Working Group, which has been working since its inception in 2013 to improve proposal techniques and make Army National Guard ACUB proposals more definitive from a funding perspective when being compared against other military services, rather than against each other.



Community outreach and partnerships have long been the hallmarks of Camp Ripley’s NRC program. In addition to the interagency and regulatory partnerships detailed above, the NRC program is dedicated to community connection and education. The installation’s Environmental Classroom hosts thousands of schoolchildren for field trips each year, and NRC staff’s participation in community events impacts nearly 6,000 visitors through 110 separate venues each year. The staff also gives more than 80 talks and presentations each year.



Camp Ripley has exceptional hunting and recreational opportunities for Soldiers, staff and neighbors. Thousands take part in hunting events annually. The NRC program manages hunting events for Disabled American Veterans, youth and deployed soldiers. The annual public archery deer hunt is one of the largest such hunts in the U.S.;

special youth archery hunts are also held annually. The NRC program also hosts Trolling for the Troops, a special fishing event, with partnership from the Veterans Administration (VA), Forrest L. Wood (FLW) Fishing Tour, Veterans of Foreign Wars (VFW), and The American Legion. The 2-day event brings together disabled and recently deployed veterans with professional fishing guides. NRC staff also maintains campground sites for both soldiers and their families and the general public. The installation continues



Thousands take part in hunting events on Camp Ripley annually. The NRC program manages hunting events for Disabled American Veterans, youth, and deployed soldiers. The annual public archery deer hunt is one of the largest such hunts in the U.S.

to assist with the planning and coordination to complete the Camp Ripley Veterans State Trail, a multi-use recreational trail spanning several properties. When complete, the full trail will stretch 391 miles, making it the longest multi-use paved trail in the world.

In other outreach and education activities, the NRC program hosts an annual water festival for approximately 500 sixth graders in Morrison County and sponsors scout troops in environmental merit projects. Higher education opportunities are created through the NRC internship and volunteer programs, through which students gain invaluable field experience. SCSU and CLC are the primary academic partners in conducting animal monitoring/studies, water quality monitoring and invasive species management. These partnerships simultaneously benefit students in their education, provide Camp Ripley with quality data supporting the military mission and contribute to the quality of knowledge in the environmental fields.