



AVIAN

KNOWLEDGE NETWORK



DEPARTMENT OF DEFENSE AVIAN KNOWLEDGE NETWORK PROGRAM

Annual Report
2023

<https://www.dodakn.org>



Point Blue
Conservation
Science



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CY2023 Funding for this Program was provided by the Department of Defense Legacy Resource Management Program and the Department of Air Force, Marine Corps, Navy and Army National Guard

EXECUTIVE SUMMARY

The Avian Knowledge Network (AKN) provides centralized, secure, and standardized approaches to collect, analyze, and utilize bird monitoring data, enhancing compliance with regulatory requirements while supporting the military mission and advancing avian conservation across the Department of Defense (DOD). The DOD AKN Program Team (Program Team) is tasked with developing a set of priority upgrades and enhancements for the AKN to improve the use of avian data to support the conservation of birds and their habitats across DOD.

Key achievements in calendar year (CY) 2023 include:

- **Expanded Adoption and Use:** The number of installations engaged in AKN Projects increased from 33 to 93 (nearly 300% increase), with data records growing from approximately 267,000 to 700,000 (260% increase).
- **Training and Installation Support:** Seven training sessions were conducted in 2023, reaching 127 participants from 72 installations and DOD partner organizations. Additionally, monthly "Office Hours" provided over 80 one-on-one support appointments to 56 installations.
- **Mission-Sensitive Species (MSS) Initiative:** The Program Team has identified a process for consolidating historical data, identifying commonly used field methods, making recommendations for future monitoring and associated data management solutions, and setting up and developing decision support tools for MSS. In 2023, the Program Team reviewed and developed standardized monitoring methodologies and AKN data entry Protocols for species like Pinyon Jay, Burrowing Owl, and Northern Bobwhite.
- **DOD AKN Portal Enhancements:** The Program Team made improvements to the user resources on the DOD AKN Portal (www.dodakn.org) including a MSS Resource Page, a comprehensive User Guide, and standardized sampling methods. Google Analytics was added to optimize Portal use.
- **Program Enterprise Functionality:** The Program Team prototyped Program Enterprise capabilities across AKN tools to analyze data across installations and programmatic levels, such as summarizing species trends by Service branch.
- **Rapid Avian Information Locator (RAIL):** In 2023, the RAIL tool was updated with the latest conservation status data and species profile information from the Avian Conservation Assessment Database for shorebirds and waterbirds.
- **Contractor Role Development:** The Program Team worked to enhance system flexibility by creating new user roles, allowing contractors to manage data entry and quality assurance securely. New user roles should be available by early 2025.

Looking ahead, the Program will continue to provide consistent data and methodological support for installations, refine MSS monitoring field methodologies and explore MSS partnerships, expand Program Enterprise tools for broader data analysis, advance Air Force Geospatial Information System (GIS) and US Department of Agriculture Wildlife Services (USDA-WS) Bird Aircraft Strike Hazard (BASH) data integration efforts, and provide six additional training sessions in 2024.

The DOD AKN Program exemplifies DOD's leadership in natural resource stewardship and bird conservation. By standardizing avian data management and fostering collaborative partnerships, the Program supports informed decision-making, ensuring the resilience of military operations and the preservation of avian biodiversity for years to come.



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*Photo, front page: Blue Grosbeak, Salton Sea, CA; Credit: C VanTassel
Photo: Royal Terns, Dam Neck Annex; Credit: Paul Block*



Photo: Ruby-throated Hummingbird, El Salvador; Credit: Paul Block

INTRODUCTION

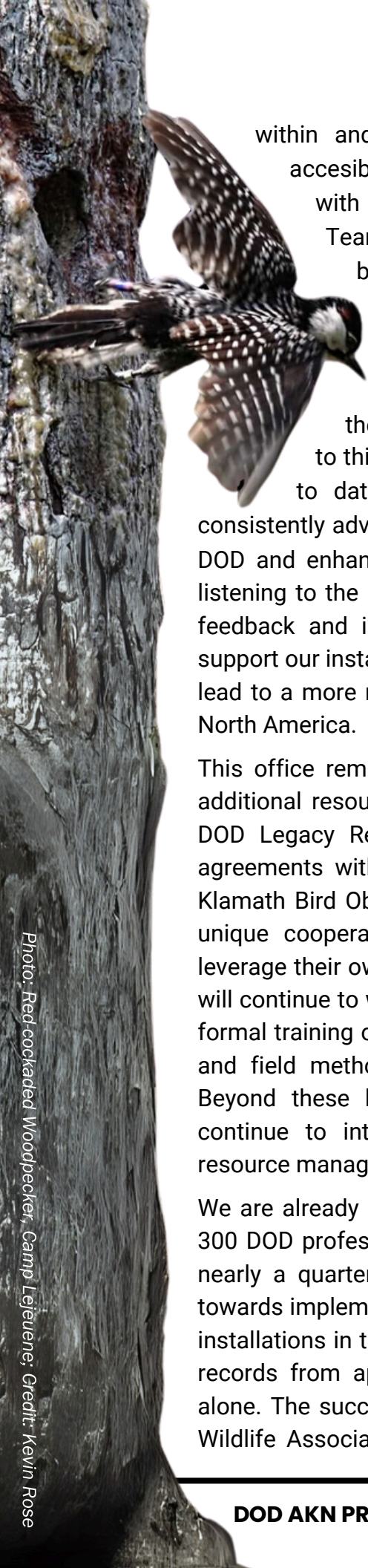
At such a critical time for bird conservation, I'm honored to be able to say a few words about the Avian Knowledge Network (AKN) – not just a rapidly evolving tool to manage our avian data but a new approach entirely.

As many of you know firsthand, the Department of Defense (DOD) plays a significant role in the conservation of migratory birds. The loss of more than 3 billion birds across North America over the past half-century is a stark reminder that now, more than ever, we must understand and effectively manage our natural resources to ensure the longevity of our mission and our environment. But how can we manage what we don't measure?

This is not to say DOD natural resource managers haven't conducted ample studies, inventories, and surveys over the years. This invaluable information should enable the very best data-informed decision-making for DOD actions that benefit both military operations and bird conservation. But the reality is, without a systematic, consistent, or comprehensive approach to collect and analyze these data, we are not maximizing the benefits from these efforts. We are missing opportunities to identify broader population trends across installations and species' ranges or visualize the complex effects of management actions to demonstrate DOD's excellent stewardship accomplishments.

The AKN is enabling DOD to break away from that status quo. As a standard solution across the organization, the AKN is transforming how the DOD collects, manages, analyzes, and uses avian data. Availability of standard protocols enables data collection to move ahead with a consistent approach and purpose. This systematic approach then enables DOD natural resource managers to use their data to understand and predict the effects of their management actions not only at their installations, but across DOD installations and the broader landscape. It simultaneously allows leadership data visibility so that they can understand the value of their natural resource investment and actions

**"THE AKN IS
TRANSFORMING
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USES AVIAN DATA."**



within and across Service branches and DOD wide. With a centralized, accessible data solution, DOD is also more efficiently integrating our efforts with other stakeholders. Thanks to the efforts of the DOD AKN Program Team, implementation of the AKN has been a collaborative effort between the DOD and over 65 partner organizations. This process continues to evolve with the DOD AKN Program Team consistently incorporating feedback and making improvements.

I'd like to specifically recognize Liz Neipert, Program Director of the DOD AKN Program Team. Her ongoing persistence and dedication to this work on behalf of DOD has ensured the major success of the AKN to date. As chair of the national AKN Steering Committee, Liz has consistently advocated for critical changes and integrated approaches to best serve DOD and enhance our relationships with our avian partners. She is dedicated to listening to the needs of DOD natural resource managers, working to address their feedback and integrating new tools and functionalities into the AKN that best support our installations and across the broader AKN community. Ultimately, this will lead to a more resilient AKN system and more effective avian conservation across North America.

This office remains committed and focused on providing guidance, support, and additional resources in order to facilitate the full implementation of the AKN. The DOD Legacy Resource Management Program is funding long-term cooperative agreements with our external partners, Point Blue Conservation Science and the Klamath Bird Observatory. All of the Military Services have taken advantage of the unique cooperative agreements that allow Military Services or installations to leverage their own funding in collaboration with ours. Together with our partners we will continue to work towards full implementation of the AKN, including coordinating formal training opportunities, providing technical support, promoting data standards and field methods, and developing a wide array of standard survey protocols. Beyond these baseline support operations, the DOD AKN Program Team will continue to interface with Military Service leadership and installation natural resource managers and implement constant program improvements.

We are already seeing positive outcomes from the adoption of the AKN. Well over 300 DOD professionals have received training as of July 2024. At the end of 2023, nearly a quarter of all installations had active AKN Projects, leading the charge towards implementation compliance. We have increased the number of "Projects" or installations in the AKN from 33 to 93 (near 300% increase) and the number of data records from approximately 267,000 to nearly 700,000 (260% increase) in 2023 alone. The success of this strategy is clear: at the 2024 National Military Fish and Wildlife Association (NMFWA) Annual Training Workshop, the DOD AKN Program

Team held a panel session that included representation from each of the Military Services all voicing support for the adoption of the AKN as the data standard and appreciation at how using the AKN is making installation natural resource manager's lives easier.

In an organization as large and complex as the DOD, this major transformation will certainly encounter challenges and require constant adjustment. As the implementation of the AKN progresses, the DOD AKN Program Team will continue to address these emerging challenges and apply lessons learned for consistent improvements. Despite the complexity and challenge with this transition, I am impressed and encouraged by the consistent level of buy-in from the Military Services and installation staff and look forward to more progress into the next year. As always, this office and the DOD AKN Program Team remain committed to learning, adapting, and providing constant support through this transition.

I am further encouraged in talking to other Federal Agency partners and hearing how DOD is a leader in AKN and bird conservation efforts. Spearheading the AKN effort will positively impact DOD partnerships and our relationships with stakeholders. Our role as a frontrunner in the AKN effort demonstrates that DOD is willing to lead by example, making the investments and putting in the work for effective bird conservation. Our organization's focus on the integration of the AKN extend beyond our program and beyond the DOD itself to support avian conservation on a larger scale and is a true testament to DOD's commitment to the stewardship of our natural heritage.

As the scale, pace, and complexity of the DOD's mission needs and as conservation challenges continue to evolve, our response as natural resource managers and ability to measure what matters must likewise evolve. Our ability to respond at the speed of relevancy and adapt to an unknown future can only be effective if we have the right tools in place to guide effective action. The AKN is one of those tools. I look forward to the positive outcomes it will bring to our program and to the conservation of migratory birds in the next year and the years to come.

Ryan Orndorff

Director, Environmental Planning & Conservation
Office of the Deputy Assistant Secretary of Defense
(Environment and Energy Resilience)
Office of the Assistant Secretary of Defense
(Energy, Installations, and Environment)



THE AVIAN KNOWLEDGE NETWORK

The AKN's mission is to support a network of partnerships, data, and technology to improve bird conservation, management, and research across organizational boundaries and spatial scales. The AKN envisions a world where bird populations thrive through conservation and management informed by a network of avian knowledge.

Partnerships

The AKN community understands that collective efforts produce more insightful data and lead to more impactful analyses than individual work. While members may manage specific jurisdictions or sites, the species and habitats targeted for conservation are interconnected, often spanning vast landscapes. Through partnerships among non-profit organizations, academic researchers, and federal, state, and local land management agencies, the AKN leverages the unique strengths of each partner. This collaboration ensures that conservation actions are based on robust data and are sustainable over time.

Data

The AKN supports a growing variety of data types and structures in support of the priority database needs of community members. The system is designed to curate the information describing the data as well as the observation data itself so that it can be appropriately used by partners today and in future applications. By supporting a variety of data types and structures, the AKN is able to support a broad range of research and management needs while also providing a resource for those looking for guidance when designing new data collection efforts.

Technology

The AKN is powered by cloud-based technology that supports safe, secure, high-fidelity data curation that lives beyond the terms of individuals. The system ensures that the data entered meets specific standards and makes the data discoverable by community partners. In addition to meeting data curation needs, the AKN provides support for analytics through built in tools that produce simple data summaries and graphics. The system is Federal Risk and Authorization Management Program (FedRAMP) authorized, certification of industry best security standards, ensuring that data entered is secure and that users can safely interact with the system and its outputs.



AKN History

The AKN was formed in 2002 during the Third International Partners in Flight (PIF) Conference at Asilomar, California. At that meeting, PIF prioritized consolidating the millions of bird monitoring data records that had been collected to apply PIF conservation strategies, because the existing data were stored in idiosyncratic ways across many different platforms, making comparisons and interpretation at meaningful scales all but impossible.

With initial funding from the National Science Foundation, Point Blue Conservation Science (Point Blue), Cornell Lab of Ornithology, Bird Studies Canada, and Klamath Bird Observatory (KBO), in partnership with dozens of agency and Non-Governmental Organization (NGO) collaborators, began to lay the foundation slowly and deliberately for the AKN. The AKN now represents a collaborative effort among hundreds of land-management agencies, scientists, resource managers, and other stakeholders who are leveraging data, information, and partnerships to revolutionize avian conservation.

More recently, the Council for Conservation for Migratory Birds (CCMB) identified the AKN as an already existing and growing data management solution and decision support system, and the Council agencies (32 federal agencies with migratory bird responsibilities) committed funding and in-kind support towards further building AKN capacities. The Council agencies' support ensures federal agencies and their constituents have access to the best available science to help implement informed bird conservation actions and comply with bird conservation laws.

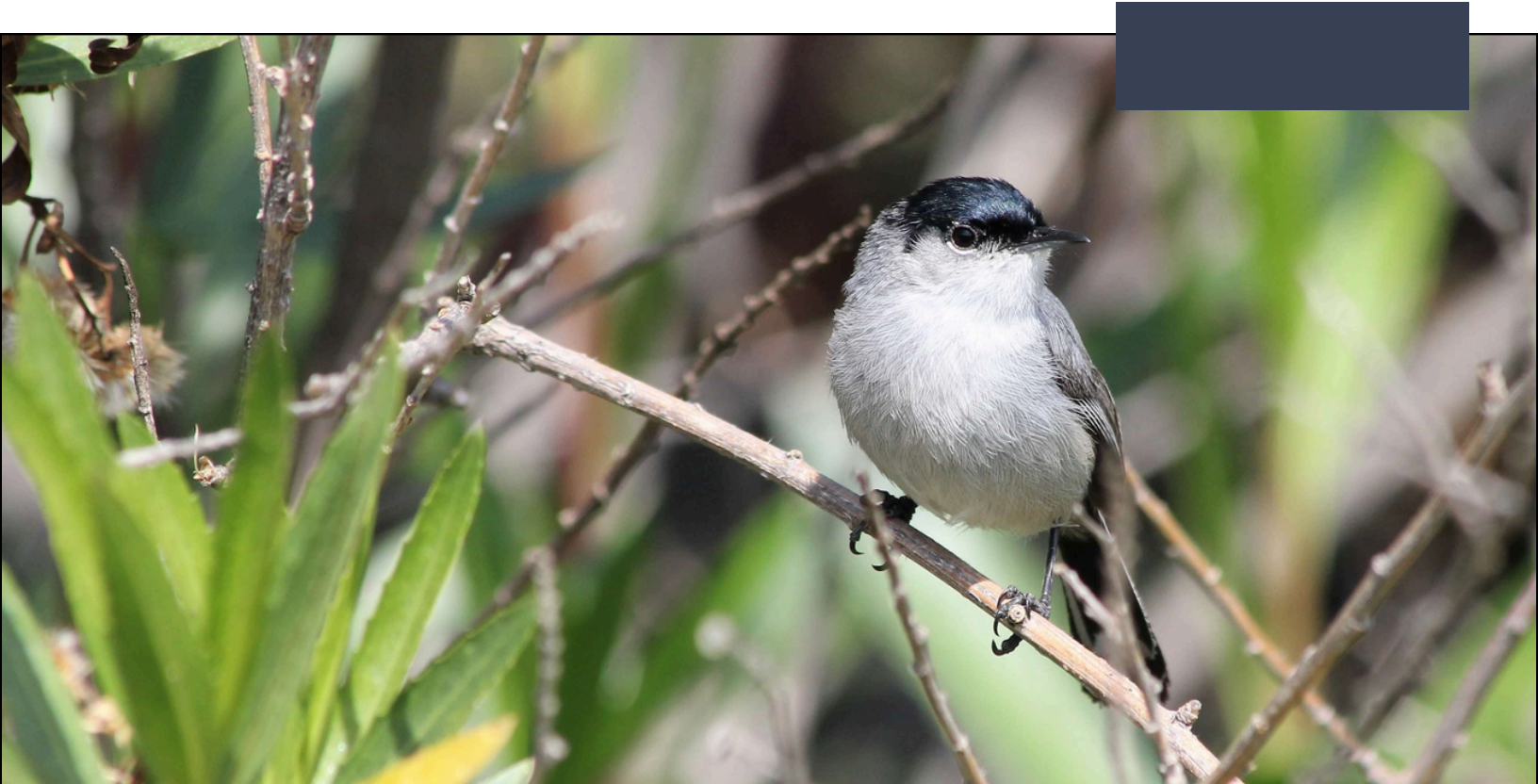


Photo: California Gnatcatcher, Defense Fuel Support Point, San Pedro, CA; Credit: Bob Schallmann



THE DOD AKN PROGRAM

The DOD invests millions of dollars annually across all Military Services on avian surveys to meet regulatory requirements and support the military mission. However, these data are rarely used to their full potential. In 2016, DOD became a pioneering partner in the AKN, recognizing that better access and use of data could assist with National Environmental Policy Act reviews and to assess the impacts of military readiness and non-readiness activities on migratory birds under the Migratory Bird Treaty Act and the “Readiness” Rule. DOD recognized the AKN as a solution for addressing obstacles to optimizing its avian data, including:

1. Inefficient access to data for regulatory compliance, environmental analyses, and planning;
2. A lack of visibility into avian species population trends and management across the Services and broader landscapes; and
3. The lack of a centralized, secure data repository, which could result in critical data loss during personnel turnover.

Initial Involvement (<2020)

Initial funding from the DOD Legacy Program allowed DOD to build on the existing AKN structures to address these data challenges. This support enabled DOD to archive, upload, access, and use the extensive avian monitoring data within the AKN.

In 2016, as a member of the CCMB, DOD partnered with other federal agencies, including the U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management, National Park Service, US Forest Service, Bureau of Ocean Energy Management, and Federal Highway Administration to create a “National Node” of the AKN. Through the Council’s “National Node” project, these agencies gained access data aggregation solutions and new decision-support tools available within the AKN.

By leveraging these federal agency resources, DOD began utilizing the AKN for all supported avian data collected on DOD lands. From planning-level surveys to annual monitoring projects, the full potential of these data can be unlocked, helping inform decisions on species health, population trends, specific stressors, and conservation measures and management actions on the species contained therein providing a dual benefit to bird conservation and mission readiness.

Initial Involvement (<2020) cont.

Following the initial Legacy-funded project to support DOD's involvement in the AKN, a DOD AKN Program Team (Program Team) was formed. The Program Team hosted its first training session at NMFWA's Annual Meeting and Training Workshop in March 2020. The success of this training highlighted the value of the AKN to DOD installation natural resources personnel and DOD leadership.

Subsequent briefings to Military Service leadership and the Office of the Secretary of Defense (OSD) garnered further support and endorsement for DOD's use of the AKN. Throughout Program development, the Program Director listened to the complex and specific needs of DOD natural resource managers throughout the Military Services and worked to integrate the tools and functionality into plans for the system to best support DOD installations. These briefings and integrated planning resulted in the establishment of funding to organize and manage the DOD AKN Program, which now oversees DOD's involvement with the AKN and the prioritization of additional tasks and tools to empower historical, present, and future avian data for DOD use.

Formation of the DOD AKN Program (2020)

In 2020, the Program Team developed a set of priority upgrades and enhancements for the AKN to improve the use of avian data to support the conservation of birds and their habitats across the United States. In response to the priorities, DOD, Point Blue, and KBO entered into a long-term cooperative agreement to establish a coordinated and comprehensive approach for DOD's participation and leadership in the AKN.

This long-term cooperative agreement, implemented between OSD and project partners, was designed to: (a) provide baseline funding from the DOD Legacy Program and (b) create a mechanism for channeling additional funding from the Military Services or individual installations to DOD AKN Program partners. This structure allows for oversight of all DOD AKN Program actions, facilitates cost-share actions, and enables the Military Services and installations to leverage smaller amounts of funding towards a broader effort. Specifically, this cooperative agreement provides funding for training, DOD-specific tools, data Initiatives, AKN tools, and ongoing system maintenance.

Photo: Henslow's Sparrow, Ft Drum, NY; Credit: Jeff Bolsinger

Modern DOD AKN Program (>2020)

In June 2022, OSD issued a policy memo requiring all DOD Components across all Military Services to use the AKN for their avian data management to the maximum extent practicable. As a result, significant progress has been made in the first three years of the cooperative agreement. The Program Team developed and improved both in-person and virtual trainings, increasing the capacity of DOD personnel to use the AKN effectively for their data management needs. A series of training videos was also created to supplement these trainings.

After DOD personnel attend trainings, the Program Team began meeting with DOD personnel who needed further assistance in getting started with the AKN. Monthly “Office Hours” were established, providing DOD personnel with one-on-one time with the entire Program Team to discuss their specific avian data needs. “Office Hours” appointments have allowed the Program Team to provide direct support and guidance on incorporating historic data and improving methodologies used for ongoing and future survey efforts.

The Program Team’s support of DOD personnel has also expanded beyond directly supporting data collection and management. Guidance has been provided to DOD staff involved in hiring contractors and collaborators to support their avian data collection and management needs in ways that align with the use of the AKN. Additionally, the Program Team has worked with subject matter experts to establish best practices for monitoring the status of Mission-Sensitive Species (MSS) – species that could impact the military mission if their populations were listed under the Endangered Species Act.

Efforts have also focused on developing the tools and system enhancements most needed to support DOD’s avian data management needs. The Program Team began developing a Program Enterprise functionality that is transforming the AKN’s capabilities and how it is used. Additionally, the DOD AKN Portal was created – a dedicated website providing DOD personnel with access to AKN tools and DOD-specific news and resources.



The Future of the DOD AKN Program and DOD Bird Conservation

The implementation of the AKN is transforming how DOD manages avian data, marking a critical shift in bird conservation efforts. By adopting a standardized approach across installations, DOD can now track broader population trends, assess the impacts of management actions and improve data-informed decision-making. This centralized system not only enhances regulatory compliance but also demonstrates DOD's leadership in natural resource stewardship. With strong collaboration between DOD, its project partners, and over 65 organizations, the AKN is enabling more efficient conservation efforts and strengthening partnerships beyond DOD.

As the AKN evolves, it continues to support DOD's dual objectives of mission readiness and environmental conservation. DOD's role in spearheading the use of the AKN highlights its commitment to innovative conservation strategies, ensuring that both natural resource management and military operations benefit from the insights this system provides. The success of the AKN to date underscores the DOD's leadership in bird conservation, serving as a model for other agencies and partners.



OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3400 DEFENSE PENTAGON
WASHINGTON, DC 20301-3400

MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY OF THE ARMY
(ENVIRONMENT, SAFETY AND OCCUPATIONAL HEALTH)
DEPUTY ASSISTANT SECRETARY OF THE NAVY
(ENVIRONMENT AND MISSION READINESS)
DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE
(ENVIRONMENT, SAFETY AND INFRASTRUCTURE)

SUBJECT: Department of Defense Avian Knowledge Network Program

The Department of Defense (DoD), like other federal agencies, has significant regulatory, management, and stewardship responsibilities related to migratory birds. These requirements are driven primarily by the Migratory Bird Treaty Act (MBTA), the "Military Readiness Rule" (50 CFR § 21.15, Authorization of take incidental to military readiness activities) and Executive Order (EO) 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds." In accordance with EO 13186, DoD has also established a Memorandum of Understanding with the U.S. Fish and Wildlife Service outlining the management and stewardship activities DoD will implement for migratory bird conservation. All DoD natural resources conservation programs support DoD access to its land, air, and water resources for realistic military training and testing and to sustain the long-term ecological integrity of the resource base and the ecosystem services it provides, in accordance with the Sikes Act. Collecting data and information from ongoing surveys, inventories, and monitoring are essential to make informed management decisions, efficiently and effectively meet regulatory requirements (e.g., the MBTA, the Sikes Act), conduct environmental analyses, and support planning to adaptively manage migratory bird populations in the context of mission activities. As such, the DoD spends millions of dollars annually to collect these data.

However, even with the collection of large amounts of data, DoD faces significant challenges to fully utilize and optimize our avian data. These challenges include: (1) inefficient access to data for regulatory requirements, environmental analyses, and planning; (2) a lack of visibility on avian species population trends and management across the Military Services and broader landscapes; and (3) a lack of a centralized, secure data repository resulting in data loss during personnel turnover.

To address these challenges, DoD began partnering with other federal agencies (i.e., U.S. Fish and Wildlife Service, Bureau of Land Management, U.S. Forest Service) in the development of the Avian Knowledge Network (AKN) in 2016. The AKN is a national clearinghouse for avian data and decision support tool for assessing bird population health, status and trends, specific stressors, and conservation measures. The AKN connects partner datasets, includes metadata and data assumptions, contains powerful data analysis tools, and is a permanent archive of all data records.

This office fully endorses the use of AKN and requests that each DoD Component utilize to the maximum extent practicable and provide staff the support needed to make AKN the tool for DoD. A coordinated and comprehensive approach to implement DoD's participation in the AKN will directly support the military mission and improve the quality and timeliness of bird conservation on DoD installations. For DoD to fully employ the power of user training and significant initial data management is required. This office, through the Legacy Resource Management Program, is committed to providing baseline support and resources to help implement AKN. This support will provide training and education for personnel, and technical assistance related to system use and data management. The DoD AKN coordinator is Ms. Elizabeth Neipert, at elizabeth.s.neipert@erdc.dren.mil or 907-201-6244.

Additionally, a national Cooperative Agreement has been established to support AKN implementation. It provides a streamlined process for DoD Components and installations to contribute additional resources to meet their unique needs.

The point of contact for this office is Ms. Liz Galli-Noble, DoD Senior Natural Resources Program Manager and Legacy Resource Management Program Manager, elizabeth.j.galli-civ@mail.mil or 406-581-8148

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Richard G. Kidd IV
Deputy Assistant Secretary of Defense
(Environment and Energy Resilience)

**JUNE 2022 OSD AKN
MANDATE MEMO**

DOD AKN PROGRAM - 2023 UPDATES

The DOD AKN Program continues to refine and implement tools in the AKN system designed to standardize and enhance the collection, management, and use of avian data across DOD installations. These efforts aim to streamline data reporting, improve data consistency, and ensure that avian survey data can be effectively used to inform conservation efforts and management decisions. Additionally, the Program strategically implements data initiatives based on the priorities provided in the strategic five-year plan. The following section summarizes key updates and initiatives led by the Program Team specifically for DOD users during calendar year (CY) 2023.

OSD and Military Service Actions and Support

The DOD AKN Program is a close collaboration within DOD between the OSD Natural Resources Program and the Military Services. OSD provides base funding for DOD AKN partners, covering project coordination, technical support, installation consulting, “Office Hours” data support, regional trainings, and annual support for the Point Blue Science Cloud. It also funds the development of standardized MSS monitoring methodologies and AKN data entry Protocols (e.g., Pinyon Jay), the DOD AKN Portal, enterprise support for Programs, new system user roles, and additional DOD data standards.

Additionally, each Military Service funds tasks that provide support for overall DOD efforts as well as Service-specific actions. Specific actions performed for each Military Service in calendar year 2023 are included below:

¹FY = Federal Fiscal Year; Q = Federal Quarter



- Developed funding options to support priority AKN tools, training, and data efforts, including: ten priority datasets, MSS data, USDA Bird Aircraft Strike Hazard data and GIS workflows.
- Provided support for two Air Force virtual trainings (FY23 Q2¹ and FY24 Q1).



- Engaged in discussions to identify Army's priorities for data support and training needs, working towards finalizing a 5-year DOD AKN support plan.



- Created informational slides for the Army National Guard's Annual Training in Little Rock, AR.
- Provided support for an Army National Guard training at UTARNG's Rees Training Center (FY23 Q3). Article highlighting the training [HERE](#).



- Drafted 5-year DOD AKN support plan.
- Provided support for AKN Program Enterprise, MSS query tool and Contractor Role.
- Provided support for a Marine Corps training – occurred in FY24 Q2 at MCB Hawaii.



- Sent and compiled Data Discovery and Training Survey
- Created a step-by-step DOD AKN User Guide
- Created Scope of Work language for contractors with review and approval from DOD leadership
- Hosted DOD AKN Training (FY23 Q4)



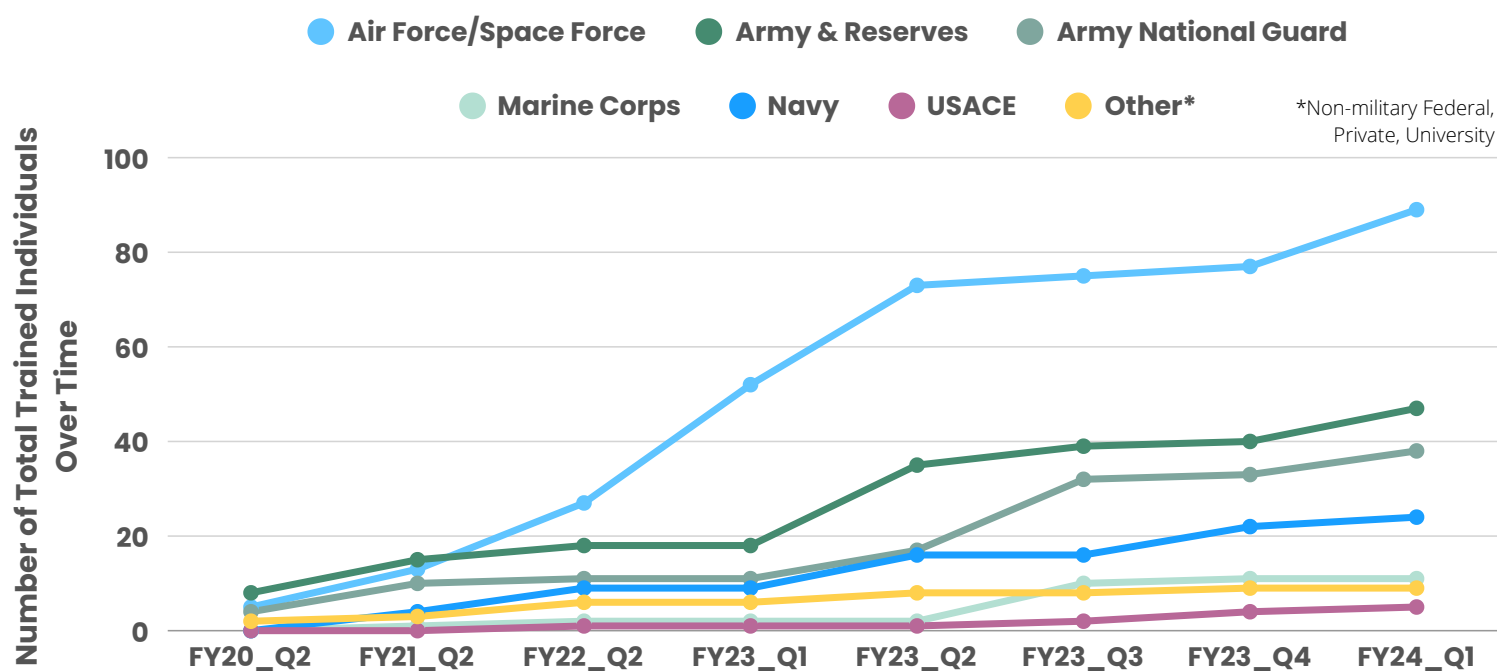
DOD AKN Training

In 2023, the Program Team provided seven trainings sponsored by the Legacy Program, Air Force, and Army National Guard.

Federal Quarter	Host Installation	Training Format	Number of Participants
FY 23 Q2	White Sands Missile Range, NM	Three-day, in-person	13
FY 23 Q2	Air Force, Virtual	Two-day virtual	15
FY 23 Q2	NMFWA, St. Louis, MO	One-day, in-person	25
FY 23 Q3	Camp Lejeune, NC	Three-day, in-person	10
FY 23 Q3	Rees Training Center, OR	Three-day, in-person	20
FY 23 Q4	Naval Base Kitsap, WA	Three-day, in-person	14
FY 24 Q1	Air Force, Virtual	Two-day virtual	27

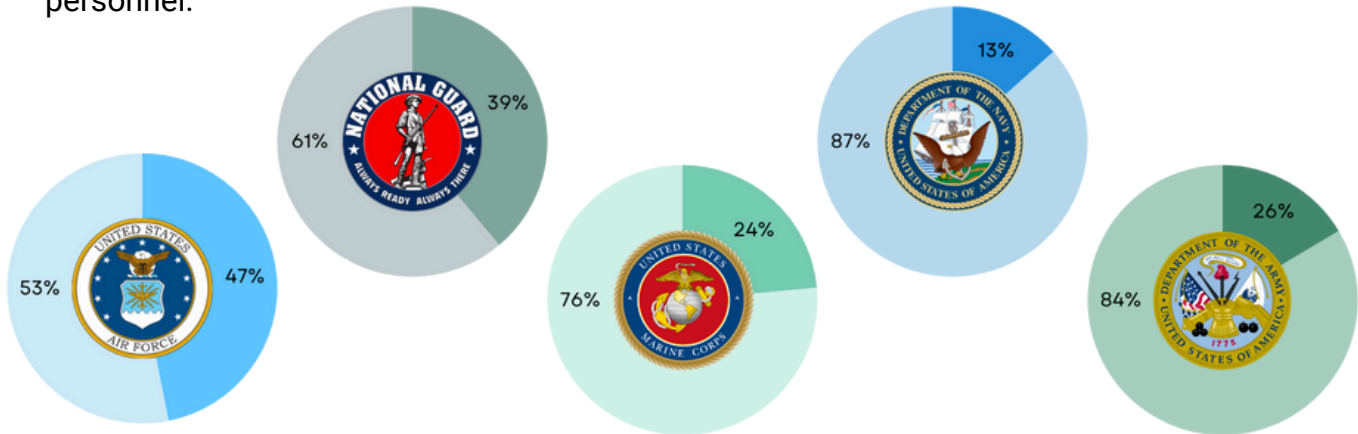


A total of 127 individuals were trained representing 72 different installations from every Military Service as well as biologists from non-military federal and state agencies, US Army Corps of Engineers (USACE), private consulting firms and universities that support work on military installations.



DOD AKN Training cont.

By the end of 2023, 27% of all installations across all Services had at least one trained personnel.



Total Number of Installations: 146 Army, 82 Navy, 96 Air Force, 17 Marine Corps, 54 National Guard states/territories

Dark colors - Installations with
≥1 Trained Staff

Light colors - Installations
without Trained Staff

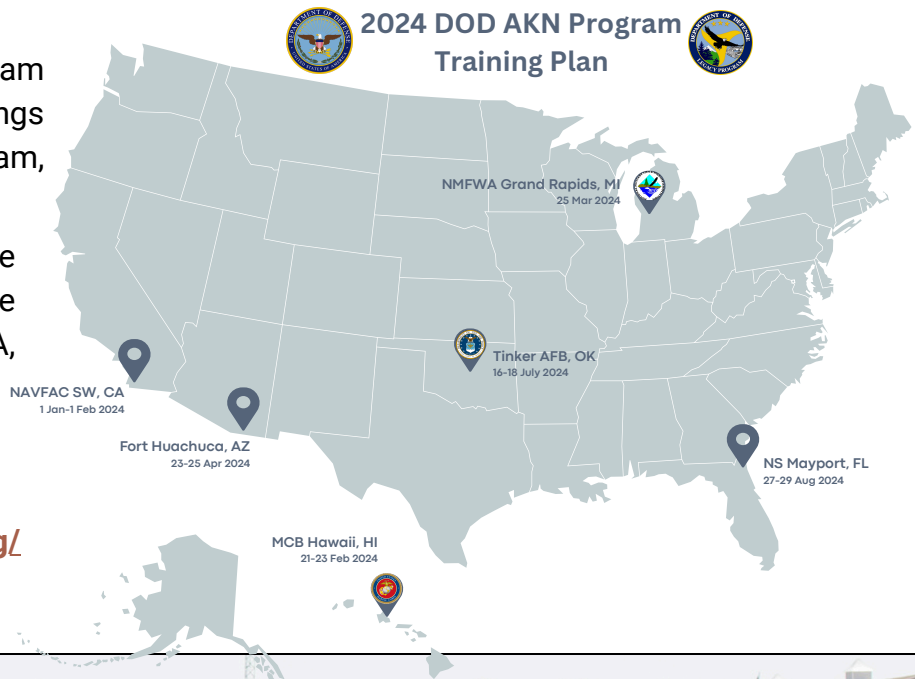
2024 DOD AKN Training Plan

In calendar year 2024, the Program Team will provide six trainings sponsored by the Legacy Program, Marine Corps, and Air Force.

The trainings will primarily be the three-day in-person format with the exception of the training at NMFWA, which will be in a one-day format.

Training opportunities are posted to the DOD AKN Portal:

<https://www.dodakn.org/get-training/>

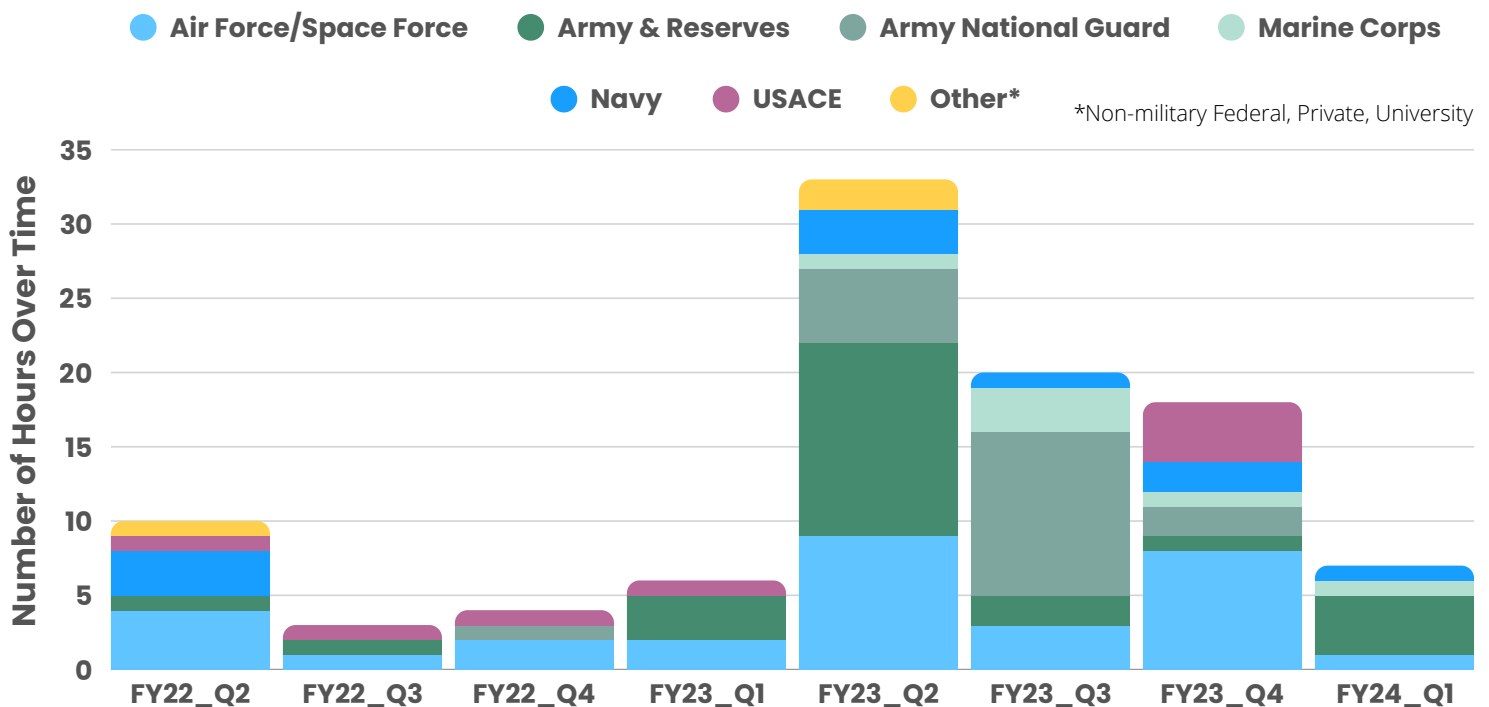


Data Support for Installations

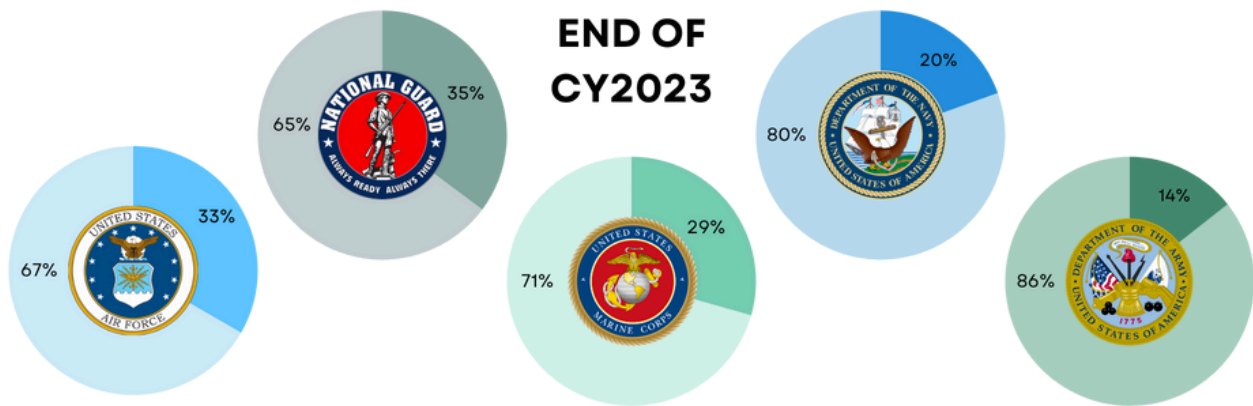
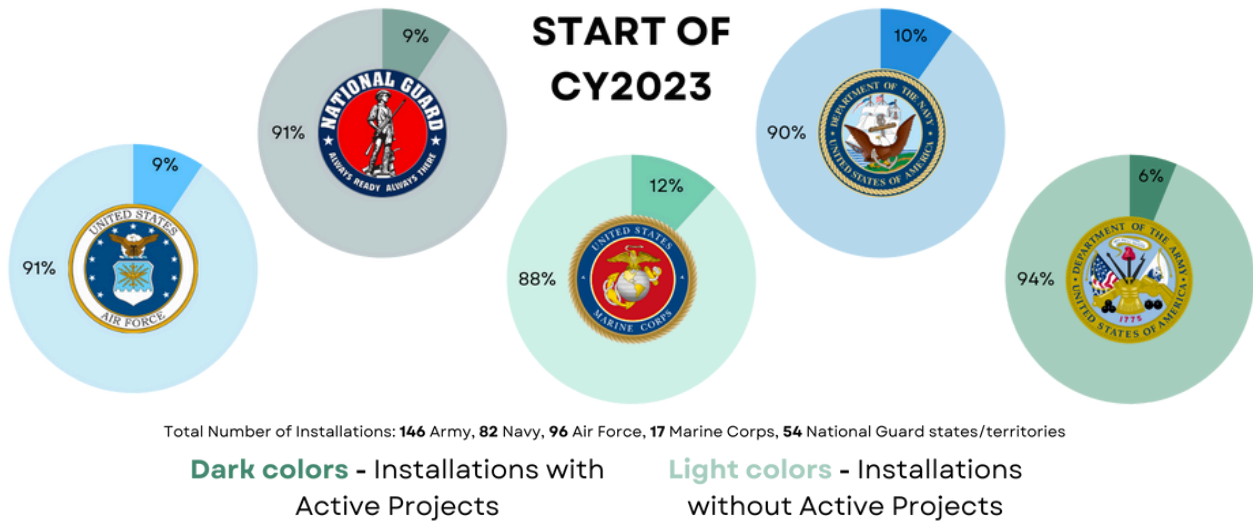
The Program Team provides a dedicated data support service called “Office Hours,” offering installation staff a unique opportunity for one-on-one appointments to meet with the entire Program Team. Held monthly since mid-2022, Office Hours appointments allow DOD personnel to discuss specific data needs and gain direct support for integrating avian datasets into the AKN. Additionally, these sessions are available in person during in-person trainings and during the NMFWA Annual Training Workshop, expanding accessibility to this valuable resource.

Office Hours cover a range of topics based on installation needs. Some sessions address straightforward technical questions, such as adding new users to AKN Projects, while others involve more complex discussions, such as customizing data collection to align with installation-specific conservation and management objectives. Scheduled through the DOD AKN Portal, each session features support from representatives of all three Program Team entities - U.S. Army Engineer Research and Development Center’s (ERDC), KBO, and Point Blue - ensuring comprehensive expertise on topics from DOD mission objectives and avian monitoring methodologies to database structure and functionality.

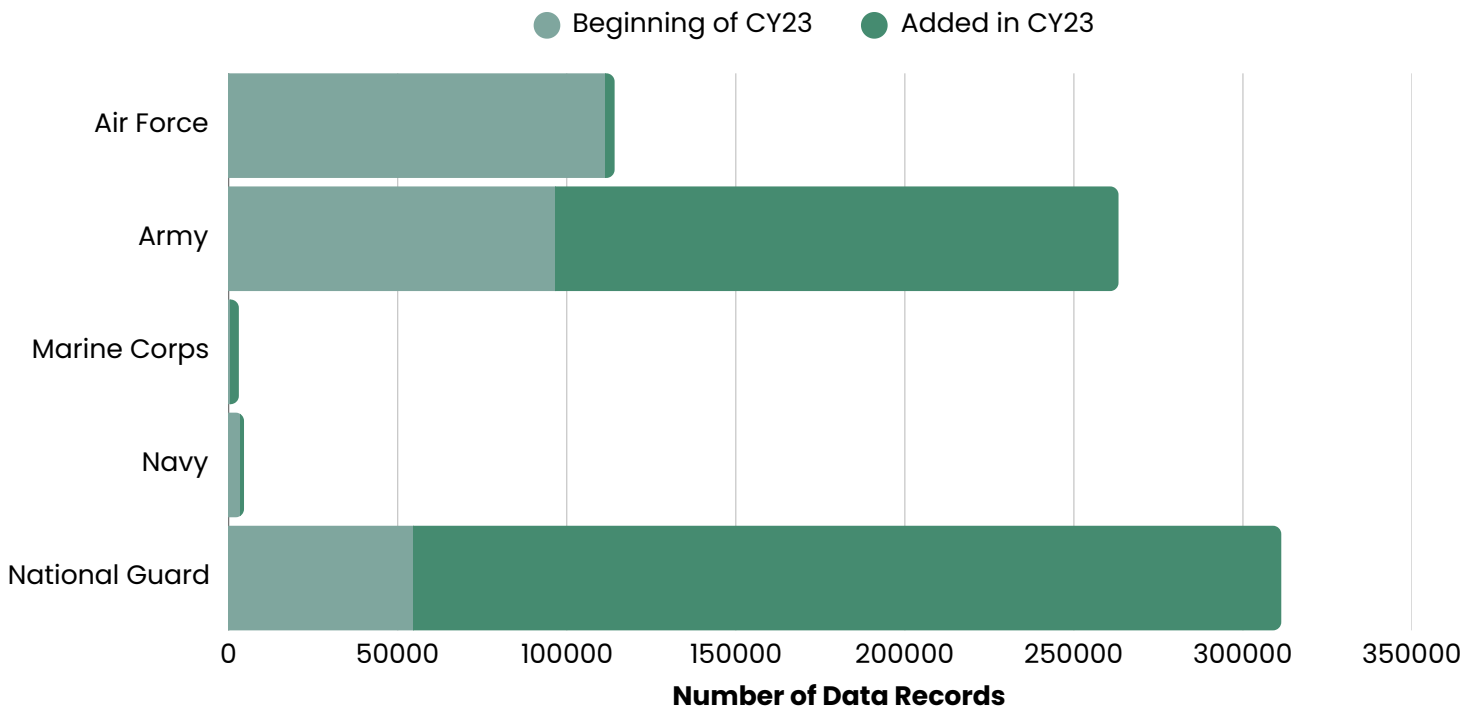
In 2023, the Program Team offered 242 hours of Office Hours opportunities with over 80 appointments filled, assisting installation biologists, natural resource managers, and contractors from 56 different installations. Nearly all Military Services were represented, including the Air Force, Space Force, Army, Army National Guard, Navy, Marine Corps, USACE, and along with one private DOD contractor from Colorado State University’s Center for Environmental Management of Military Lands (CEMML).



DOD Data Progress



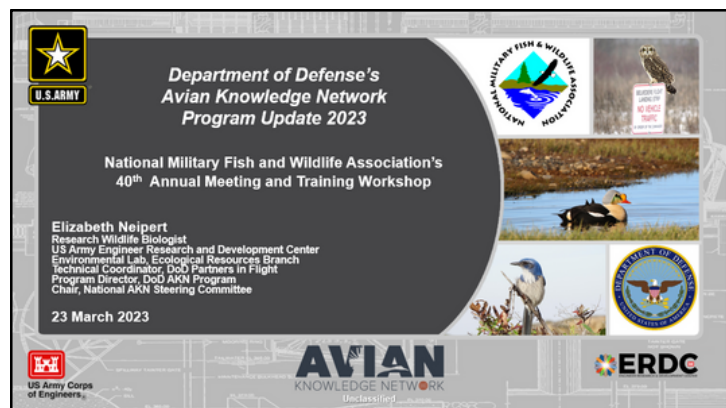
Data Records by Service



Communication - Presentations

In 2023, the DOD AKN Program Director and Program Team delivered 11 presentations to various audiences including DOD leadership, DOD installation personnel, International and DOD PIF, USFWS, policymakers, and US Environmental Protection Agency (EPA).

- **21 Mar 2023** – *Avian Knowledge Network for Avian Conservation Partnerships*, Association of Fish and Wildlife Agency's Bird Conservation Committee at the North American Wildlife and Natural Resources Conference in St. Louis, MO. Presented to state and federal partners.
- **23 Mar 2023** – *DOD Avian Knowledge Network Program Update and Implementation Panel Discussion*, National Military Fish and Wildlife Association's Annual Meeting and Training Workshop, St. Louis, MO. Presentation highlighted the advancements made in the last year and laid out plans for the coming year including new tools and training. Implementation Panel Discussion included leadership from the Office of Secretary of Defense, each of the Military Services (R. Orndorff, K. Meyer, A. Dickson, T. Mayes, B. Moyer, & J Rice) and the Program Team; answered questions about the AKN, its implementation and Military Service support & plans.
- **28 July 2023** – *Avian Knowledge Network Update*. Point Blue Management Team Meeting. Sam Veloz and Elizabeth Neipert.
- **23 August 2023** – *DOD AKN Program Update 2023*. DOD PIF Meeting, Fort Carson, CO. Presented by Elizabeth Neipert.
- **12 September 2023** – *Colonial Waterbird Database Structure within the Avian Knowledge Network*. USFWS Atlantic Flyway Migratory Bird Technical Session. Presented by John Alexander, Ruth Boettcher, and Caitlyn Gillespie.
- **12 September 2023** – *Avian Knowledge Network Update*. USFWS Atlantic Flyway Migratory Bird Technical Session. Presented by Meghan Sadlowski (USFWS) and Elizabeth Neipert.
- **15 September 2023** – *Avian Knowledge Network Update*. Nevada PIF Meeting. Presented by Sam Veloz and Elizabeth Neipert.
- **17 October 2023** – *Avian Knowledge Network Support for US Fish and Wildlife Service Refuges*. Meeting with all USFWS Refuge Chiefs. Presented by Grant Ballard and Sam Veloz.
- **27 October 2023** – *Avian Knowledge Network Support for Federal Agencies*. Meeting with US Representative Jared Huffman, minority leader of the House Committee on Natural Resources. Presented by Sam Veloz and Liz Chamberlin.
- **3 November 2023** – *Using the AKN for Priority Birds*. PIF Western Working Group Meeting. Presented by John Alexander
- **16 November 2023** – *Avian Knowledge Network Update: Recent Advancements and Relevance for Federal/EPA Bird Conservation Priorities*. US EPA. Presented by Megan Sadlowski and Sam Veloz.



DOD-Specific Tools and Initiatives

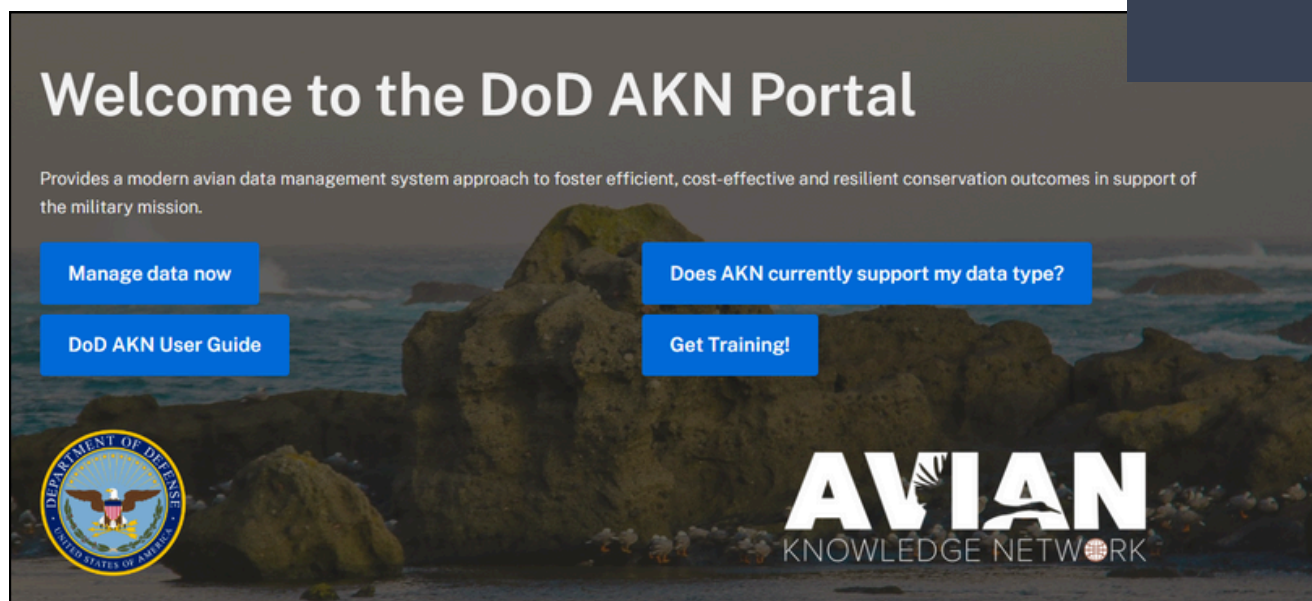
The DOD AKN Program continues to refine and implement tools in the AKN system designed to standardize and enhance the collection, management, and use of avian data across DOD installations. These efforts aim to streamline data reporting, improve data consistency, and ensure that avian survey data can be effectively used to inform conservation efforts and management decisions. Additionally, the Program strategically implements data initiatives based on the priorities provided in the strategic five-year plan.

The following section summarizes key updates and initiatives led by the Program Team specifically for DOD users during calendar year 2023.

DOD AKN Portal

Launched in 2022, the DOD AKN Portal (<https://www.dodakn.org/>) provides a central resource for all things AKN within DOD. This Portal offers a streamlined, modern approach to accessing resources to support efficient, cost-effective, and resilient avian conservation outcomes that align with the military mission.

Through this Portal, DOD staff can easily access all the AKN data management and decision support tools in one place, stay updated on DOD-specific announcements and guidance, and find key documents such as the 2022 OSD memo mandating the use of the AKN for all avian data collected on DOD installations, contract and scope of work language, and resources concerning MSS monitoring. The Portal also serves as the hub for registering for training events, signing up for office hours appointments, and creating a new AKN profile or requesting access to an existing DOD AKN project.



In 2023, the Program Team made several improvements and additions to the DOD AKN Portal, which are described on the following pages.

DOD AKN Portal cont.

Resources - MSS

In 2023, the Program Team developed a MSS Resource Page on the Portal which provides targeted resources for managing and conserving MSS. This page centralizes guidance documents, standardized survey methodologies, and data collection tools specifically developed for MSS monitoring, facilitating consistent data management across DOD installations. It also supports DOD personnel with information on the importance of MSS data in balancing conservation efforts with military readiness and links to additional training materials and data standards essential for avian resource management.

<https://www.dodakn.org/resources/mss/>

Resources - DOD AKN User Guide

The DOD AKN User Guide page on the DOD AKN Portal is a comprehensive resource designed to help DOD personnel and contractors navigate and utilize the AKN for avian data management. It provides step-by-step instructions for accessing and entering avian data, setting up AKN Projects, managing user roles, and generating reports. The guide offers troubleshooting tips and links to additional resources and support ensuring users can fully leverage the data management and decision support tools available in the AKN.

<https://www.dodakn.org/resources/dod-akn-user-guide/>



Throughout this page, you will find helpful tips to guide you as you explore and utilize the Avian Knowledge Network!

Choose your topic of interest from the links below.

Not finding the information you need here? Email the DoD AKN Program Team and DoDAKN@ndc.dren.mil

Getting Started With the AKN

- Setting up an AKN Account
- How to Request Access to Projects

Managing an AKN Project

- Describing Field Methods and Sampling Design
- Creating AKN-Compatible Sampling Units
- Downloading Sampling Units
- Describing Sampling Protocol Definition for AKN-Compatible Projects
- How to Add an Existing AKN Protocol to Your Project

Getting Data Into the AKN

Getting Data Out of the AKN

- Downloading Your Data from Project Leader
- Downloading Warehouse Data from Multiple Projects

Exploring Data in the AKN

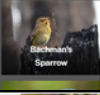
- How to Use the Data Catalog
- How to Use the Observations Map
- How to Use the Rail Tool
- Using the Analyst Tool

AKN Glossary for DoD

DoD Mission-Sensitive Species

DoD Partners in Flight has identified several bird species that occur on DoD installations that have the highest potential to impact the military mission should they become Federally listed under the Endangered Species Act, termed Mission-Sensitive Species (MSS).

The DoD AKN Program is in the process of translating standardized protocols and monitoring guidance into the AKN system for each of these species. Click on the Mission-Sensitive Species of interest below for more information:



Pinyon Jay

The Pinyon Jay (*Gymnorhinus cyanocephalus*) is an obligate bird of pinyon-juniper and other pine-juniper woodlands that has experienced significant population declines and is of increasing conservation concern. Data from the North American Breeding Bird Survey (BBS) suggest that Pinyon Jays have experienced an overall population loss of approximately 83.5% from 1967-2015 and an estimated additional 50% loss from 2016 to 2025 (the so-called population "half-life").

The DoD AKN Program has been working with the [Partners in Flight Pinyon Jay Working Group \(PIWG\)](#) as they finalize the Survey Protocol for Landscape Applications. The PIWG has developed field sampling methods to promote and facilitate the collection of standardized and biologically relevant data about Pinyon Jays across its range.

Are you one of the at least 17 DoD installations that have confirmed Pinyon Jay occurrences? Are you unsure about occurrence but want to start monitoring for the species? See below for recommendations for standardized survey methods to use on your installation.

Survey and Monitoring Methods

Which survey method should I use? Take a look at the table below to compare various survey methods available.

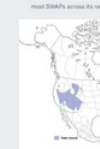
Method Feature	PIWG Area Search Protocol	Road-Based Point Count Protocol
Survey type	Area Search	Point Count
Pedestrian or Road-based	Pedestrian	Road-based
Can be used for rapid assessment of large areas	No	Yes
Suitable for site clearances (i.e., <2500m)	No ¹	No
Sampling Effort	3-4 hours per plot	1 hour per plot (assuming five 6-minute point counts=drive time)
Repeat visits within a	Yes	Yes

¹ The road-based point count survey is a useful method of sampling for Pinyon Jays as an alternative to the PIWG area search survey protocol above where accessibility is limited or road travel is not possible. However, where access is not possible or where access is not needed, the road-based point count survey is not needed.

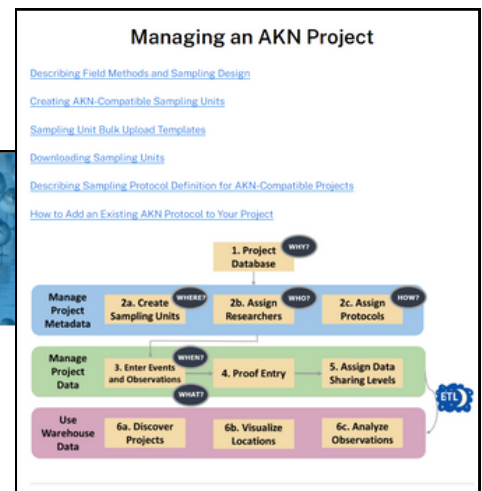
Full Written Survey Protocol & Survey Protocol for Pinyon Jays: [Download Here](#)

Photo Credit: Bob Schellinger

- DoD PIF Mission-Sensitive Species
- PIF Yellow Watch List
- Species of Greatest Conservation Need in most BSMAs across its range



©Cornell University



FIND A GLOSSARY OF AKN TERMS, SUCH AS "SAMPLING UNITS" AND "PROTOCOLS" IN THE AKN USER GUIDE [HERE](#)

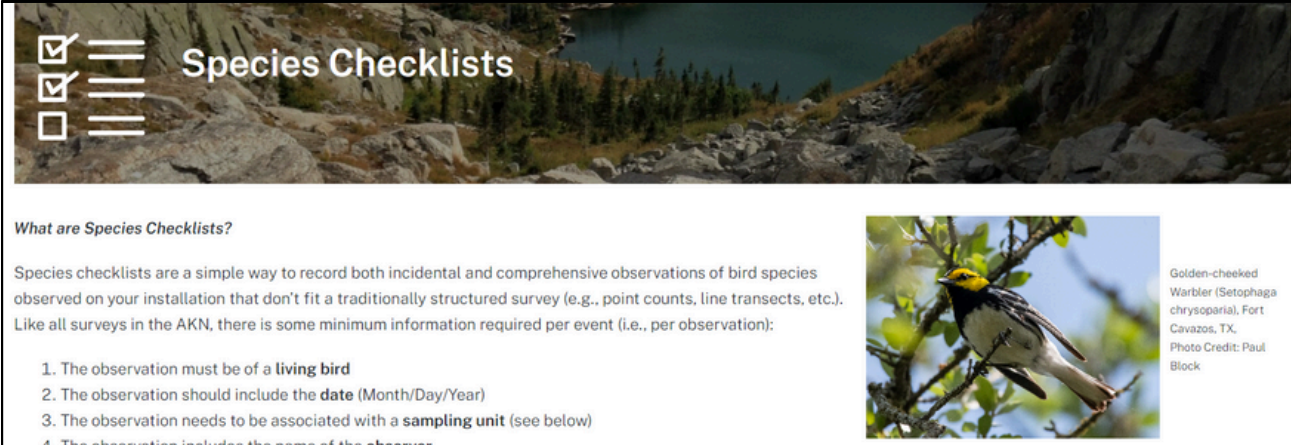
DOD AKN Portal cont.

Resources - DOD AKN Standard Sampling Methods

In 2023, the Program Team created a Standard Sampling Methods page on the DOD AKN Portal to provide DOD personnel with recommended standardized field methodologies and AKN data entry Protocols to meet common avian data collection needs for military installations, ensuring ease and consistency in data collection and enabling comparisons across locations.

A common need for DOD personnel is the ability to capture observations of bird species at an installation that don't fit a traditionally structured survey, such as incidental observations. To meet this need, the Program Team developed two standard species checklist Protocols and posted those to the Portal page along with comprehensive instructions for use, links to the AKN data entry Protocols, and an example datasheet which is available for personnel to download and use at their installation. These Protocols are available on the Portal and represent a major step toward standardizing avian data collection across DOD.

<https://www.dodakn.org/resources/dod-akn-standard-sampling-methods/>



Species Checklists

What are Species Checklists?

Species checklists are a simple way to record both incidental and comprehensive observations of bird species observed on your installation that don't fit a traditionally structured survey (e.g., point counts, line transects, etc.). Like all surveys in the AKN, there is some minimum information required per event (i.e., per observation):

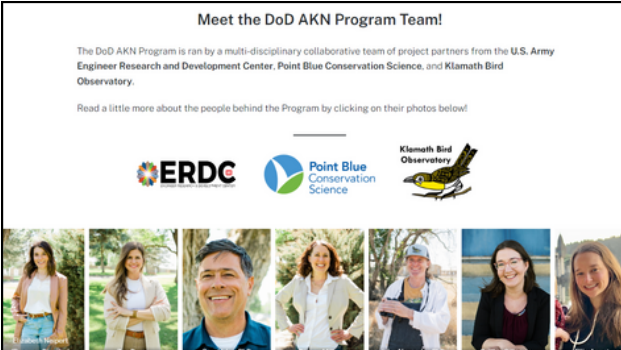
1. The observation must be of a **living bird**
2. The observation should include the **date** (Month/Day/Year)
3. The observation needs to be associated with a **sampling unit** (see below)
4. The observation includes the name of the **observer**

Golden-cheeked Warbler (*Setophaga chrysoparia*), Fort Cavazos, TX.
Photo Credit: Paul Block

About Us Page

In 2023, an "About Us" page was created with bios and contact information of the Program Team members.

<https://www.dodakn.org/meet-the-team/>



Meet the DoD AKN Program Team!

The DoD AKN Program is run by a multi-disciplinary collaborative team of project partners from the U.S. Army Engineer Research and Development Center, Point Blue Conservation Science, and Klamath Bird Observatory.

Read a little more about the people behind the Program by clicking on their photos below!

ERDC Point Blue Conservation Science Klamath Bird Observatory

Training Registration

As of late 2023, registrations for upcoming DOD AKN Trainings are now hosted through the Portal.

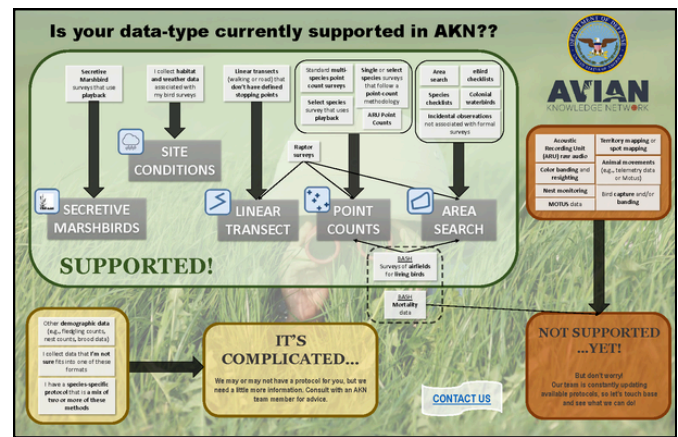
<https://www.dodakn.org/get-training/>

Google Analytics

In 2023, Point Blue added Google Analytics functionality to the Portal. This will enable the Program Team to dynamically track use of specific pages and resources. This will enable the Program Team to make informed changes and enhancements to the Portal.

Supported AKN Data Types Key

In 2023, the Program Team created a key to demonstrate the data types that are currently supported in the system and those that are not yet supported. This key serves as a quick-reference guide for DOD users wanting to know if their avian data can currently be incorporated into the AKN. The key can be found linked on the DOD AKN Portal homepage and at the link to the right.



<https://www.dodakn.org/supported-akn-data-types/>

Contract Language

The Program Team created standardized Scope of Work (SOW) language designed to address a long-standing need for DOD to maintain possession of avian data collected by contractors. This need underscores the importance of DOD owning not only summary data in reports but also the raw data collected through contracts. The AKN provides the infrastructure to make this possible and efficient.

The SOW language outlines the requirement for supported avian survey data to be entered directly into the AKN. This language includes comprehensive guidelines for data ownership, collection, and submission, which DOD personnel can customize and integrate into contracts and cooperative agreements to ensure alignment with AKN data entry Protocols.



AVIAN
KNOWLEDGE NETWORK

Leveraging Partnerships, Data and Technology
to Revolutionize Avian Conservation and Management

Statement of Work Language for Department of Defense
Service Contracts, Grants, Cooperative and Interagency Agreements
July 2023

Introduction

To improve quality, access, and usability of avian survey, monitoring, and research data collected for Department of Defense (DoD), contractors and cooperators collecting such data use the Avian Knowledge Network (AKN) to enter, proof, and deliver their data. Here we provide guidance for selection/developing statement of work language for contracts and agreements to specify use of the AKN by contractors and/or cooperators. Specifications may vary based on whether the DoD is acquiring data from a contractor via a service contract or from a cooperator via a grant or cooperative agreement. The DoD and AKN are also developing new capacities, including a Program Enterprise System and additional user access specifications that will influence how the DoD specifies AKN use in contracts, grants, and cooperative agreements. These documents will be updated as these new capacities are complete and available for use.

Following are details to be included in the "Statement of Work" section of a service contract, grant, or cooperative agreement. There are multiple options for data access, project set-up, and data entry for users with AKN training or for contractors/cooperators who do not have AKN training but will need to submit their project data in AKN compatible formats.

Terms used in Statement of Work (SOW) language

AKN Project—Fundamental unit of organization for observation data within the AKN. Projects contain information about how (Protocols), who (Researchers and Users), where (Sampling Units), when (Sampling Events), and what (Sampling Event Observations) data are collected. For DoD, each installation has its own project.

Sampling Protocol Definition—Defines how the data were collected and how they are stored.

Contractor/Cooperator—Party within the agreement that is primarily responsible for data collection and data entry.

DoD Designee—Primary DoD point of contact for contract terms. Can also specify a DoD AKN staff member if AKN staff will be working with the Contractor/Cooperator.

Field Methods—Protocol for data collection in the field used by the Contractor/Cooperator.

User Roles—The AKN allows for multiple levels of access to enter, manage, and share data. AKN users are assigned a User Role associated with each AKN Project they have permission to access. Current User Roles include:

- Biologist**—An AKN user assigned as a Biologist in an AKN Project can enter and proof data. Biologists can also review, edit, or correct previously entered data in any dataset housed within the AKN Project.
- Project Leader**—In addition to all Biologist User Role capacities, AKN users assigned as a Project Leader in an AKN Project can assign Sampling Protocol Definitions to an AKN Project, manage the Sampling Units (areas, points, transects, etc.), manage data, get full exports of the AKN Project data from the system, and manage the User Roles (Biologist or Project Leader) of other AKN users on the AKN Project. Project Leaders can also set the desired data sharing levels for data, which determines how the data will appear in the various tools in AKN.

Specifically, the guidance addresses:

- 1. Data Ownership:** Ensuring DOD retains data ownership and access;
- 2. Data Collection:** Selecting standardized sampling methods using AKN data entry Protocols;
- 3. Sampling Locations:** Providing detailed sampling location requirements; and
- 4. Data Entry/Upload:** Outlining formats for data entry or upload.

The developed SOW language was developed in coordination with Military Service leadership and has been approved for dissemination by OSD. To facilitate its accessibility, the Program Team developed a dedicated page on the DOD AKN Portal for this language and associated resources.

<https://www.dodakn.org/resources/contract-language/>

DOD Data Initiatives - DOD AKN MSS

DOD PIF has identified 15 bird species that occur on DOD installations that have the highest potential to impact the military mission should they become Federally listed. The MSS list is designed to aid in prioritization of monitoring and management on DOD installations to help reverse declines, prepare installations for potential listing of species, identify potential mission impacts, and provide management and monitoring recommendations based on the best available science.

To support using the best available science to aid in planning and prioritization of monitoring and management of MSS on DOD installations, the goals of DOD AKN MSS Initiative include 1) identifying past and current monitoring field methodologies, objectives, and data for MSS on DOD installations, 2) delineating standardized monitoring methods for all DOD installations for future monitoring, including providing support for data entry and management in the AKN, and 3) providing a link to broader species conservation groups, such as PIF Priority Species Working Groups and the Road to Recovery initiative, to identify opportunities for management that may help reverse species declines. Decision support tools focused on MSS will provide data query and analytical tools that will support direct application of monitoring efforts towards adaptive management of species and habitats on DOD installations.

The Program Team has identified a process for consolidating historical data, identifying commonly used field methods, making recommendations for future monitoring and associated data management solutions, and setting up and developing decision support tools for all 15 MSS. The process includes:

- 1 Literature reviews to identify commonly applied monitoring methods and survey methods for each MSS
- 2 Contacting subject matter experts to develop relationships and to learn about methods and existing monitoring recommendations relevant to each MSS
- 3 Communicating with DOD biologists currently working with MSS to identify historic data and monitoring objectives
- 4 Creating focus groups of species experts and DOD biologists to recommend priority monitoring objectives and field methods
- 5 Developing appropriate AKN data entry Protocols based on identified monitoring methods that can be used for data entry and management for all AKN users
- 6 Setting up data entry and management systems for standardized Protocols and assist with upload of historic datasets for MSS to the AKN
- 7 Developing specific MSS analytical tools to support science-based species and habitat management on DOD installations

DOD Data Initiatives - DOD AKN MSS (cont.)

In 2023, the Program Team worked through this process for four MSS:



Pinyon Jay: The Program Team worked with the national Pinyon Jay Working Group to finalize data entry Protocols within the AKN system to match their standardized area search field methodology. The Program Team also worked with a subgroup from the working group to finalize a roadside point count field methodology that was needed for wider use on DOD lands. Both area search Protocol and road-based point count survey Protocols have been created and are now available for use within the AKN for use by all DOD and partner AKN users. The Protocols and data collected by DOD and by partners will assist in determination of a Petition to List. Both field methods and AKN data entry Protocols are linked and described on the DOD AKN Portal. Some installations are now working on entering 2023 Pinyon Jay monitoring data into the AKN using both protocols.



Burrowing Owl: The Program Team created a focus group of Burrowing Owl experts both within DOD and outside agencies to review currently available field methods to determine most appropriate and acceptable methods to promote DOD-wide. In 2023, the Program Team hosted four focus group meetings to begin the process of prioritizing Burrowing Owl monitoring field methodologies for DOD. The Program Team discussed survey methods that are currently implemented across DOD, along with some of the challenges and limitations biologists face when implementing Burrowing Owl monitoring programs. The group identified pertinent questions related to Burrowing Owl monitoring within DOD and worked to identify aspects of currently published methodologies that best meet those objectives. The group also developed a preliminary data structure for Burrowing Owl point count and area search data and is now working on compiling a draft document for recommendations for Burrowing Owl methods to test for next field season. The group plans to continue meeting in 2024.



Northern Bobwhite: The Program Team worked with some installations on Northern Bobwhite data and have identified some frequently used survey methods, including a standardized method used by the Northern Bobwhite Conservation Initiative. Some of these Protocols have been programmed into the AKN and some data has been uploaded from installations. The next step the Program Team has identified is to create a focus group to review Northern Bobwhite monitoring objectives and currently implemented field methods and make recommendations for wider use on DOD lands.



Bendire's Thrasher: The Program Team identified standardized area search methods already being implemented by DOD and other partners in the Desert Thrasher Working Group that have data entry Protocols currently available for use in the AKN. Links to these Protocols have been made available on the DOD AKN Portal.

<https://www.dodakn.org/resources/mss/>

Photos (top to bottom): Pinyon Jay, CA, Credit: Bob Schallmann; Burrowing Owl, NWS Seal Beach, Credit: Bob Schallmann; Northern Bobwhite, Fort Hood, Credit: Jackelyn Ferrer; Bendire's Thrasher, Credit: [Diana Spangler, Macaulay Library](#)

DOD Data Initiatives - USDA-WS BASH Data Integration

The DOD AKN Program made progress in 2023 toward integrating Bird/Wildlife Aircraft Strike Hazard (BASH) data into the AKN. BASH data is critical to DOD as it helps prevent costly and potentially dangerous wildlife strikes with aircraft at military airfields, supporting both operational safety and mission readiness. BASH data can also support overall understanding of bird populations at an installation and across the DOD Program.

Throughout 2023, the DOD AKN Program worked closely with US Department of Agriculture Wildlife Services (USDA-WS), which supports BASH management at approximately 150 DOD airfields. The Program Team held an initial meeting at NMFWA to develop an initial draft workflow to address BASH data-sharing challenges. This workflow was further advanced with a kick-off meeting involving OSD and USDA in quarter three. The Program Team received sample reports and data from USDA-WS, and Point Blue began back-end workflow discussions, paving the way for a more streamlined, enterprise-wide approach to BASH data integration across USDA-supported DOD airfields.



DOD Data Initiatives - Air Force GIS Data Integration

In 2023, the DOD AKN Program began efforts to integrate bird monitoring data from the Air Force Geospatial Information System (GIS) database. Unlike the AKN, which captures detailed metadata on how bird surveys are conducted which are critical for data inference, a geospatial database focuses on storing and managing spatial data – such as the geographic locations of observations – used for mapping and spatial analysis. Integrating these two types of databases enables a more comprehensive understanding of avian populations, providing the Air Force with both spatial data and rich survey context to inform environmental planning.

Progress in 2023 included initial collaboration with the Air Force Environmental GIS Program to establish a workflow for monitoring DOD AKN data to be exported to Air Force GIS. In late 2023, the Program Team met with Air Force GIS points of contact (i.e., CEMML) and began aligning Air Force GIS attributes with the fields required by the AKN. This work will help standardize data entry and enhance compatibility between the systems, fostering better use of avian data in Air Force operations.

AKN-Wide Tool Development and Updates

The Program Team continues to upgrade and enhance the tools that are available to explore and analyze data in the AKN for all users. Through collaboration with the AKN Steering Committee and other AKN community members, the Program Team solicits feedback on ways that the Program Team can improve the tools to deliver more useful information to support conservation management and decision making.

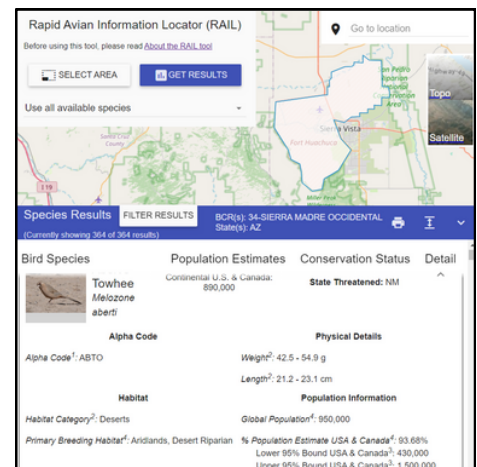
Rapid Avian Information Locator Tool

<https://data.pointblue.org/apps/rail/>



The Rapid Avian Information Locator (RAIL) tool is a map-based application developed to provide quick, site-specific information on avian species and habitats across the United States at user-selected locations. RAIL allows users to access relevant bird data – such as species occurrence, breeding status, and habitat associations – to support environmental planning, impact assessments, and compliance with legal requirements.

This past year, the Point Blue worked with partners at the USFWS to update the species profiles with up-to-date federal and state Threatened and Endangered Species and Bird Conservation of Concern status so that users can quickly understand the conservation status of bird species that may occur within their area of interest. This update included the addition of species profile information from the Avian Conservation Assessment Database for shorebirds and waterbirds. Future improvements include incorporating MSS status to conservation status descriptions.



New AKN User Roles - Contractor Role

Historically, there have only been two types of roles available to AKN users: Project Leader and Biologist. A user with Project Leader has full control over the AKN Project, including the ability to add or manipulate Sampling Units (i.e., where surveys occur) and the observation data, add or remove users from the Project and assign or modify sharing levels. A user with Biologist access to a Project is only able to add and quality control data in the Project.



The AKN community has identified the need for a greater diversity of user roles in the AKN to provide more flexibility with the amount of Project database access Project Leaders allow users to have. In particular, the community indicated a need for a Contractor role that could be used so that contractors could take on more responsibilities for setting up AKN Sampling Units and entering and quality assurance/quality control of observation data.

The Point Blue team has begun the development of the Contractor role using the Amazon Web Service tool Cognito. This tool provides new capabilities for user management that will include the Contractor role. Additionally, this work is satisfying web service data security standards set by the federal government. Point Blue anticipates having a limited, functional Contractor role available by early 2025.

Program Enterprise

DOD is actively supporting enhancements to the AKN to facilitate easier summaries and analysis of data across AKN projects and at differing scales. These enhancements directly support DOD's need to assess the status and management impacts on birds at a variety of programmatic levels.

To meet these needs, DOD provided initial funding to create system-wide Program Enterprise capabilities – a system that allows cross-Project querying and data pooling. Program Enterprise enhancements in the AKN will provide DOD staff and other AKN users the ability to efficiently query and analyze data at various Program levels, such as by Military Service or the entire DOD Program. For example, once fully implemented, DOD leadership would be able to use the AKN to summarize the number of installations that have recorded observations of Burrowing Owls, a MSS, by Service branch or across the entire DOD. A user could also compare the trends in abundance of a species within Programs, such as by Military Service or the entire DOD.

While Program Enterprise enhancements directly support DOD's mission, these enhancements also support the management and analytical needs of other AKN partner organizations. Historically, data in the AKN could only be managed at the Project level (for DOD this is by installation). Program Enterprise functionality will enable Project Leaders to share all or parts of a Project's data with internal or external institution programs thus enhancing the ability of the AKN community to leverage each other's data in support of conservation efforts. For example, this would allow DOD installations participating in external partnerships, such as the Desert Thrasher Working Group, the ability to easily and securely share data to meet larger, coordinated efforts.

In 2023, Point Blue prototyped the first AKN application that included Program Enterprise functionality. The new Project Downloader application allows users to download observation data and associated Sampling Unit files for any Project that they have access to programmatic levels. For example, someone with Army programmatic access can now download all of the point count data and Sampling Units that exist in Army AKN Projects at once.



https://data.pointblue.org/science/projectmanager/project_downloader

Program Enterprise cont.

In addition to the work on user applications, Point Blue developed prototype Program Enterprise warehouse builds for point count and area search data in AWS Glue (Glue), a "big data" processing framework. Glue is a modern, cloud-based technology that meets FedRAMP security standards, is flexible enough to integrate a wide range of data types (database, flat file, API, etc.), and scalable to meet current and future data volume needs as the use of the AKN grows. In 2024, Point Blue will replace the current data processing framework, which is based on older web technologies, with Glue for all warehouse builds.

In collaboration with the AKN Steering Committee, Point Blue has evaluated all AKN applications to prioritize the next steps for building out Program Enterprise functionality in the AKN. In the coming year, Point Blue will begin to design new applications to provide simple data summaries from Project to Program levels.



Photos, left to right: Carolina Wren, Williamsburg, VA; Credit: Paul Block; Eastern Bluebird, Williamsburg, VA; Credit: Paul Block; Hooded Warbler, Fort Lee, VA; Credit: Dana Bradshaw

DOD AKN Case Studies

South Carolina Army National Guard

Two personnel from the South Carolina Army National Guard (SCARNG) attended a DOD AKN training at Camp Lejeune in early May 2023 and attended in-person Office Hours to discuss how to incorporate their avian data into the AKN. In late May 2023, another Natural Resource Manager (NRM) from the SCARNG took a DOD AKN training at Rees Training Center in Hermiston, Oregon. Immediately after returning from training, this NRM was able to follow up with Program Team support staff at KBO to pick up where others had left off on the process of getting their data into the system. KBO began working with the NRM in June 2023 and, within a matter of months, SCARNG was able to create metadata and upload all their supported avian data into their Project dating back to 2012. KBO was able to assist SCARNG in uploading their Researchers and Sampling Units as well as create AKN data entry Protocols to match their data schema for Nightjar and raptor surveys. Currently, KBO is continuing to work with this NRM on getting all of SCARNG's Breeding Bird Survey data uploaded to their Project.

Several Air Force Installations

A contractor from USFWS has been collecting point count data from four different Air Force installations throughout Oklahoma and Texas. This contractor attended a DOD AKN training in-person training at Naval Base Kitsap in August 2023. Immediately following the training, the Program Team reached out to Air Force leadership in the region to obtain permissions to grant the contractor Project Leader role for each of these four installation Projects. In December, less than four months after training and with minimal support needed from the Program Team, the contractor was able to upload all their Sampling Units and observation data for each installation accounting for 1,057 observation records of over 100 species. The process was made even more efficient because the contractor uses standardized sampling methods across each of the installations that match common data entry Protocols already available for use within the AKN. Now, each of these installations has cleaned and archived raw data loaded by the contractor and standardized data sampling and storage methods should they change contractors in the future.

Marine Corps Base Quantico

Two staff members from Marine Corps Base (MCB) Quantico attended DOD AKN training at Camp Lejeune in May 2023. Following training, they attended Office Hours to discuss the details of their data collection efforts, focusing on their Northern Bobwhite, a MSS, and waterfowl data. By June 2023, the Program Team successfully assisted them in uploading their Sampling Units and Researchers, and the Program Team created a new Protocol for their Northern Bobwhite surveys. MCB Quantico was then able to bulk upload 40 years of point count data, totaling 520 sampling events. In August 2023, the Program Team completed the new Protocol for Quantico's waterfowl data, and the MCB Quantico team began directly entering all their new waterfowl data into Biologists starting in November. The Program Team is now assisting Quantico with their historic waterfowl data entry dating back to 1994.

Michigan Army National Guard

Michigan Army National Guard has contracted with Kalamazoo Nature Center (KNC) to complete their bird surveys dating back to 1997. Staff from KNC attended DOD AKN training in January 2023 and, within six weeks, began successfully uploading their data. By summer 2023, KNC had bulk uploaded over 200,000 avian observation records dating back to 1997 for the Fort Custer training area.



“ — DOD AKN User Quotes

Using AKN as a data repository has been extremely helpful particularly because it facilitates easier transfer of knowledge when old employees leave and new employees join. Plus, I find AKN's Protocol standardization and data entry process encourages consistency across installations and different observers. It adds to repeatability and lets the data contribute to an overarching structure that enables meta analyses. I also appreciate AKN's flexibility to set data sharing levels, which reduces some of the burden to obtain approval for uploading data to AKN because some installations are more concerned about data sharing than others. Additionally, the DOD-wide mandate helps with installation buy-in (it is pretty persuasive reasoning for an installation to utilize AKN).

The training I attended was stellar. From the instructors to the course content and resources, everything was well-explained and able to be tailored to our project/data needs. I walked away with a more comprehensive understanding of AKN and its features and benefits. The DOD AKN Program Team always goes above and beyond to answer questions and provide solutions or technical assistance; every interaction has been filled with expert knowledge and kindness. On top of this, the turnaround time for responses to questions/requests for assistance has always been incredibly quick. The DOD AKN Program Team has it together!

Matt Mogle

USFWS Contractor, Multiple Air Force Installations

I just wanted to take a moment to send you a thank you note for supporting installations in using the Avian Knowledge Network. MCB Camp Lejeune was fortunate to host an amazing in-person AKN training last week. My colleagues and I found the three-day training really valuable given the amount of information covered and the ability to troubleshoot issues and questions as they arose. I'm really excited to embrace using AKN as our installation's sole repository for avian data and to have the ability to look at trends across decades of data. ... I'd also like to give a big shout out to Liz, Sam, Dianne, and John for their great instruction and their commitment to make future AKN trainings even better!

Last week's training also highlighted how additional AKN training opportunities could be particularly useful. For instance, several of the participants in last week's training had little to no experience conducting point counts or using survey protocols. As a result, there was initially a bit of a knowledge gap for some in trying to understand AKN's application and the responsibilities of natural resource managers. I think that is due to the overall lack of these types of hands-on trainings, plus the varied background and experience of the natural resource managers of the Marine Corps. Not everyone is a hardcore birder because they often have many hats to wear. However, I wholeheartedly believe that additional trainings on methodology and field techniques, if offered, would make our natural resource managers and our use of AKN even more successful. I hope that if there is an opportunity for these types of in-person, tangible trainings offered by AKN they would also receive your continued support.

Kelli Applegate (sent to US Marine Corps Leadership)

Marine Corps Base Camp Lejeune

The Kalamazoo Nature Center / Kalamazoo Valley Bird Observatory has been conducting bird banding, surveys, and monitoring for over 50 years. Some of our surveys have over half a million historic records, with much of this data sitting on internal servers at our nature center. For years, our team has struggled to find the best approach for protecting and sharing this wealth of historical data. In the last year, thanks to a recent DOD training, our team successfully uploaded thirty years' worth of point count data from our partnership with Fort Custer Training Center into AKN. We're thrilled that this data will be safe and widely accessible to military and scientific partners. While we wish this opportunity had existed in the early days of our survey programs, we're looking forward to moving all of our data archives into AKN where they can make a powerful contribution to the avian conservation.

Jessica Simons

Kalamazoo Nature Center, Fort Custer Training Center, Michigan Army National Guard



MILITARY MISSION BENEFITS

The DOD AKN Program enhances military readiness by providing a centralized and scalable platform for avian data management and decision support across DOD and beyond. By providing standardized data structures, powerful decision-support tools, and streamlined data sharing capacities, the AKN improves the efficiency of environmental planning and compliance processes. Additionally, the AKN provides a secure database of record for installations to maintain data integrity and access during personnel turnover as well as the ability to empower decades-worth of historical data minimizing redundant data collection efforts across installations and leading to significant time and resource savings. This directly supports mission readiness by enabling early identification and mitigation of potential constraints related to sensitive bird species, reducing the risk of training disruptions and regulatory delays.

The AKN also facilitates data-driven risk management at installation, Military Service, and DOD-wide levels. By integrating data across installations and timeframes, the Program supports predictive modeling and trend analysis critical to long-term mission sustainment. These capabilities help inform decisions about habitat management, project siting, and compliance strategies, ultimately minimizing costly operational restrictions. By facilitating informed decision-making, the AKN contributes to uninterrupted mission execution and optimal utilization of defense resources.

Importantly, the Program fosters interagency collaboration and leverages partnerships to develop advanced decision-support tools tailored to DOD needs and that align with national and international bird conservation objectives and strategies. These innovations support robust data management and decision-support tools that allow the DOD to proactively manage environmental risk in ways that are compatible with military training and testing. The DOD AKN Program exemplifies a modern, data-informed approach to environmental management that delivers measurable efficiencies and safeguards access to critical training lands upholding the DOD's overarching goal of "no net loss." The AKN demonstrates how targeted investments in data infrastructure can yield substantial efficiencies, reinforcing DOD's commitment to both environmental management and mission effectiveness.

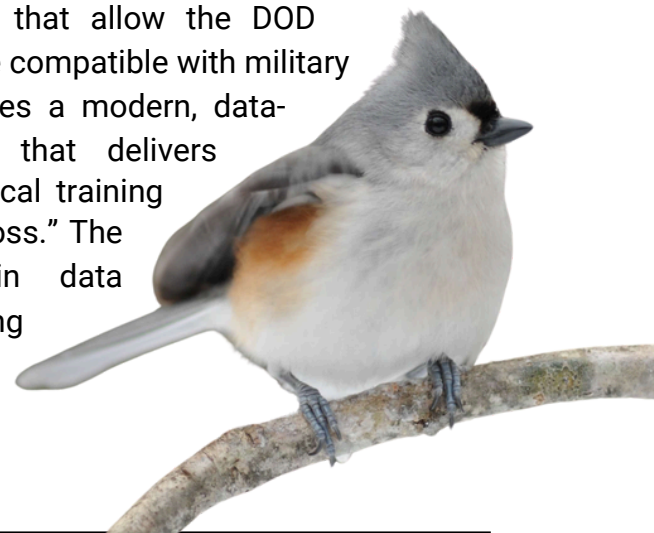


Photo: Tufted Titmouse, Williamsburg, VA; Credit: Paul Block

Meet the DOD AKN Program Team

Elizabeth Neipert, Program Director



Elizabeth Neipert is a Research Wildlife Biologist with the U.S. Army Engineer Research and Development Center's (ERDC) Environmental Laboratory (EL) in the Ecological Resources Branch stationed in Interior Alaska, where she conducts wildlife research and monitoring projects on DOD lands nationwide. She also serves DOD's Bird Conservation Program where she collaborates with military natural resources managers and directs DOD-wide conservation efforts designed for mission support for the Military Services and Office of Secretary of Defense (OSD) Natural Resources Program.

Ms. Neipert is the Director of DOD's AKN Program where she leads the interagency partnership to address all DOD avian data needs. She coordinates DOD's use of the AKN with OSD, the Military Services, installations, partners, and cooperators to create an organized, strategic, and comprehensive approach that directly supports the DOD Bird Conservation Strategic Plan and supports DOD's military missions.

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She also chairs the National AKN Steering Committee, the primary decision-making body for the AKN, committed to fostering the international collaboration of diverse institutions and agencies with goals to improve the conservation of birds and their habitats utilizing scientific data and cooperative partnerships. She also represents DOD and leads the federal agency partnership, coordinating future plans and actions with all AKN partners, over 100 organizations.

Previously, Elizabeth served as President of NMFWA from 2016-2018 and co-founded NMFWA's Bird Conservation Working Group in 2015. From 2008-2014, she was the Natural Resources Program Manager and Wildlife Biologist at U.S. Army Garrison Fort Wainwright's Donnelly Training Area, Alaska managing over 750,000 acres of military training and testing lands.

Zoe Duran



Zoe Duran is a contracted Research Biologist and Data Support Analyst with the U.S. Army Engineer Research and Development Center's (ERDC) Environmental Laboratory (EL) in the Ecological Resources Branch remotely stationed in southwest Idaho.

Ms. Duran assists the DOD AKN Program Team with data integration, Program support, and DOD-specific initiatives. Prior to joining the DOD AKN Program Team in 2023, Ms. Duran worked ten years for the Idaho Army National Guard (IDARNG) where she conducted extensive wildlife and botanical research and monitoring projects on DOD-managed lands in southwest Idaho. Ms. Duran is also the current Vice President of NMFWA.

Ms. Duran received her B.S. and M.S. in Biology from Boise State University where she studied population dynamics and behavioral ecology of raptor prey species at the IDARNG Orchard Combat Training Center (OCTC).

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Meet the DOD AKN Program Team cont.

Sam Veloz, PhD



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Sam Veloz is the Director of Ecoinformatics and Climate Solutions at Point Blue Conservation Science. He leads a team that uses our science to help decision makers and natural resource managers prepare for future environmental changes. His group specializes in the development of models and tools that enable climate-smart decision making. We work in ecosystems ranging from upland and tidal marsh ecosystems in the San Francisco Estuary, to coastal forests and grasslands of the Pacific Northwest, to the deserts of the southwest United States and in the Ross Sea in Antarctica. The Ecoinformatics

team at Point Blue supports the management of Point Blue's and our partners bird monitoring data through the Point Blue Science Cloud. Sam also represents Point Blue on the AKN Steering Committee.

Dr. Veloz represents Point Blue on the DOD AKN Program Team. His role is to direct the Point Blue Ecoinformatics team to develop new features and upgrades to the Point Blue Science Cloud in support of DOD and AKN priorities. He also leads the training of DOD staff on the use of the AKN for data management and analyses.

Sam came to Point Blue in 2010 after working as a postdoctoral researcher at the University of Wisconsin, Madison, where he studied how plant species responded to global warming following the last deglaciation as a proxy for how species will respond to future climate change. He received his PhD from UC Davis in ecology in 2008 where he studied how urbanization in Australia led to behavioral changes in megabats and the coincidental emergence of fatal zoonotic diseases in humans. He received his bachelors degree in environmental studies from UC Santa Cruz in 1997.

Dianne Miller



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Dianne is the Technical Product Manager for the Eco-Informatics team at Point Blue. She is responsible for working with partners in the [Avian Knowledge Network](#) to bring all of their bird observation data into the Point Blue Science cloud, as well as helping to maintain, modernize, and upgrade our systems. Her expertise is in database design and programming, and in software documentation and training. On the DOD AKN Program Team, she participates in office hours and assists with the training classes for DOD staff to help them get data into the AKN database. She also works with the Point Blue software engineers to create, modify, and improve tools to meet DOD user's needs.

Prior to joining Point Blue in 2022, Dianne spent the first 14 years of her career working as an air quality meteorologist and database developer at a consulting firm, followed by seven years as a senior database developer and Team Lead at a financial institution serving the needs of the agricultural community. She received her M.S. degree in Atmospheric Science from the University of Illinois, Urbana-Champaign, and her B.S. degree in Atmospheric Science from Cornell University.

Meet the DOD AKN Program Team cont.

John Alexander, PhD



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John D. Alexander, PhD (Klamath Bird Observatory Executive Director) has been an AKN collaborator since its inception. Dr. Alexander has been working to integrate bird conservation with natural resource management in the Pacific Northwest since 1992. He is focused on applying bird conservation science as a tool for advancing ecosystem conservation regionally, nationally, and internationally. His expertise includes participatory action research; ecological monitoring and research using standard bird and habitat sampling techniques; the use of scientific results for overcoming land stewardship challenges; and the development of applied science tools and teaching materials for natural resource management professionals, community members, and students of all ages.

John's KBO team manages the Avian Knowledge Northwest regional AKN node, as well as the eBird Northwest portal. John represents the AKN on the North American Bird Conservation Initiative US Committee.

John plays several roles on the DOD AKN Program Team, working with Ms. Neipert and Dr. Veloz to set strategic direction for the program; supervising the KBO team; advising on database, Project, and decision support tool design; consulting with DOD associates on monitoring and research design, field methodology selection, analysis, and data management; and representing the DOD program by meeting with and presenting to various partners and collaborations.

Caitlyn Gillespie



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Caitlyn is a Research Biologist at Klamath Bird Observatory where she has managed data collection, analysis, and reporting for numerous long-term bird monitoring and applied ecological field studies throughout Oregon and northern California. She now works within KBO's informatics and data science program to assist with AKN program support and data management, analyze data for applied avian monitoring research, and develop conservation planning tools. As part of the DOD AKN Program Team, she attends DOD office hours to consult with installation biologists to help identify ways in which the AKN can meet their data management needs and support their research objectives. She is also working with biologists to help identify Protocols, historic datasets, and data management solutions for Mission-Sensitive Species and assists with DOD AKN virtual and in-person trainings.

Ellie Armstrong



Ellie works for Klamath Bird Observatory where she works on many things AKN related. Much of Ellie's work has focused on helping bulk upload large historic datasets into the AKN to help preserve the integrity and accessibility of previously collected data in many formats. She also helps run the AKN's helpdesk ticketing system, Zendesk, and attends DOD Office Hours where she helps with a wide array of issues from getting people first set up to enter data into the AKN to using AKN customized tools to analyze data.

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