DoW and the AKN: Who, What, Where, When, Why, and How

DoW AKN NMFWA Training
30 March 2026

Sam Veloz
Dianne Miller

Elizabeth Neipert
Zoe Duran

John Alexander
Caitlyn Gillespie
Nora Honkomp

Point Blue Conservation Science

ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

AVIAN KNOWLEDGE NETWORK

Northern Cardinal, Williamsburg, VA; Credit: Paul Block

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pointblue.github.io/dod_workshop

Northern Cardinal, Williamsburg, VA; Credit: Paul Block

WELCOME, INTRODUCTIONS, AND LOGISTICS

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Klamath Bird Observatory

Who are **we**?

Who are **you**? (we'll call on you)

- Name, Affiliation, Position
- Have you collected avian data yourself before?
- What type of avian data you collect?
- How would you like to use AKN?

INTRODUCTIONS

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

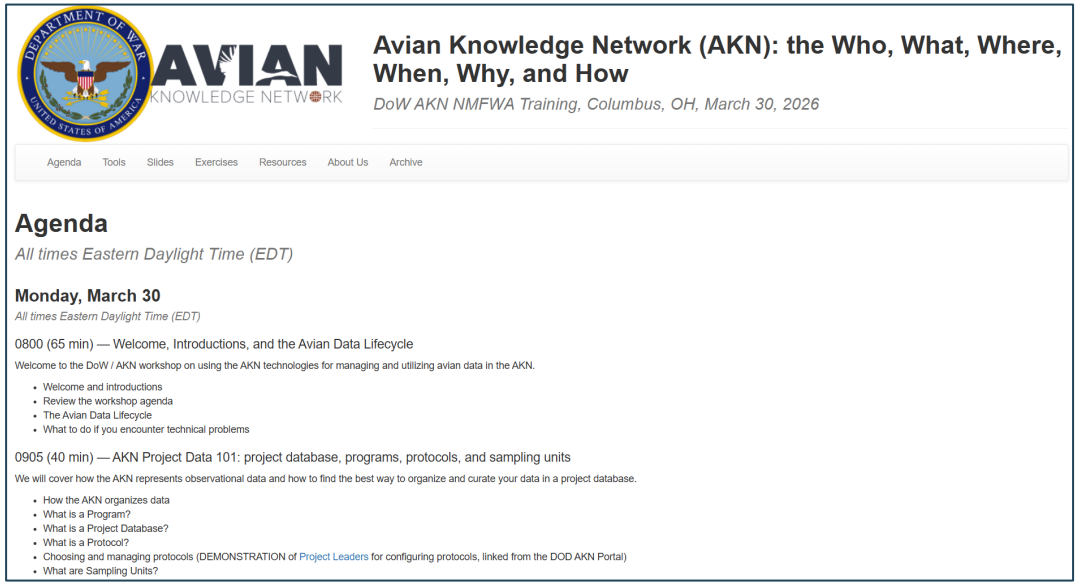
A FEW LOGISTICS…

- The Agenda with links (bookmark this):

  pointblue.github.io/dod_workshop

- Session: interactive & casual
- Office hours: 16 hours monthly, sign up here

https://www.dodakn.org/office-hours-booking-page/



Avian Knowledge Network (AKN): the Who, What, Where, When, Why, and How

DoW AKN NMFWA Training, Columbus, OH, March 30, 2026

Agenda | Tools | Slides | Exercises | Resources | About Us | Archive

Agenda

All times Eastern Daylight Time (EDT)

Monday, March 30

All times Eastern Daylight Time (EDT)

0800 (65 min) — Welcome, Introductions, and the Avian Data Lifecycle

Welcome to the DoW / AKN workshop on using the AKN technologies for managing and utilizing avian data in the AKN.

- Welcome and introductions
- Review the workshop agenda
- The Avian Data Lifecycle
- What to do if you encounter technical problems

0905 (40 min) — AKN Project Data 101: project database, programs, protocols, and sampling units

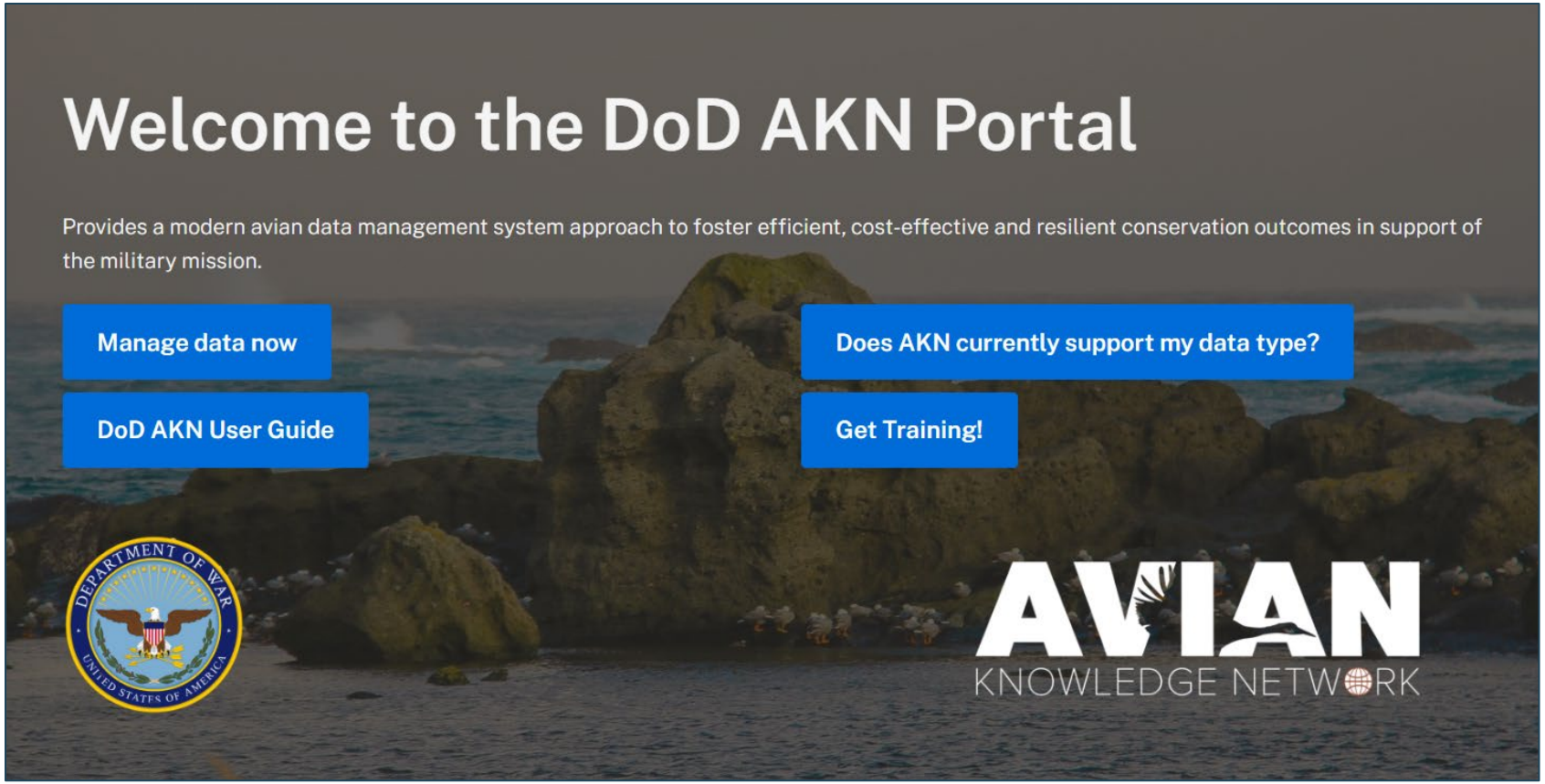
We will cover how the AKN represents observational data and how to find the best way to organize and curate your data in a project database.

- How the AKN organizes data
- What is a Program?
- What is a Project Database?
- What is a Protocol?
- Choosing and managing protocols (DEMONSTRATION of Project Leaders for configuring protocols, linked from the DOD AKN Portal)
- What are Sampling Units?

- Parking lot items

DoW AKN PORTAL

https://www.dodakn.org/



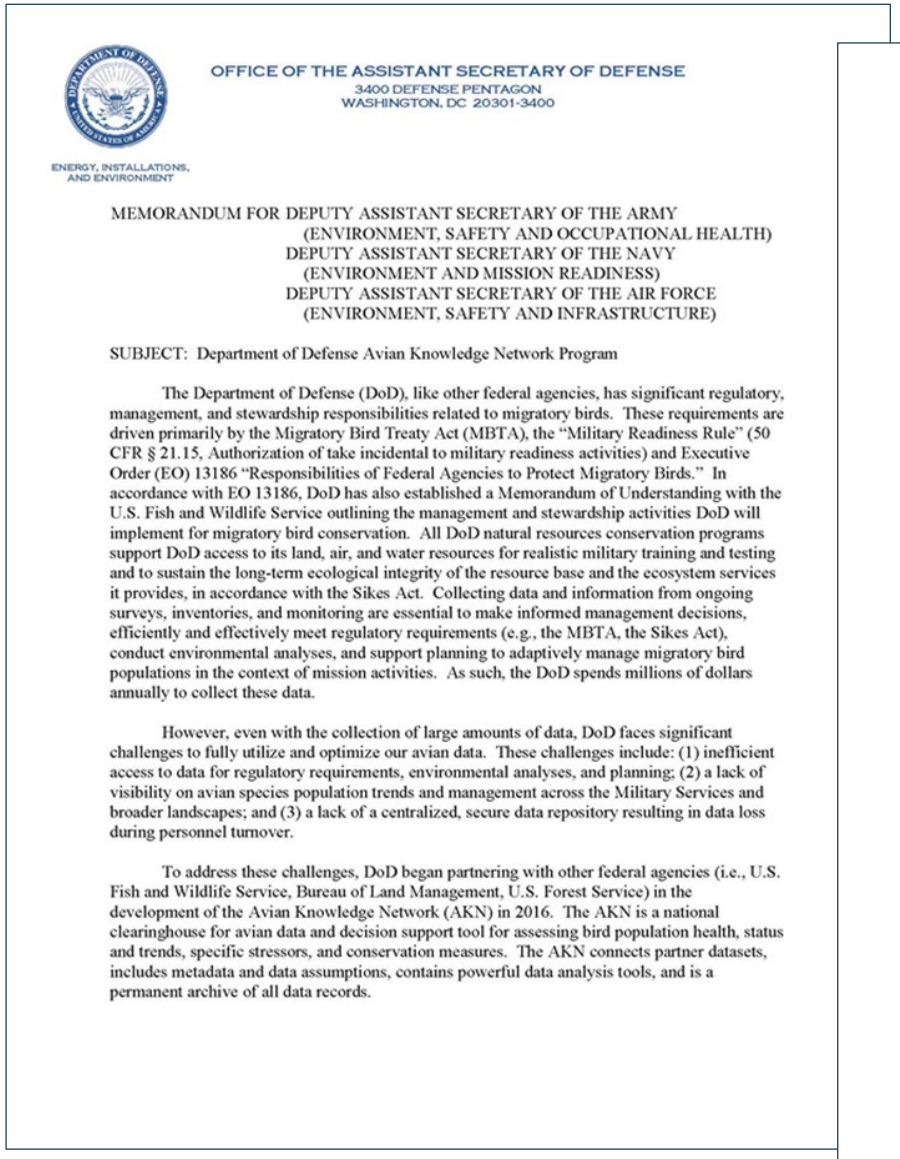
PLUS – DELTA METHOD

- Feedback from workshop to continue to improve

+ PLUS	Δ DELTA
What went well and should be continued or repeated	What could be changed or improved for future iterations.

AVIAN KNOWLEDGE NETWORK

DoW MANDATE MEMO



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

ENERGY, INSTALLATIONS, AND ENVIRONMENT

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 AKN to the maximum extent practicable and provide staff the support needed to make AKN the best 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 effectiveness of bird conservation on DoD installations. For DoD to fully employ the power of AKN, user training and significant initial data management is required. This office, through the DoD 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 Director 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-noble.civ@mail.mil or 406-581-8148

KIDD.RICHARD.GODWIN.IV.1163856081

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

2

AVIAN KNOWLEDGE NETWORK

WHY?

DoW & AKN

DOW DATA ISSUES

(1) Inconsistent formats and inefficient access to data for regulatory requirements, environmental analyses, planning and research

(2) Lack of visibility on avian species population trends and management across the Military Services and broader landscapes, resulting in difficulty applying decision-making

(3) Lack of a centralized, secure data repository resulting in dispersed datasets and data loss during personnel turnover

AVIAN KNOWLEDGE NETWORK

DoW & AKN

WHAT ?

AKN DATA SOLUTIONS

(1) Allowing efficient access to data for regulatory requirements, environmental analyses, planning and research

(2) Creating visibility on avian species population trends and management across jurisdictions and broader landscapes and

(3) Offering secure, centralized data repository and archive

LEGAL DRIVERS

- Migratory Bird Treaty Act (PL 65-186; 16 USC 703 *et seq*.)
- National Environmental Policy Act, as amended. (PL. 91-190, 42 U.S.C. 4321-4347, as amended by Pub. L. 94-52)
- Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884), as amended – PL. 93-205
- Executive Order 13186 *Responsibilities of Federal Agencies to Protect Migratory Birds*
- Sikes Act (PL 105-85, as amended through 2004 including PL 108-136; 16 USC 670 *etseq*.)
- DoD Instruction 4715.03, *Natural Resources Conservation Program*
  - Prioritize species
  - Facilitate and encourage collaboration with partners
  - Focus research and planning efforts
  - Increase information sharing
  - Technology demonstration and transfer
  - Improved efficiencies

DoW AKN Program

Task Categories

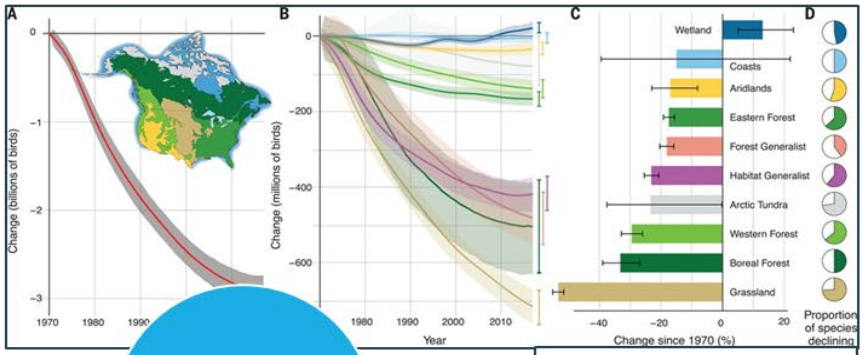
Driving Avian Data Questions

1. What species have confirmed occurrence on my installation?
2. What species have the potential to occur on my installation?
3. What species may occur/persist on my installation in the future?
4. How are species "doing" (population metrics) on my installation? (AKA "is my INRMP effective?") How are species doing across the military? (AKA "Is the DoW conservation program effective?")
5. What factors are driving population trends on my installation? Are there conservation measures/actions within my INRMP that are working more than others to reach identified conservation objectives?
6. What is the relative conservation responsibility of avian species on military installations?

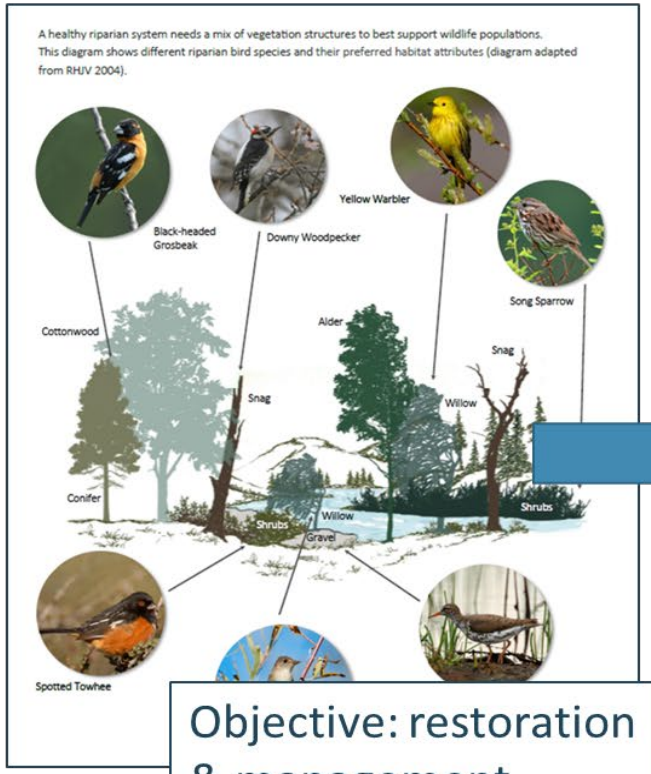
FULL AVIAN DATA LIFE CYCLE

FULL AVIAN DATA LIFE CYCLE

FULL AVIAN DATA LIFE CYCLE

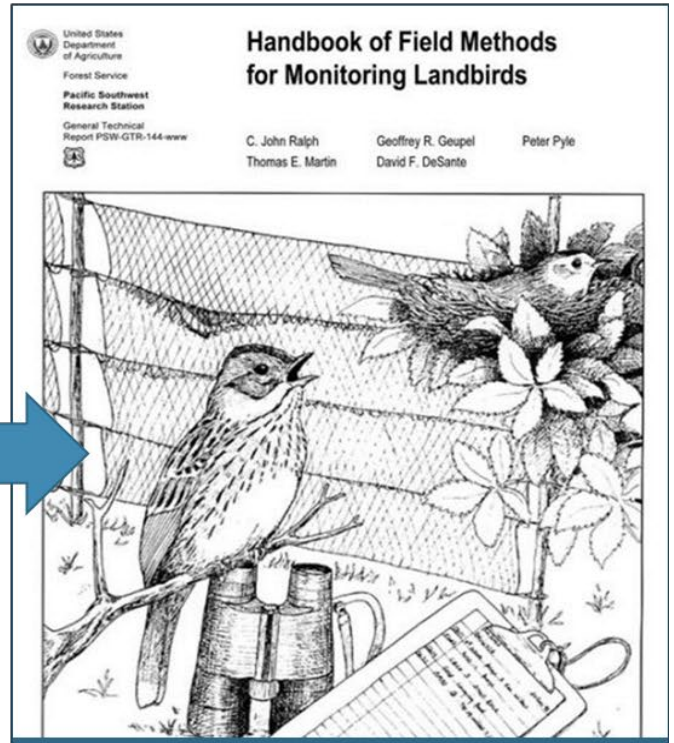


Objective: population trends



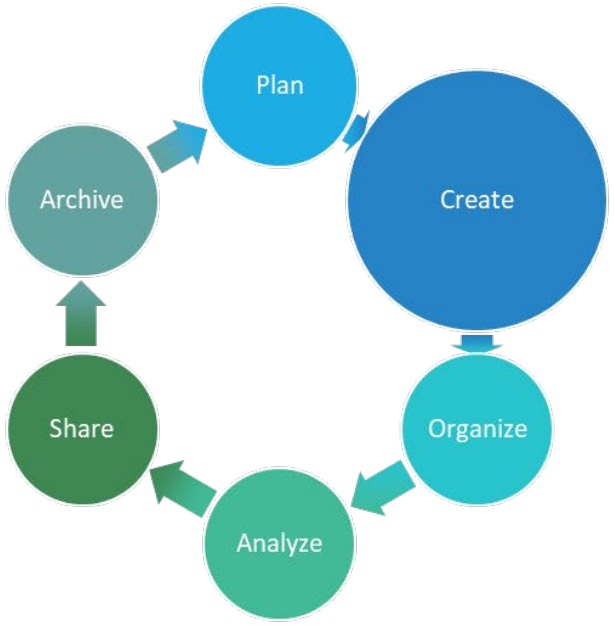
Objective: restoration & management

SURVEY OBJECTIVES



APPROPRIATE METHODOLOGIES

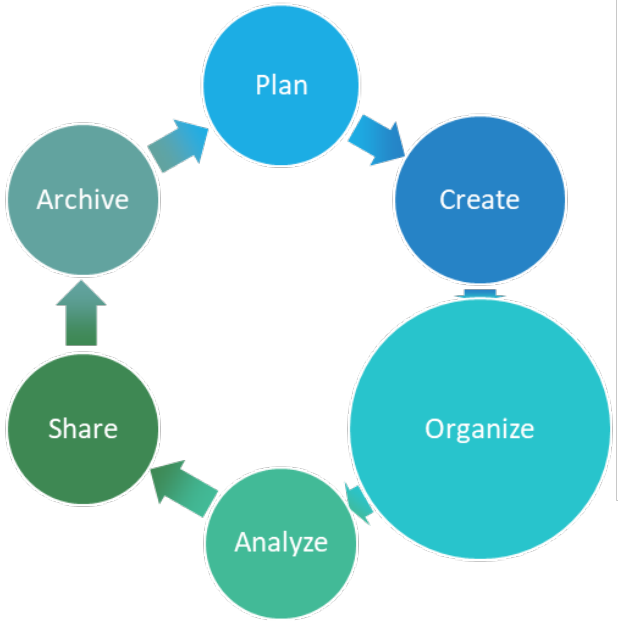
FULL AVIAN DATA LIFE CYCLE



FIELD SAMPLING-OBSERVATIONS

FIELD FORM-DATA

FULL AVIAN DATA LIFE CYCLE



DATA ENTRY
QA/QC

Observations

Species observations with details, layout and titles dependent on protocol.

Quick Tips >>

☐ Separate observations on individual rows
☐ Scroll observations (not compatible with all browsers)

Observation Protocol: VCP100Sx
Total Birds Counted: 7

Download CSV

Point	Time	Species	Time Bin	Count	Detection	Distance	AnimalSex	Notes	
DI-10A	07:21	RWBL	1	1	S	52	Male		✖
DI-10A	07:21	RWBL	1	1	V	52	Male		✖
DI-10A	07:22	TUVU	2	1	V	FLO			✖
DI-10A	07:24	LASP	4	1	V	26			✖
DI-10A	07:24	LASP	4	1	V	94			✖
DI-10A	07:25	LASP	5	1	C	53			✖

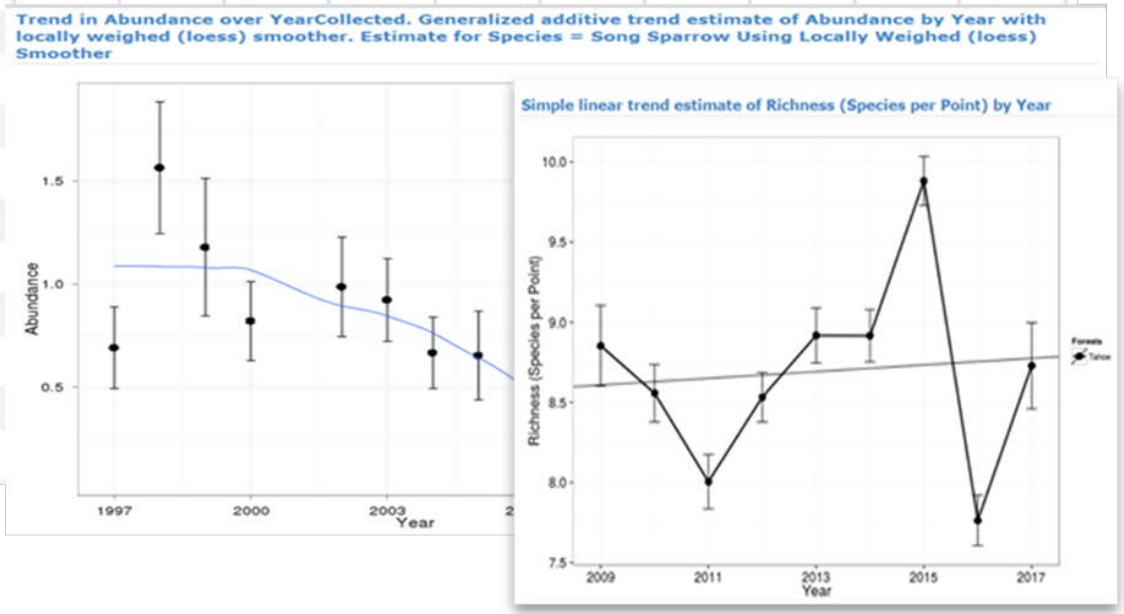
FULL AVIAN DATA LIFE CYCLE

ANALYSIS

Total Number of Observations of each Species by Year

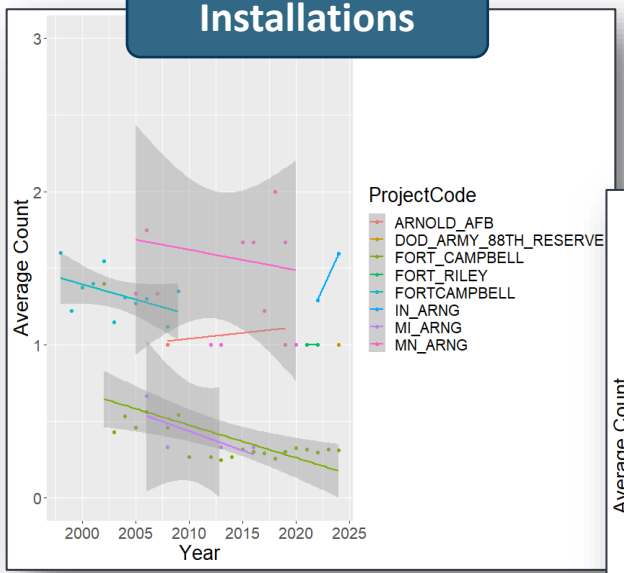
copy table to: CSV HTML DOC PDF

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
American Crow	0	7	2	0	5	25	11	5	1	11	0
American Dipper	1	5	7	2	5	1	1	3	3	3	6
American Goldfinch	0	33	0	17	28	15	38	8	21	8	36
American Kestrel	0										
American Pipit	5										
American Redstart	0										
American Robin	44										
American Three-toed Woodpecker	2										
Audubon's Warbler	55										
Bald Eagle	0										
Band-tailed Pigeon	0										
Barn Swallow	0										
Barred Owl	1										

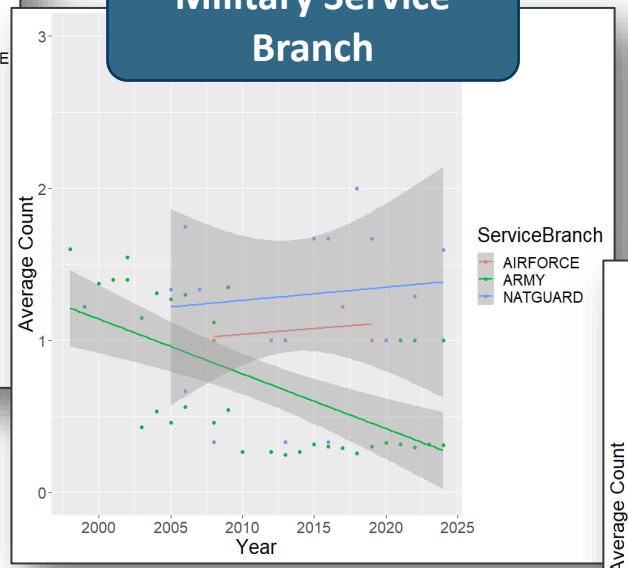


FULL AVIAN DATA LIFE CYCLE

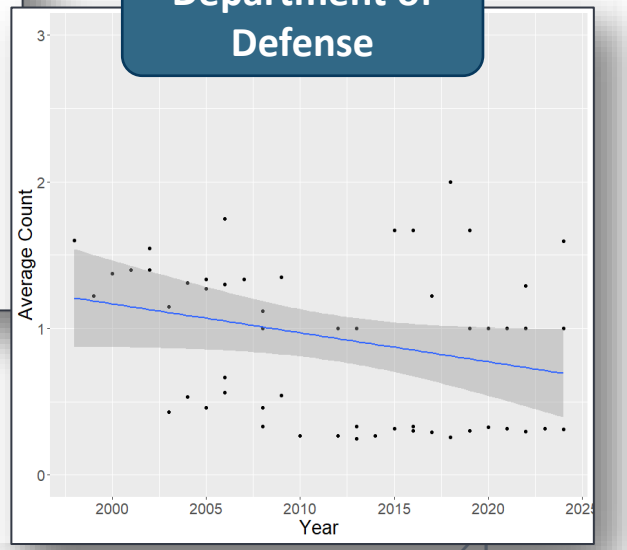
Installations



Military Service Branch

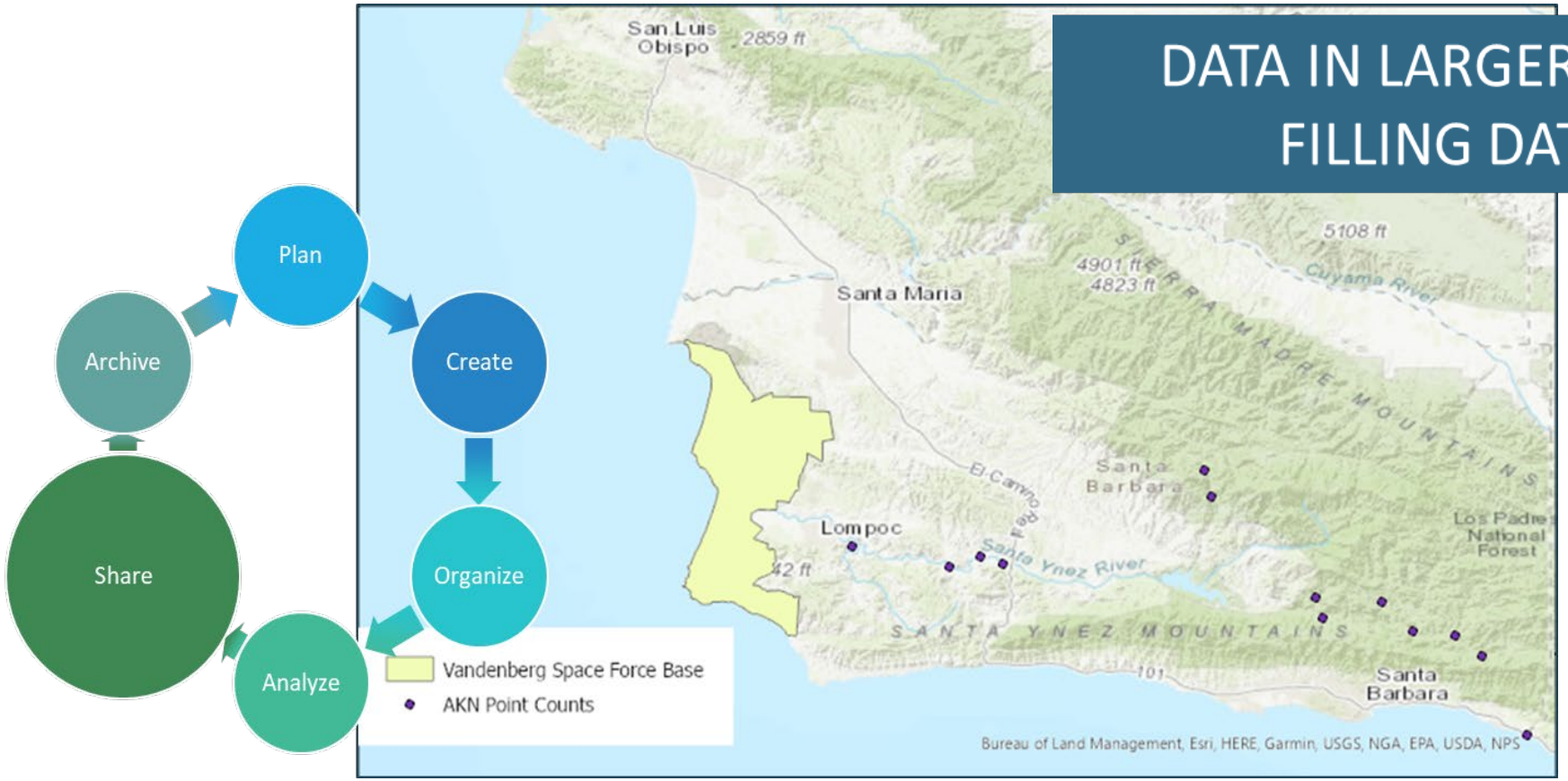


Department of Defense

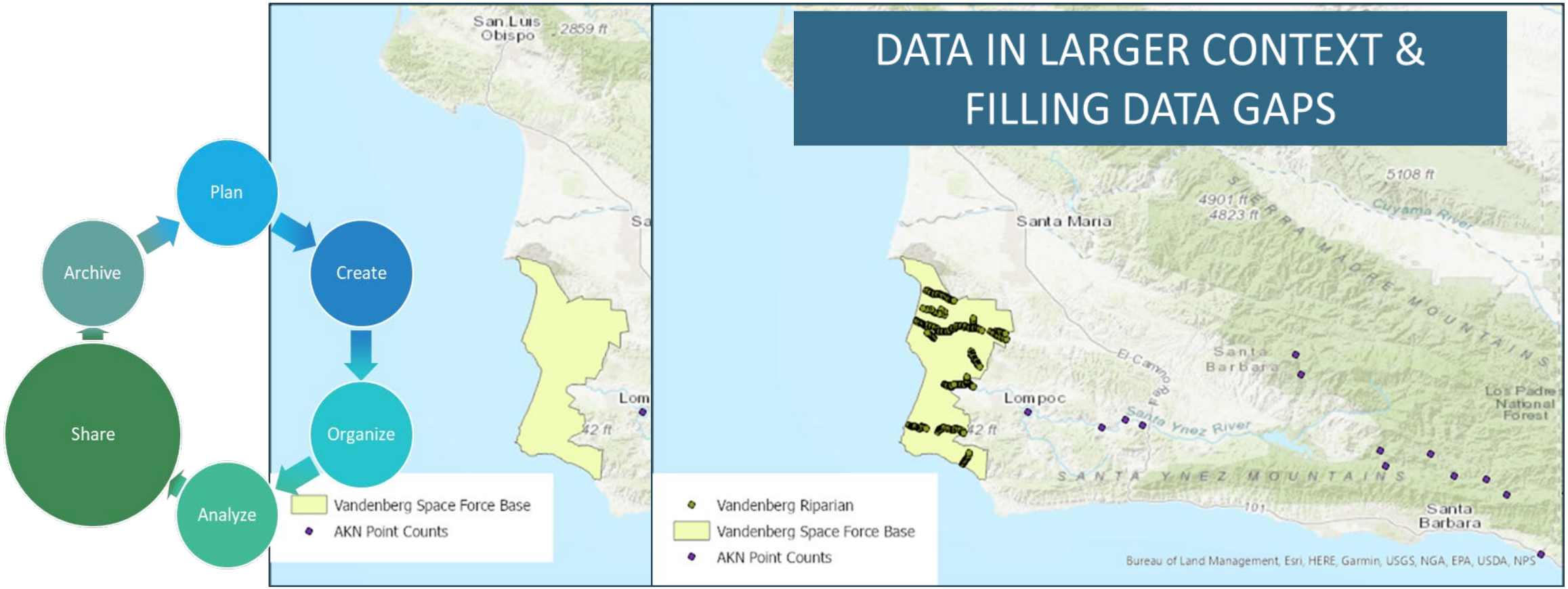


ANALYSIS AT MULTIPLE SCALES

FULL AVIAN DATA LIFE CYCLE



FULL AVIAN DATA LIFE CYCLE



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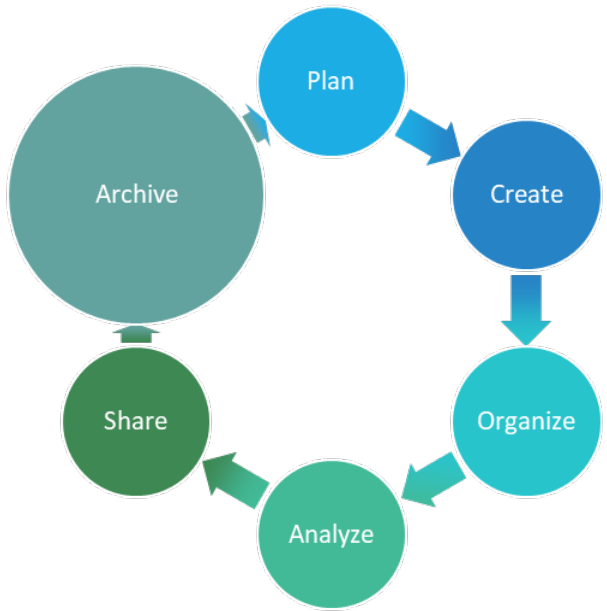
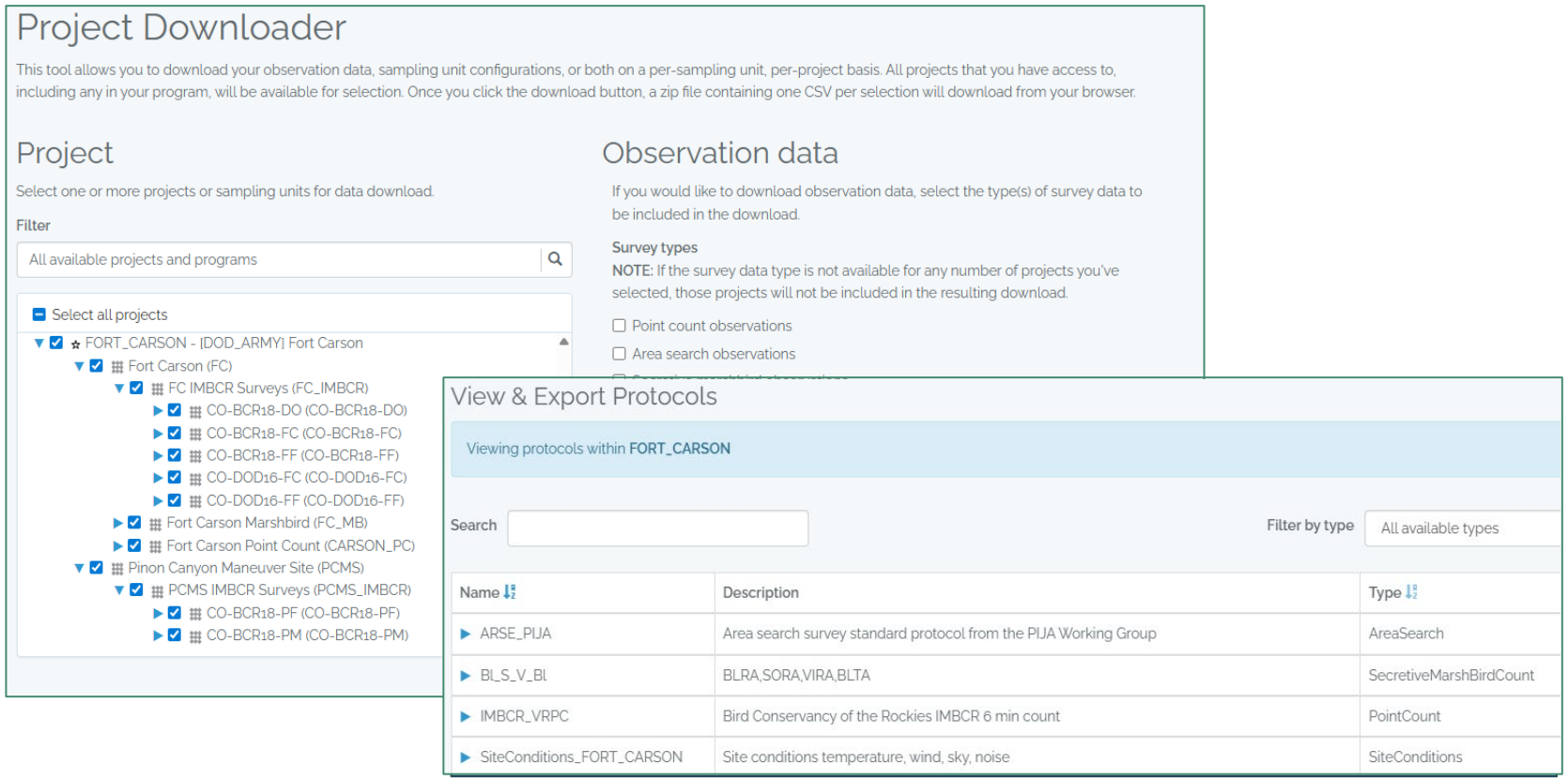
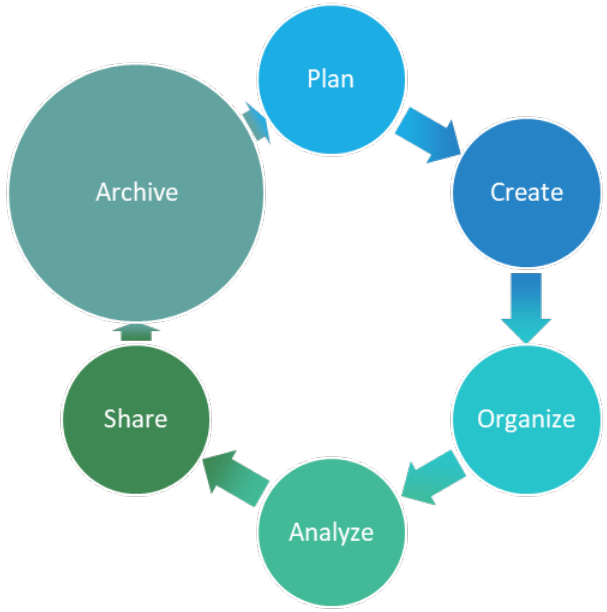
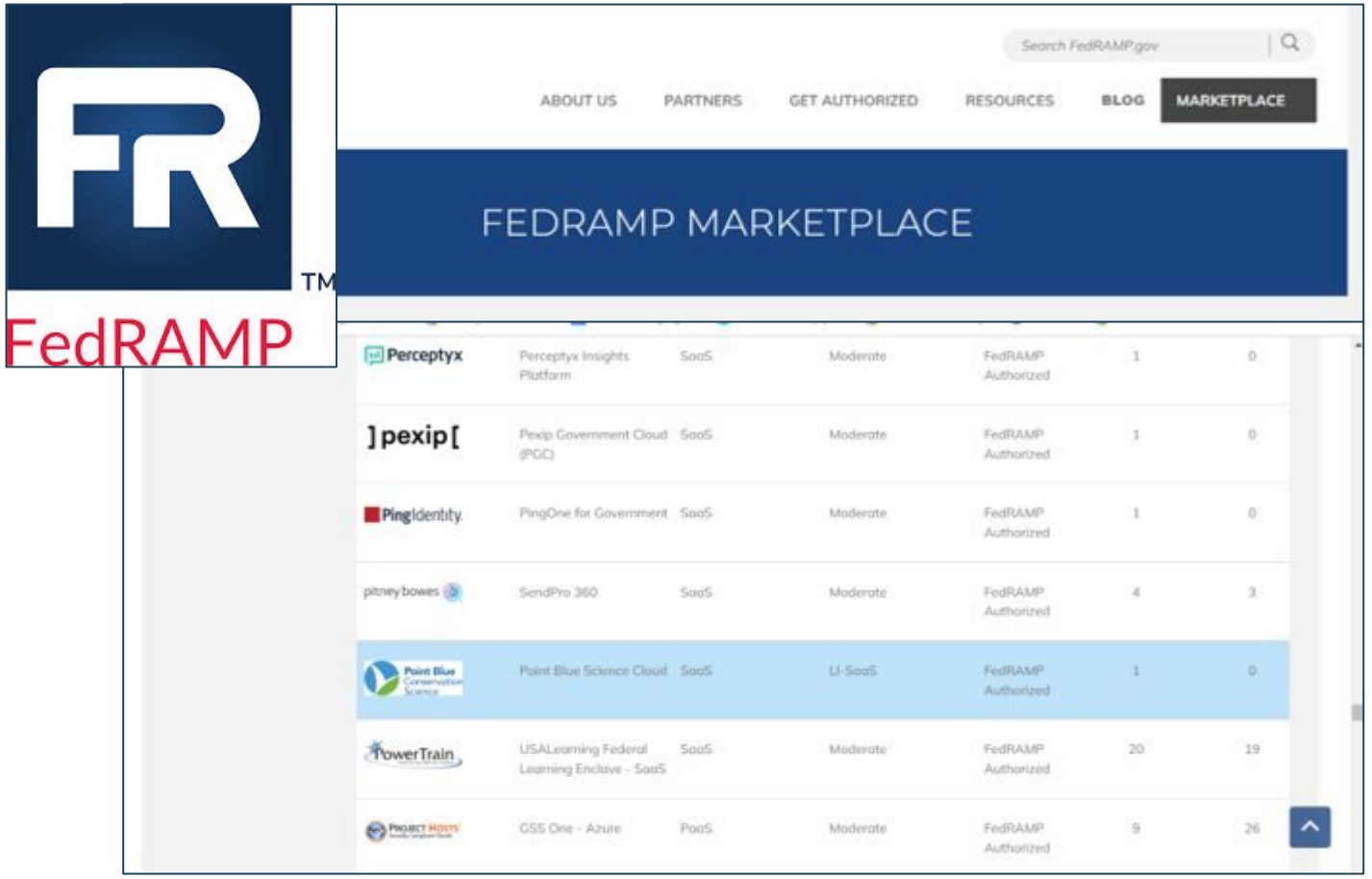




PERMANENT STORAGE & ACCESS

FULL AVIAN DATA LIFE CYCLE





CASE STUDY:

KLAMATH BIRD OBSERVATORY

AKN for Streamlined Data Management

- Bird monitoring since mid 90's
- Data entered directly into AKN since 2016
- Streamlined data management process
- Save time and money every field season

CASE STUDY:

KLAMATH BIRD OBSERVATORY

Pre-Season:

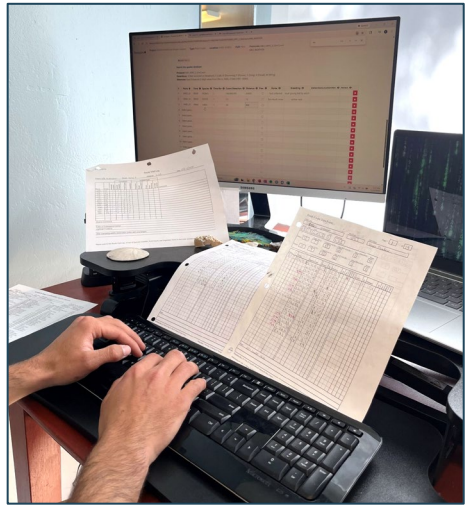
- Download survey locations from AKN to GPS units

During Season:

- Collect data on paper forms in field
- Enter data directly into AKN

Post-Season:

- Download data to share with partners and analyze



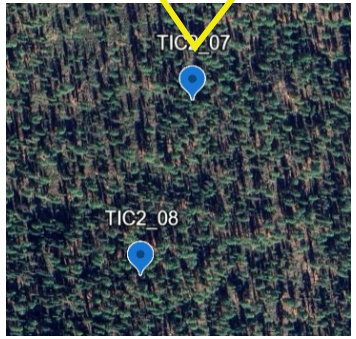
AVIAN KNOWLEDGE NETWORK

Klamath Bird Observatory

CASE STUDY:

KLAMATH BIRD OBSERVATORY

DecimalLatitude	DecimalLongitude	ObservationDate	Time	Collector	CommonName	SpeciesCode	Distance	DetectionCue
42.92888	-122.27877	6/17/2025	9:12:00	AH	Yellow-rumped Warbler	YRWA	20	S
42.92888	-122.27877	6/17/2025	9:15:00	AH	Pileated Woodpecker	PIWO	79	C
42.92888	-122.27877	6/17/2025	9:16:00	AH	Lazuli Bunting	LAZB	76	S
42.92888	-122.27877	6/17/2025	9:12:00	AH	Yellow-rumped Warbler	YRWA	58	S
42.92888	-122.27877	6/17/2025	9:12:00	AH	Nashville Warbler	NAWA	49	S
42.92888	-122.27877	6/17/2025	9:12:00	AH	Lazuli Bunting	LAZB	46	S
42.92888	-122.27877	6/17/2025	9:13:00	AH	Common Raven	CORA	63	V
42.92888	-122.27877	6/17/2025	9:13:00	AH	Golden-crowned Kinglet	GCKI	34	S



Cue	Description
C	Call
S	Song
V	Visual

CASE STUDY:
KLAMATH BIRD OBSERVATORY

Advantages and Efficiencies

- No updating, managing old Access databases or spreadsheets
- Efficient QA/QC process
- Quick data access for new staff members
- No reformatting needed to compile datasets for analyses/data sharing

CAN YOU LOG IN?

Biologists:

data.pointblue.org/science/biologists

Problems logging in?

Best to find a buddy or have one of us help!

Blue Grosbeak, Salton Sea, CA; Credit: C VanTassel

LIMITATIONS AND CAVEATS

Focus for this training: Point Count data

Office Hours are where we can dig deep into your installation's specific Projects, surveys, data management/analysis needs, and any system issues.

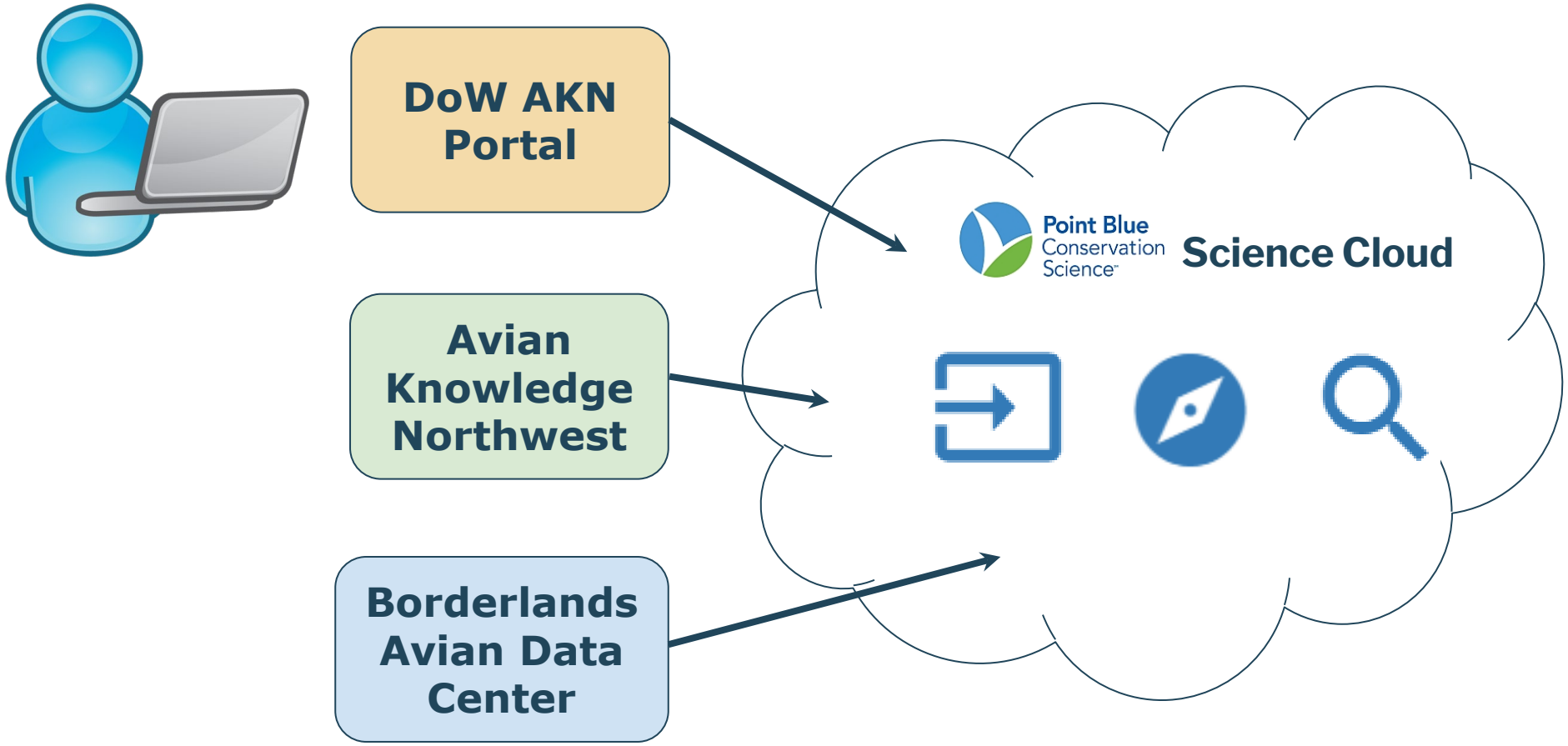
AKN PROJECT DATA 101

Point Blue Conservation Science

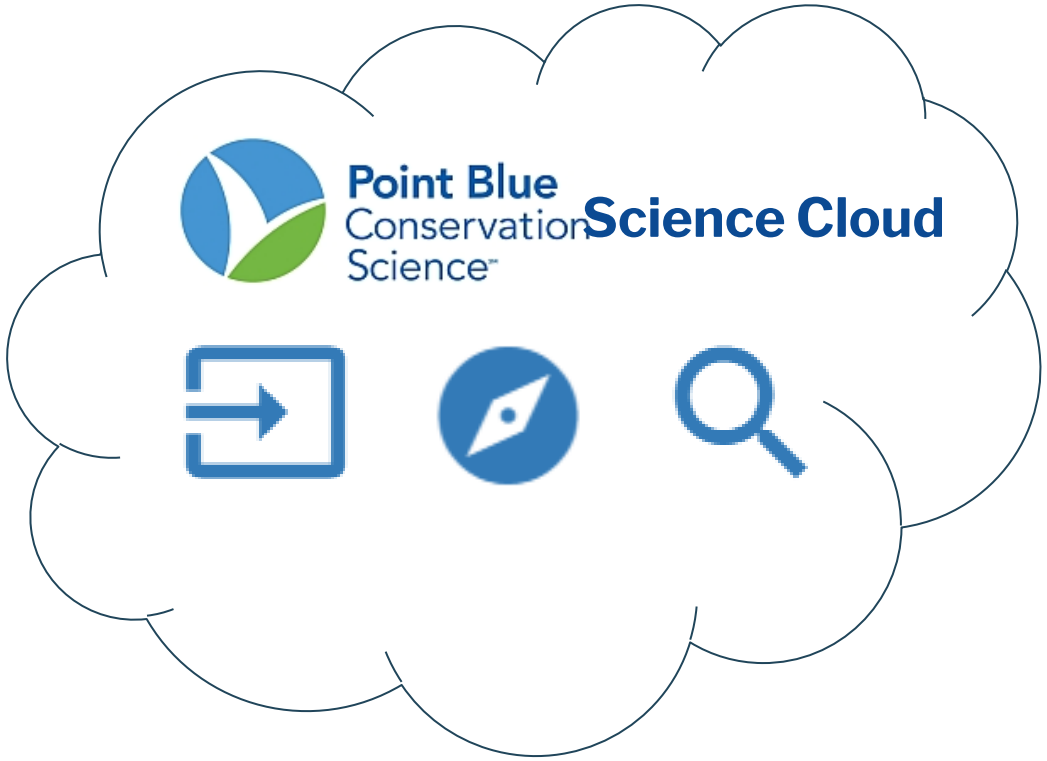
ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

AKN: COMMON CLOUD TECHNOLOGY



FOCUS FOR THIS TRAINING



How do we represent protocol-based science?

How do you get data in?

How do you get your data & information out?

What conservation questions can you answer?

MA ARMY NATIONAL GUARD

- Biologist leaving position one week after training
- Had 20+ years of data
- Working through data, realized inconsistencies in data entry
- Standardized protocol in system, showing required fields to be utilized in all future surveys
- Successfully uploaded 35,000 records prior to leaving DoW
- Data ready and available to successor

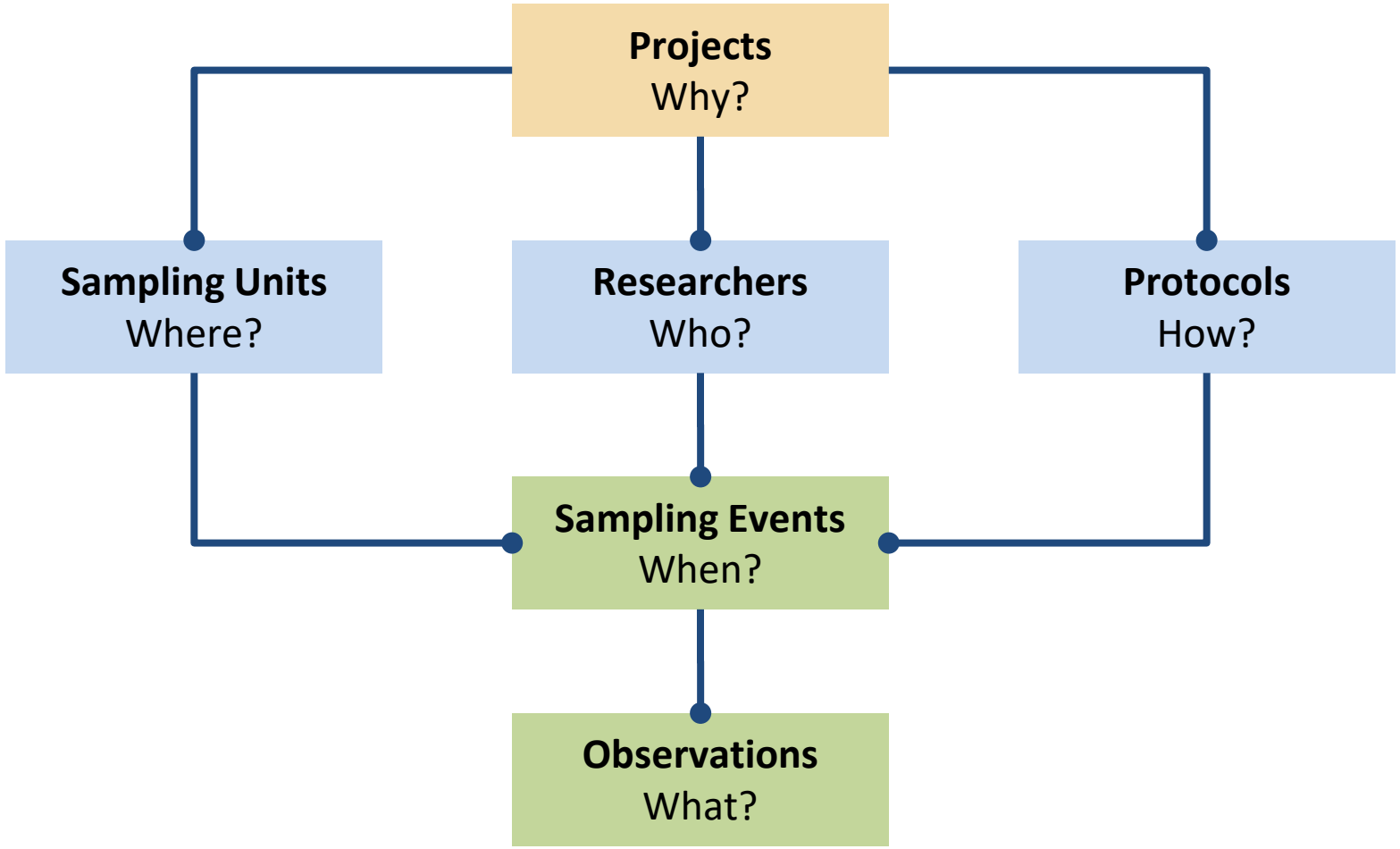
AKN PROJECT DATA 101

1. The parts of a Project Database

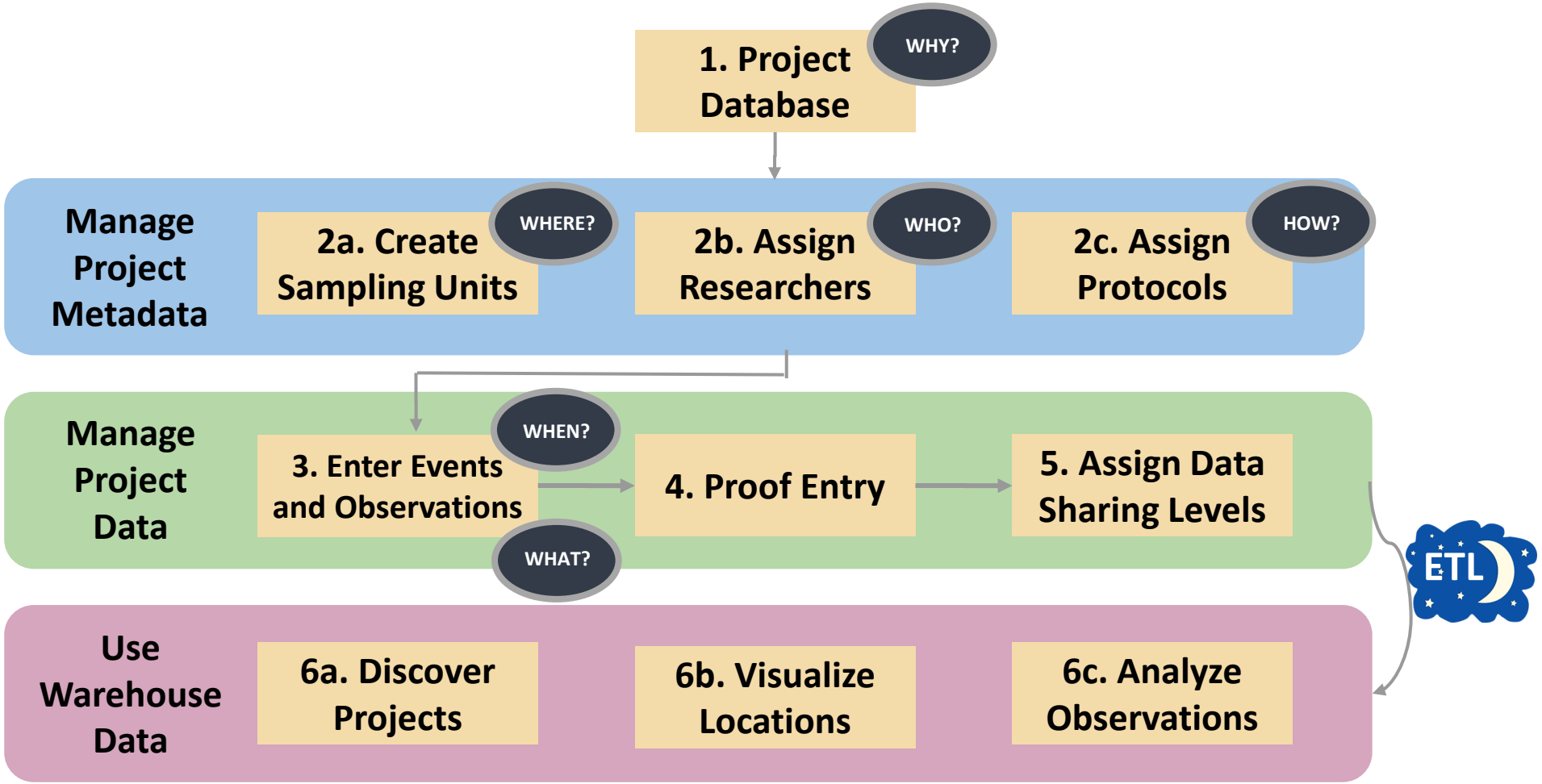
2. The workflow for creating and managing a Project

Double-crested Cormorant, Vero Beach, FL; Credit: Paul Block

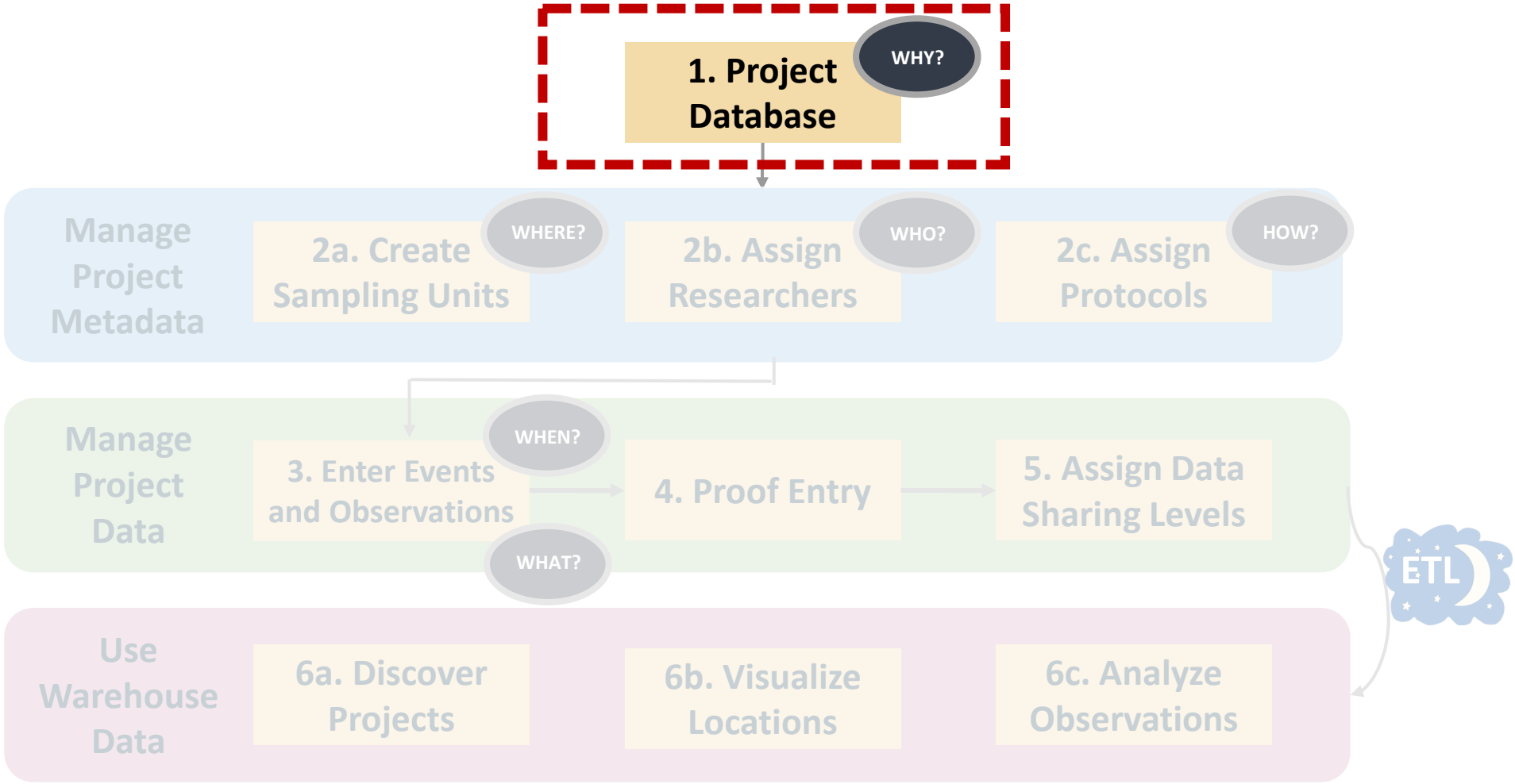
THE PROJECT DATABASE



WORKFLOW FOR MANAGING A PROJECT



WORKFLOW FOR MANAGING A PROJECT



PROJECT

Container for Event and Observation data

Many ways to organize

For DoW: Project = Installation

DoW Program Structure

*National Guard
Projects = State
Installation = Study Area

DoW Program Structure

Air Force Subprogram
Installation Project Databases

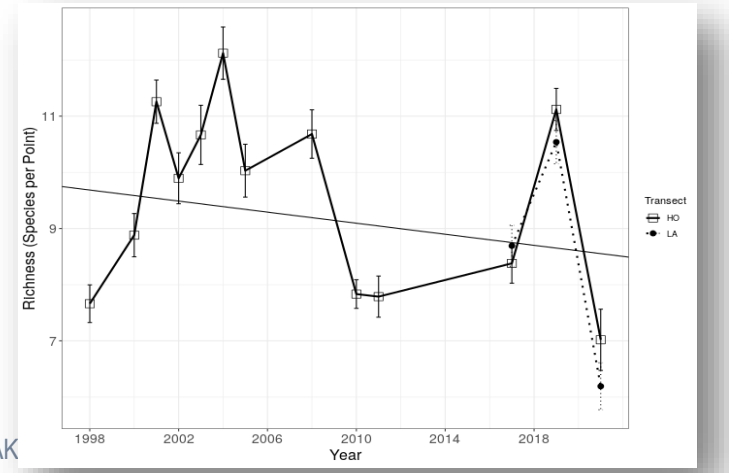
Army Subprogram
Installation Project Databases

Navy Subprogram
Installation Project Databases

Marine Subprogram
Installation Project Databases

National Guard Subprogram
Installation Project Databases

Vandenberg Space Force Base Project
Riparian Richness



DoW Program Structure

Air Force Subprogram — Installation Project Databases

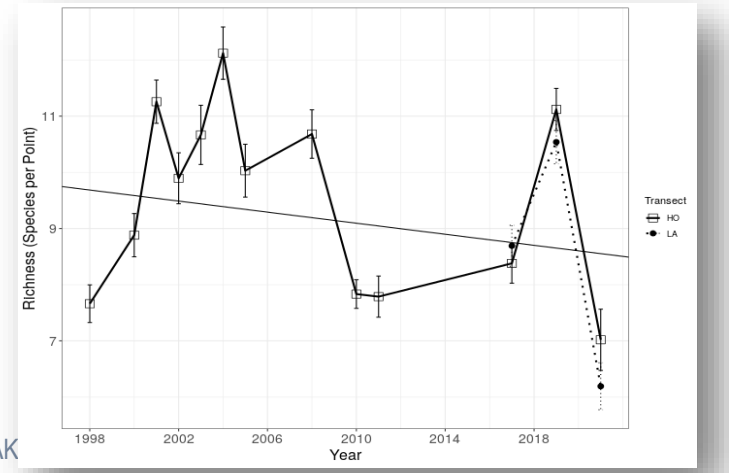
Army Subprogram — Installation Project Databases

Navy Subprogram — Installation Project Databases

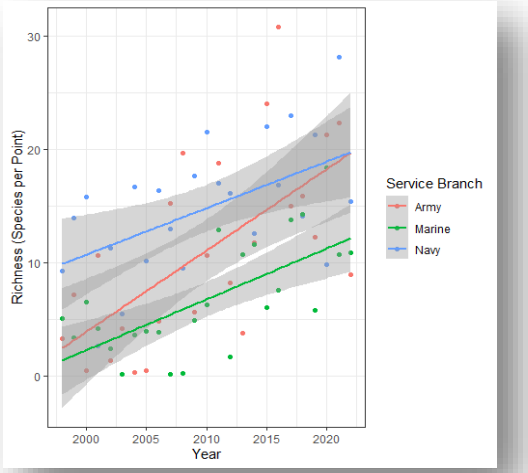
Marine Subprogram — Installation Project Databases

National Guard Subprogram — Installation Project Databases

Vandenberg Space Force Base Project Riparian Richness



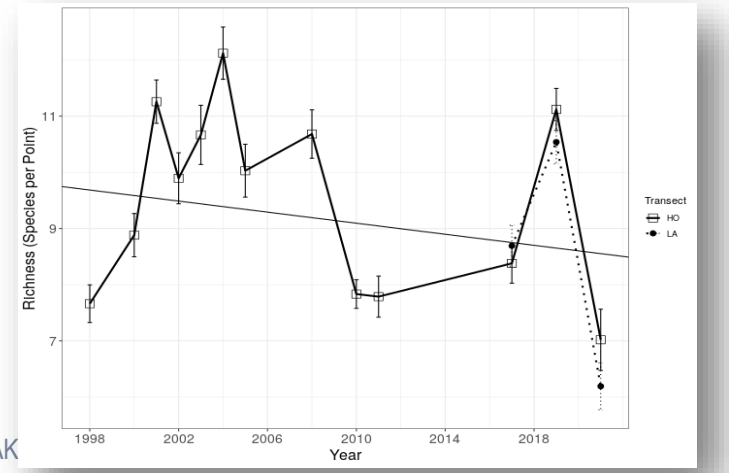
Service Branch Program Riparian Bird Richness



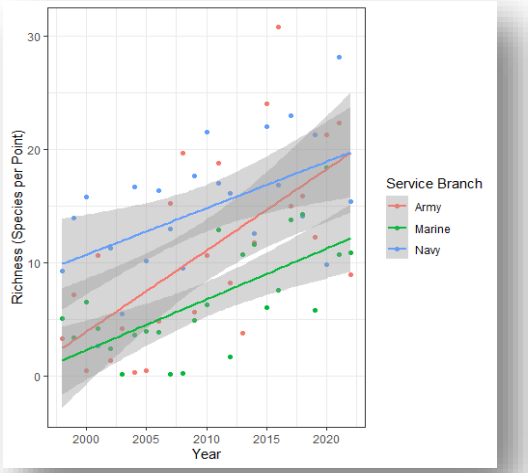
DoW Program Structure

Air Force Subprogram	Army Subprogram	Navy Subprogram	Marine Subprogram	National Guard Subprogram
Installation Project Databases	Installation Project Databases	Installation Project Databases	Installation Project Databases	Installation Project Databases

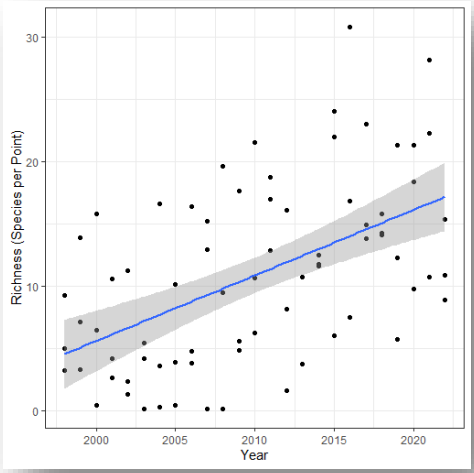
Vandenberg Space Force Base Project Riparian Richness



Service Branch Program Riparian Bird Richness



DoW Program Riparian Bird Richness

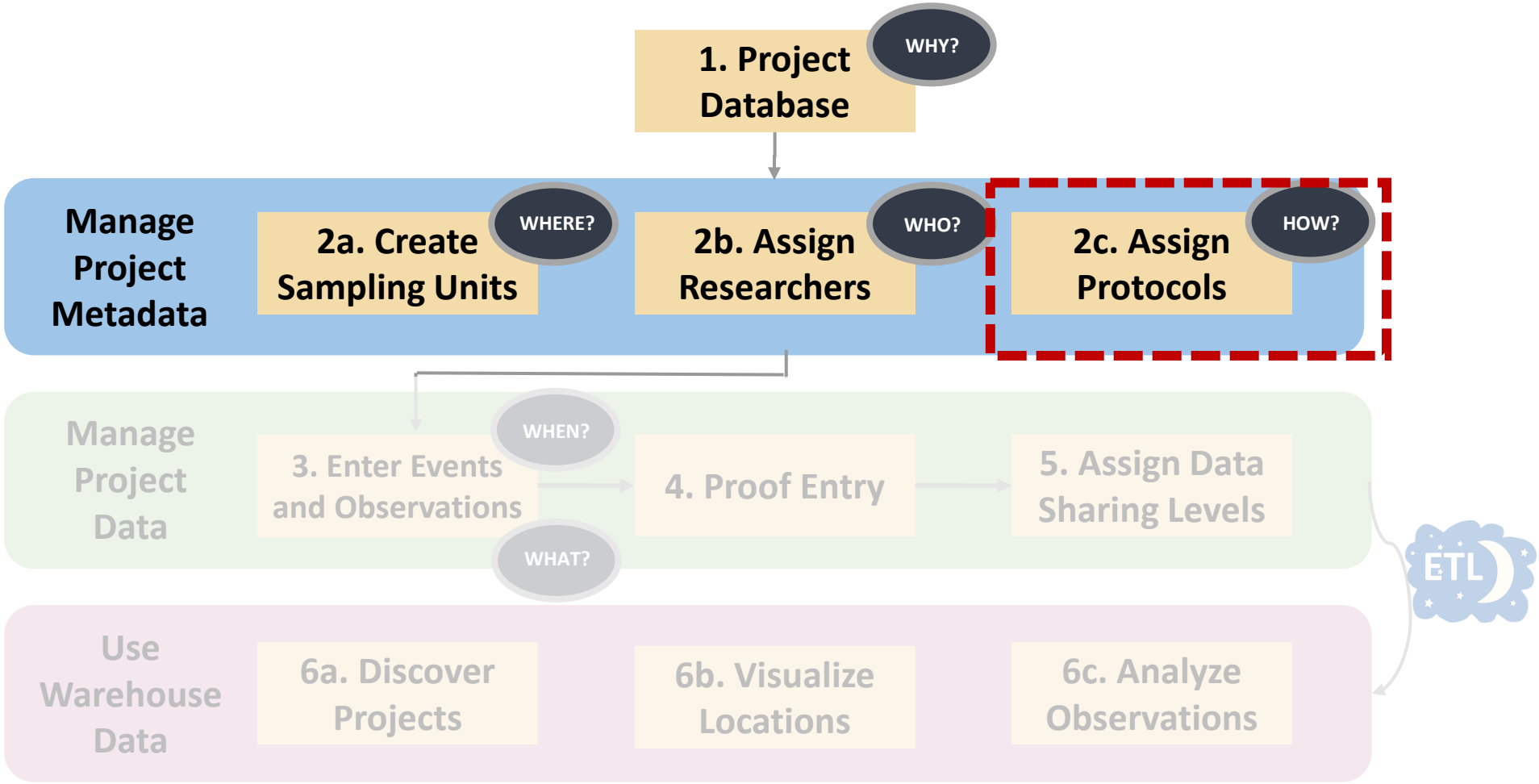


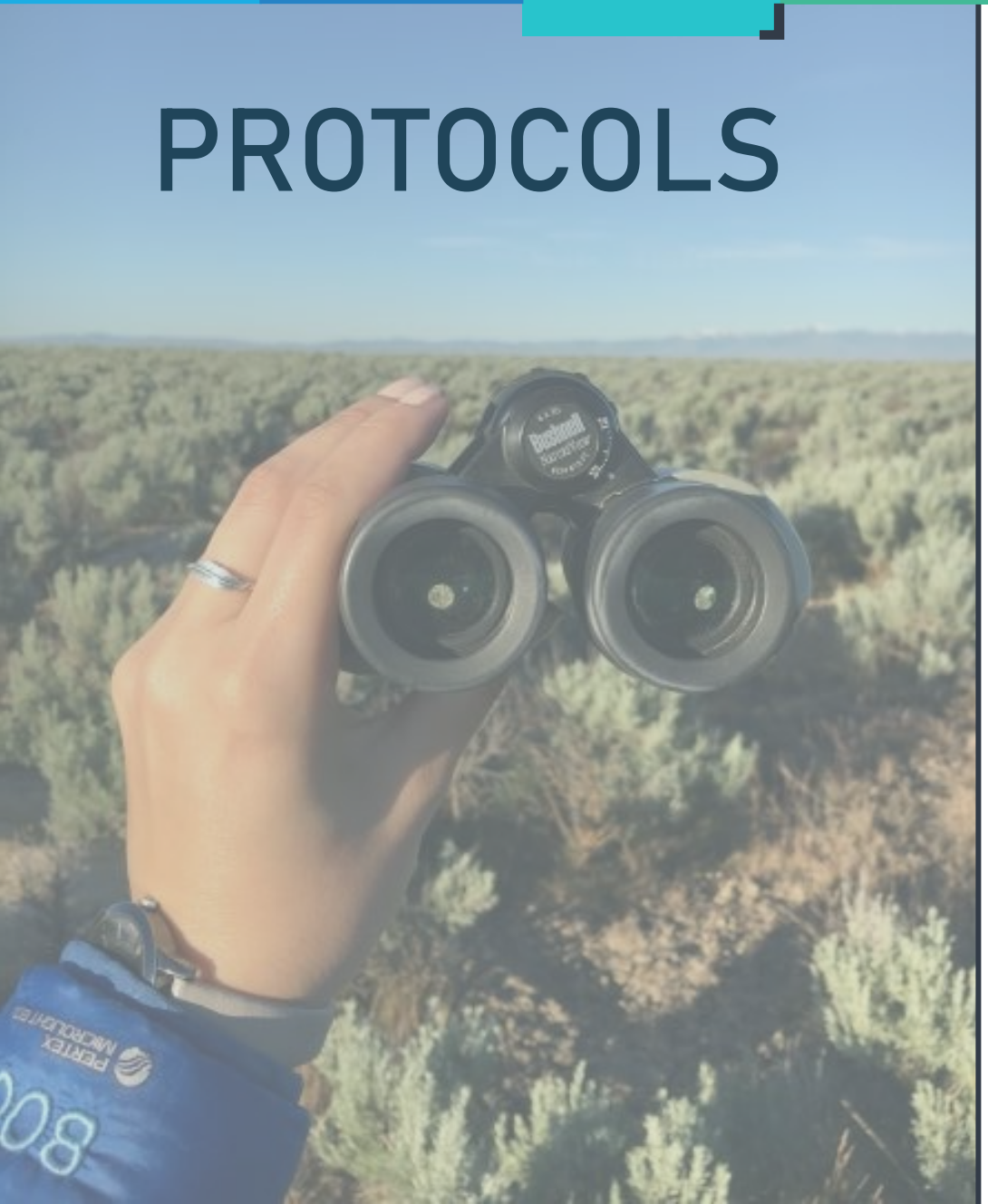
CASE STUDY:
BARRY M. GOLDWATER RANGE (BMGR), AZ

- Participating in Desert Thrasher Working Group
- Existing protocol in the AKN system
- Critical to add data to DoW-owned project
- Conducted surveys and entered data into BMGR project using desert thrasher data entry protocol available in AKN
- Shared data with thrasher initiative
- Data will show when querying DoW data for this species

Photo: Le Conte's Thrasher, Anza Borrego, CA; Credit: Charles Van Tassle

MANAGING A PROJECT: PROTOCOLS





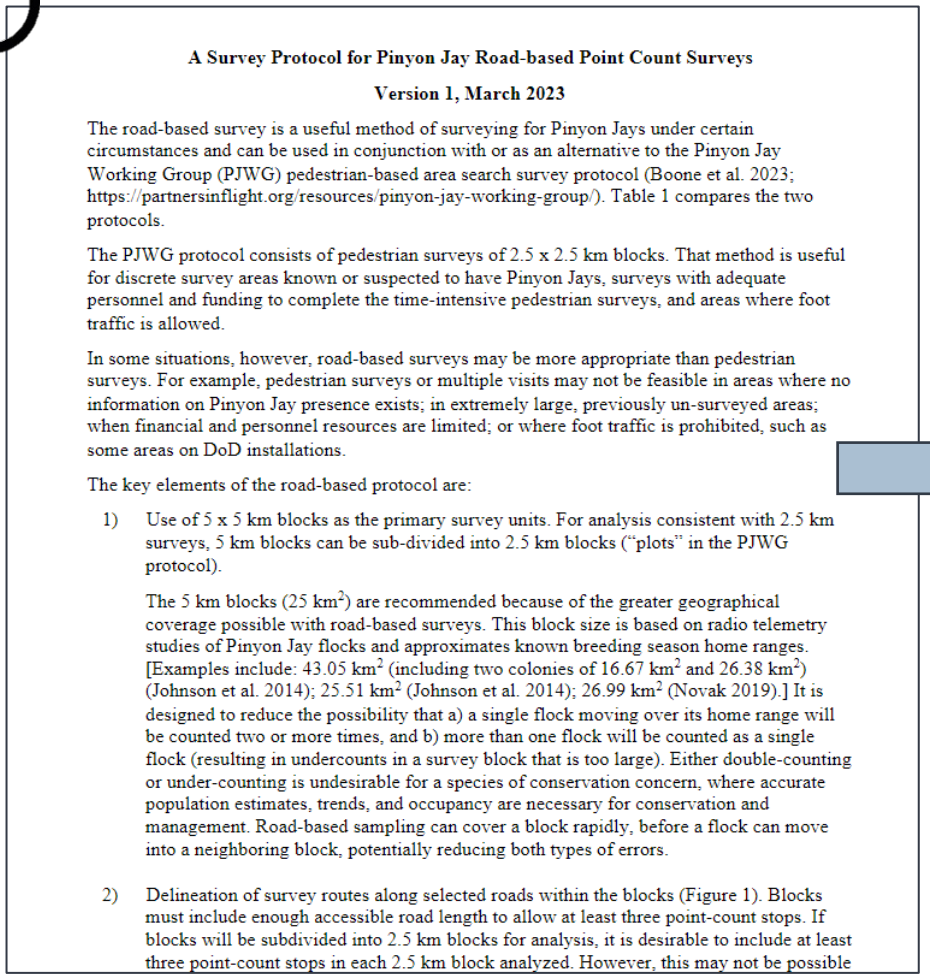
The *metadata* describing the methods and mechanics of **how** observations were collected

Should provide enough information for researcher 20 years from now to understand the methods you used

HOW?

2c. Assign Protocols

FIELD METHODS vs. AKN PROTOCOLS



A Survey Protocol for Pinyon Jay Road-based Point Count Surveys

Version 1, March 2023

The road-based survey is a useful method of surveying for Pinyon Jays under certain circumstances and can be used in conjunction with or as an alternative to the Pinyon Jay Working Group (PJWG) pedestrian-based area search survey protocol (Boone et al. 2023; https://partnersinflight.org/resources/pinyon-jay-working-group/). Table 1 compares the two protocols.

The PJWG protocol consists of pedestrian surveys of 2.5 x 2.5 km blocks. That method is useful for discrete survey areas known or suspected to have Pinyon Jays, surveys with adequate personnel and funding to complete the time-intensive pedestrian surveys, and areas where foot traffic is allowed.

In some situations, however, road-based surveys may be more appropriate than pedestrian surveys. For example, pedestrian surveys or multiple visits may not be feasible in areas where no information on Pinyon Jay presence exists; in extremely large, previously un-surveyed areas; when financial and personnel resources are limited; or where foot traffic is prohibited, such as some areas on DoD installations.

The key elements of the road-based protocol are:

1) Use of 5 x 5 km blocks as the primary survey units. For analysis consistent with 2.5 km surveys, 5 km blocks can be sub-divided into 2.5 km blocks ("plots" in the PJWG protocol).

   The 5 km blocks (25 km^2) are recommended because of the greater geographical coverage possible with road-based surveys. This block size is based on radio telemetry studies of Pinyon Jay flocks and approximates known breeding season home ranges. [Examples include: 43.05 km^2 (including two colonies of 16.67 km^2 and 26.38 km^2) (Johnson et al. 2014); 25.51 km^2 (Johnson et al. 2014); 26.99 km^2 (Novak 2019).] It is designed to reduce the possibility that a) a single flock moving over its home range will be counted two or more times, and b) more than one flock will be counted as a single flock (resulting in undercounts in a survey block that is too large). Either double-counting or under-counting is undesirable for a species of conservation concern, where accurate population estimates, trends, and occupancy are necessary for conservation and management. Road-based sampling can cover a block rapidly, before a flock can move into a neighboring block, potentially reducing both types of errors.

2) Delineation of survey routes along selected roads within the blocks (Figure 1). Blocks must include enough accessible road length to allow at least three point-count stops. If blocks will be subdivided into 2.5 km blocks for analysis, it is desirable to include at least three point-count stops in each 2.5 km block analyzed. However, this may not be possible

Sampling Protocol Definition

Protocol: PIJA_6min

Description	Road-side Point Count PIJA protocol
URL	No URL
Duration	6 minutes
Protocol type	PointCount
Other characteristics	Binned distance protocol

Detection Cues

Summary: A (Aural), NA (Not recorded on datasheet), V (Visual), VA (Both Visual and Aural)

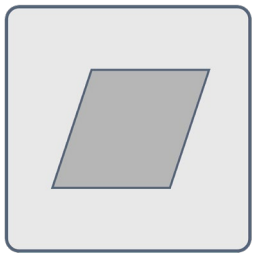
Cue	Description
A	Aural
NA	Not recorded on datasheet
V	Visual
VA	Both Visual and Aural

Distance Bins

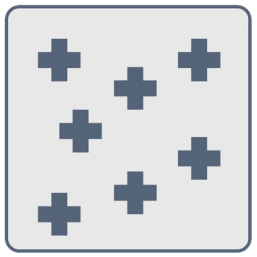
HOW?

2c. Assign Protocols

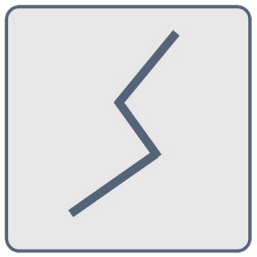
PRIMARY PROTOCOL TYPES



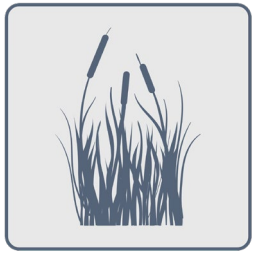
Area Search



Point Count



Linear Transect



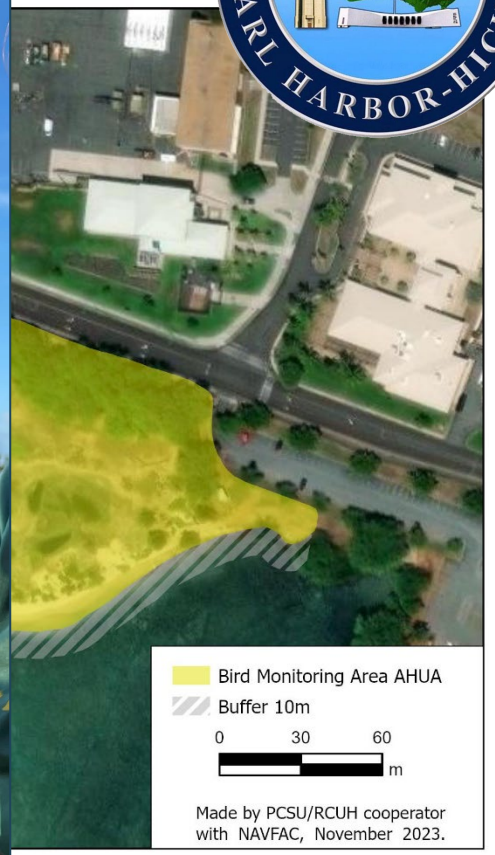
Secretive Marshbird

Site Conditions

AVIAN KNOWLEDGE NETWORK

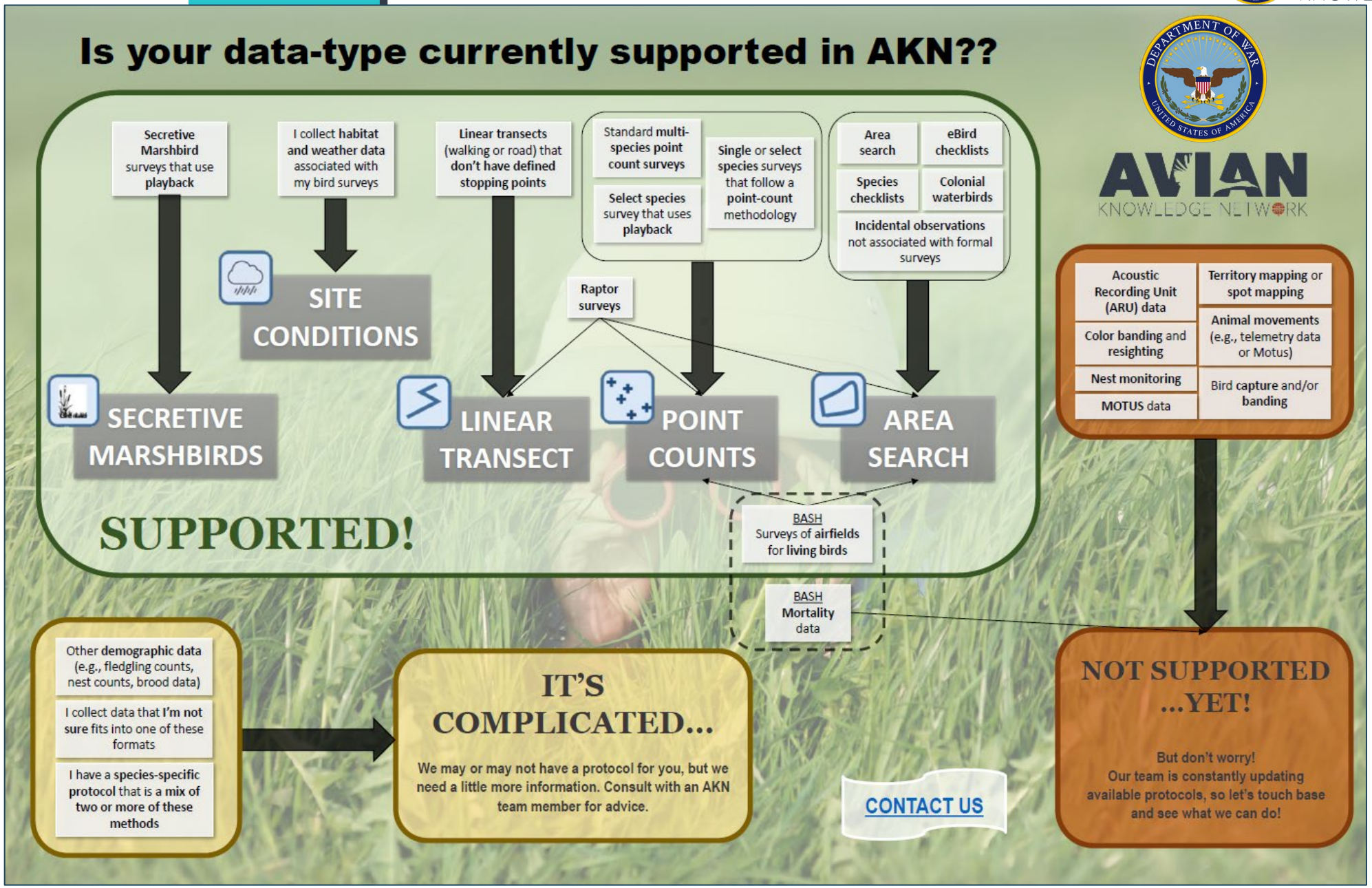
PROTOCOL TYPES DISCUSSION

Point Counts



HOW?

2c. Assign Protocols


Is your data-type currently supported in AKN??
Secretive Marshbird surveys that use playback
I collect habitat and weather data associated with my bird surveys
Linear transects (walking or road) that don't have defined stopping points
Standard multi-species point count surveys
Select species survey that uses playback
Single or select species surveys that follow a point-count methodology
Area search
eBird checklists
Species checklists
Colonial waterbirds
Incidental observations not associated with formal surveys
SITE CONDITIONS
Raptor surveys
SECRETIVE MARSHBIRDS
LINEAR TRANSECT
POINT COUNTS
AREA SEARCH
SUPPORTED!
BASH Surveys of airfields for living birds
BASH Mortality data
Acoustic Recording Unit (ARU) data
Territory mapping or spot mapping
Color banding and resighting
Animal movements (e.g., telemetry data or Motus)
Nest monitoring
Bird capture and/or banding
MOTUS data
Other demographic data (e.g., fledgling counts, nest counts, brood data)
I collect data that I'm not sure fits into one of these formats
I have a species-specific protocol that is a mix of two or more of these methods
IT'S COMPLICATED...
We may or may not have a protocol for you, but we need a little more information. Consult with an AKN team member for advice.
CONTACT US
NOT SUPPORTED ...YET!
But don't worry! Our team is constantly updating available protocols, so let's touch base and see what we can do!

POINT COUNT PROTOCOLS

Duration of survey at each point

Time (binned)

Distance (binned or exact), maximum

Detection codes

Can include **breeding behavior**

Assumed **exhaustive** survey

Each animal **counted once**

HOW?

2c. Assign Protocols

POINT COUNT PROTOCOL EXAMPLES

Compare how 3 field methodologies are represented:

Bird Conservancy of the Rockies IMBCR protocol

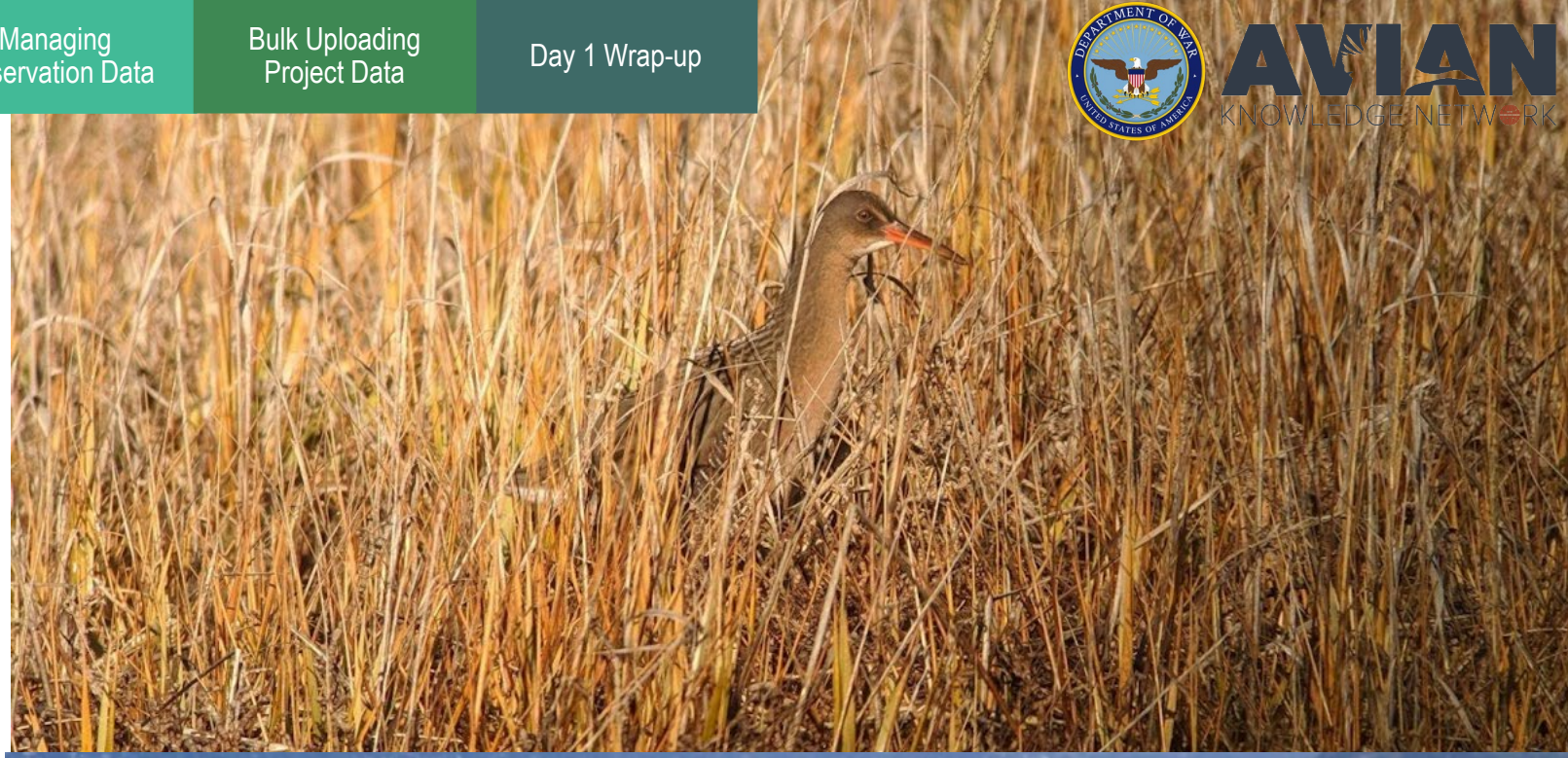
Point Blue protocol

KBO protocol

2c. Assign Protocols

HOW?

HOW TO ACHIEVE CONFLICTING CONSERVATION OBJECTIVES: THE IMPORTANCE OF STANDARD PROTOCOLS



ASSESSING RAIL RESPONSE TO MANAGEMENT: THE CHALLENGE

Coastal Conservancy

Avocet Research Associates

U.S. FISH & WILDLIFE SERVICE — DEPARTMENT OF THE INTERIOR

CALIFORNIA DEPARTMENT OF FISH&GAME

SAN FRANCISCO ESTUARY INVASIVE SPARTINA PROJECT

Multi-partner Effort

Point Blue

DEVELOPING A STANDARD PROTOCOL

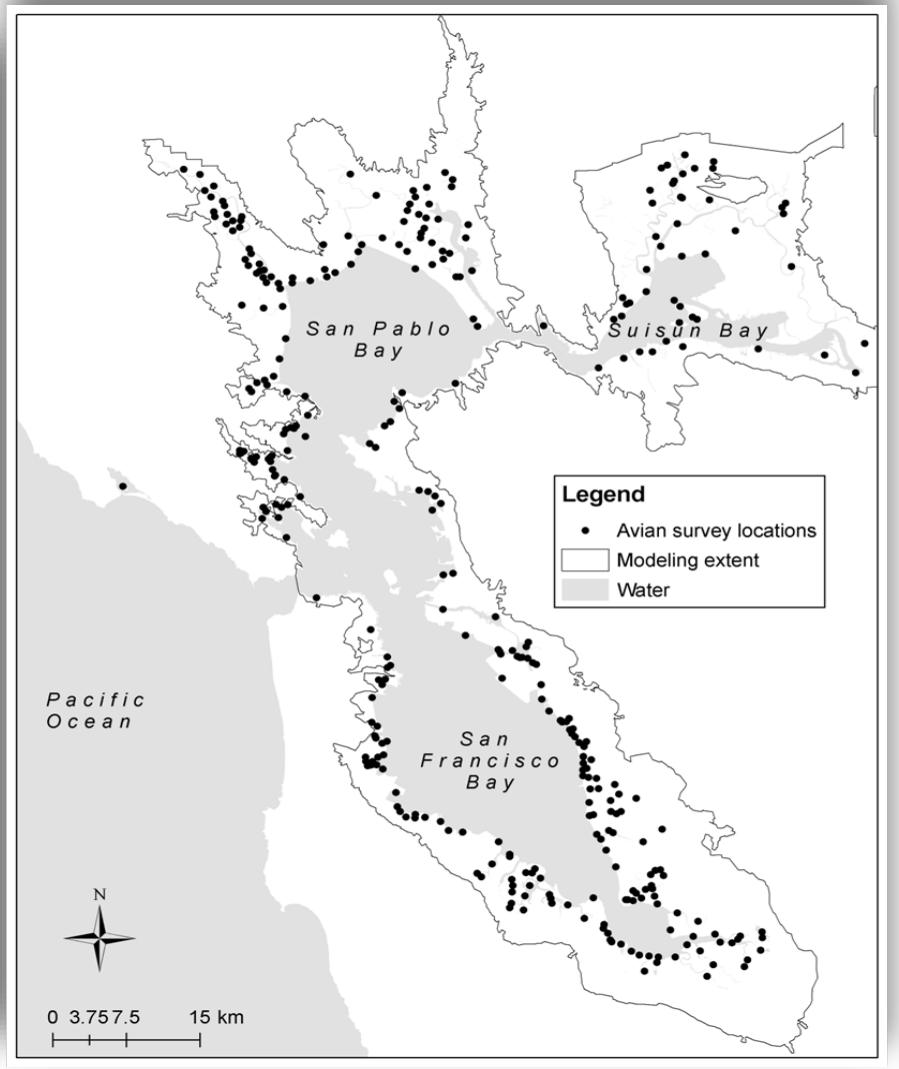
- North American Marsh Bird Protocol- SF Bay
  - 10 min broadcast point count
- Long-term dataset since 2005
- **All partner data in the AKN**


U.S. Fish and Wildlife Service
U.S. Department of the Interior
National Wildlife Refuge System
Point Blue Conservation Science

Site-specific Protocol for Monitoring Marsh Birds

Don Edwards San Francisco Bay and
San Pablo Bay National Wildlife Refuges

Survey ID Numbers: FF08RSFB00-003 and FF08RSNP00-008



CHOOSING PROTOCOLS (DEMONSTRATION)

Goal: select Point Count and Site Conditions protocols that match data sheet

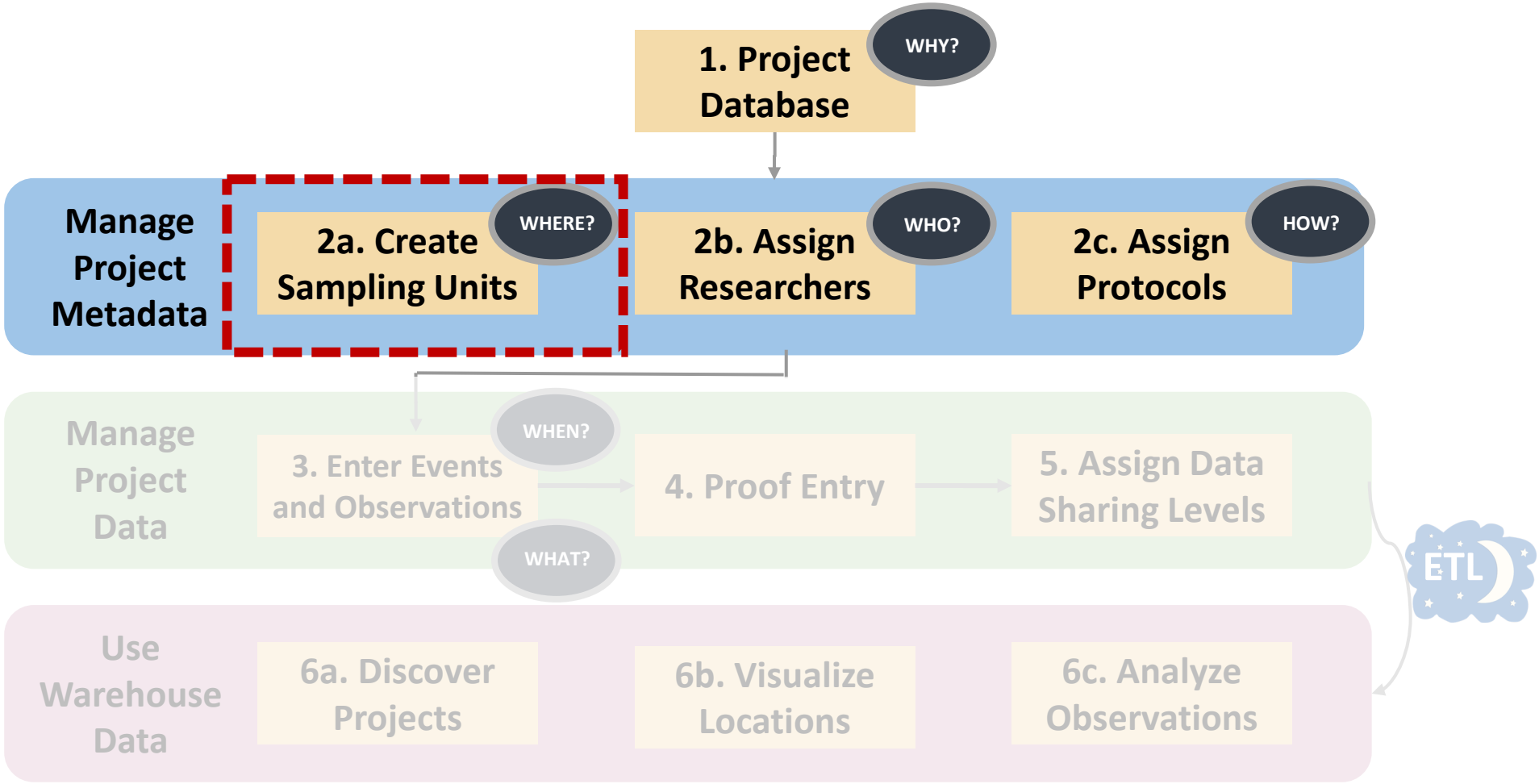
Tools:

- Our data sheet
- Protocol search tool
- Project Leaders for adding protocol to project

2c. Assign Protocols

HOW?

MANAGING A PROJECT: SAMPLING UNITS



SAMPLING UNITS

The locations where observations are collected

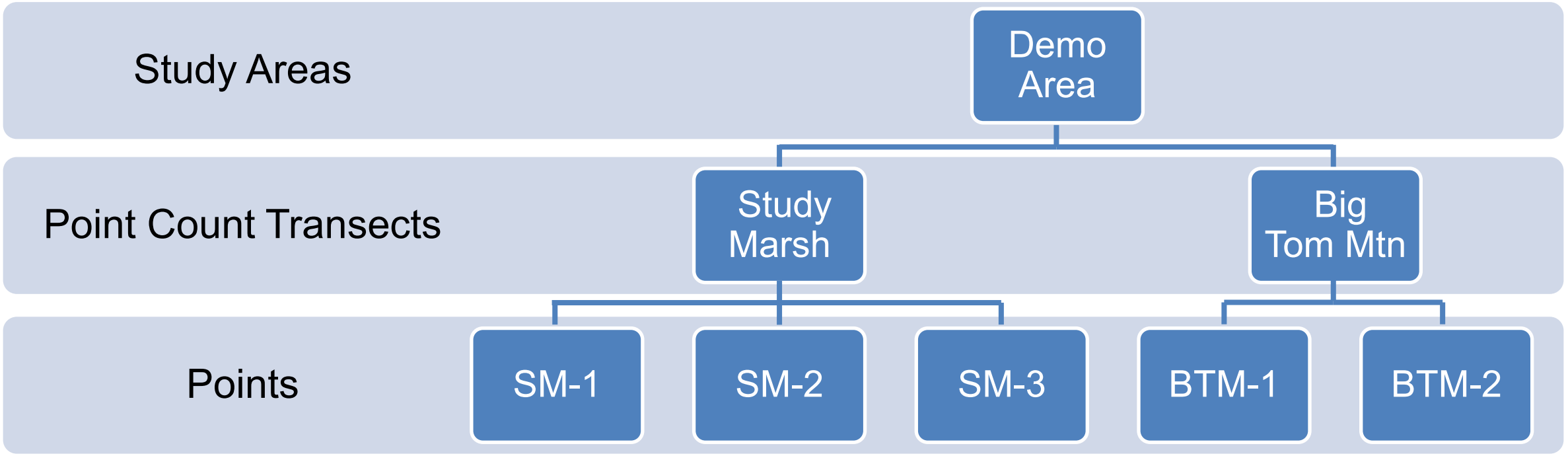
Organized into a tree (hierarchy)

Uniquely named with Project

Can have Point/Line/Polygon

SAMPLING UNIT TYPES FOR POINT COUNTS

Project: DOD_DEMO

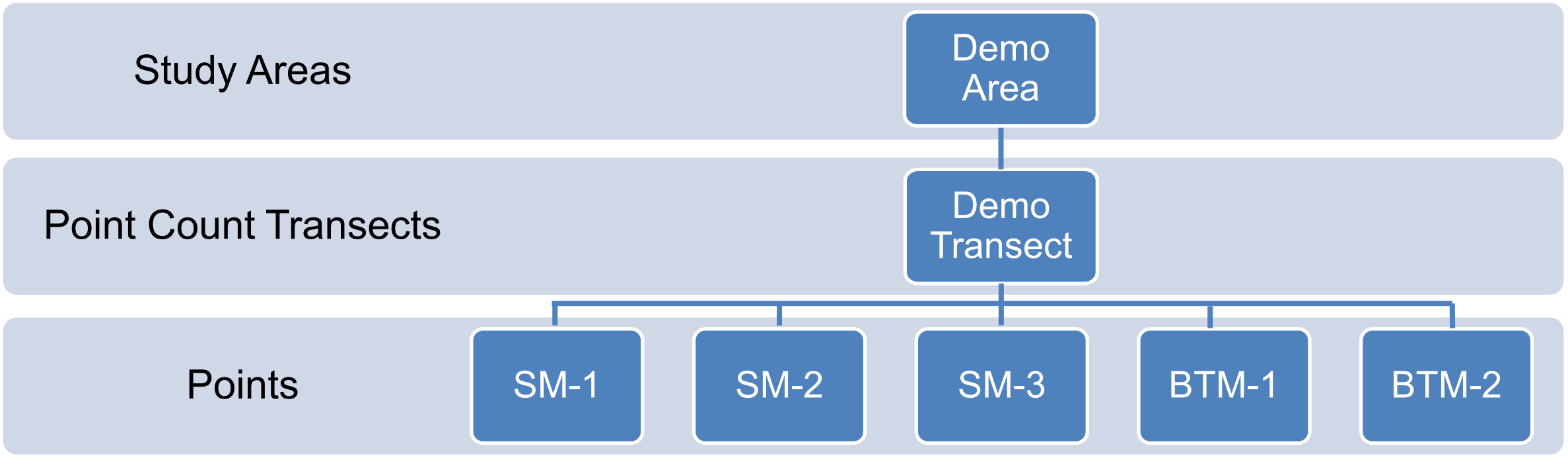


Replicates or independent points?

What questions are you asking?

SAMPLING UNIT TYPES FOR POINT COUNTS

Project: DOD_DEMO



Replicates or independent points?

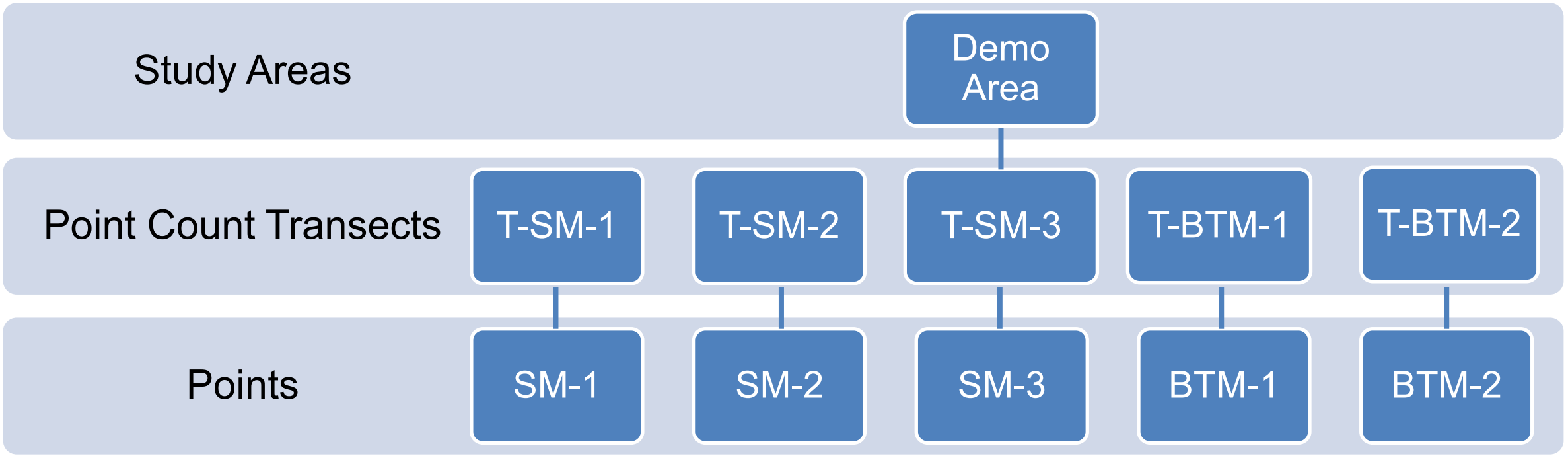
What questions are you asking?

WHERE?

2a. Create Sampling Units

SAMPLING UNIT TYPES FOR POINT COUNTS

Project: DOD_DEMO



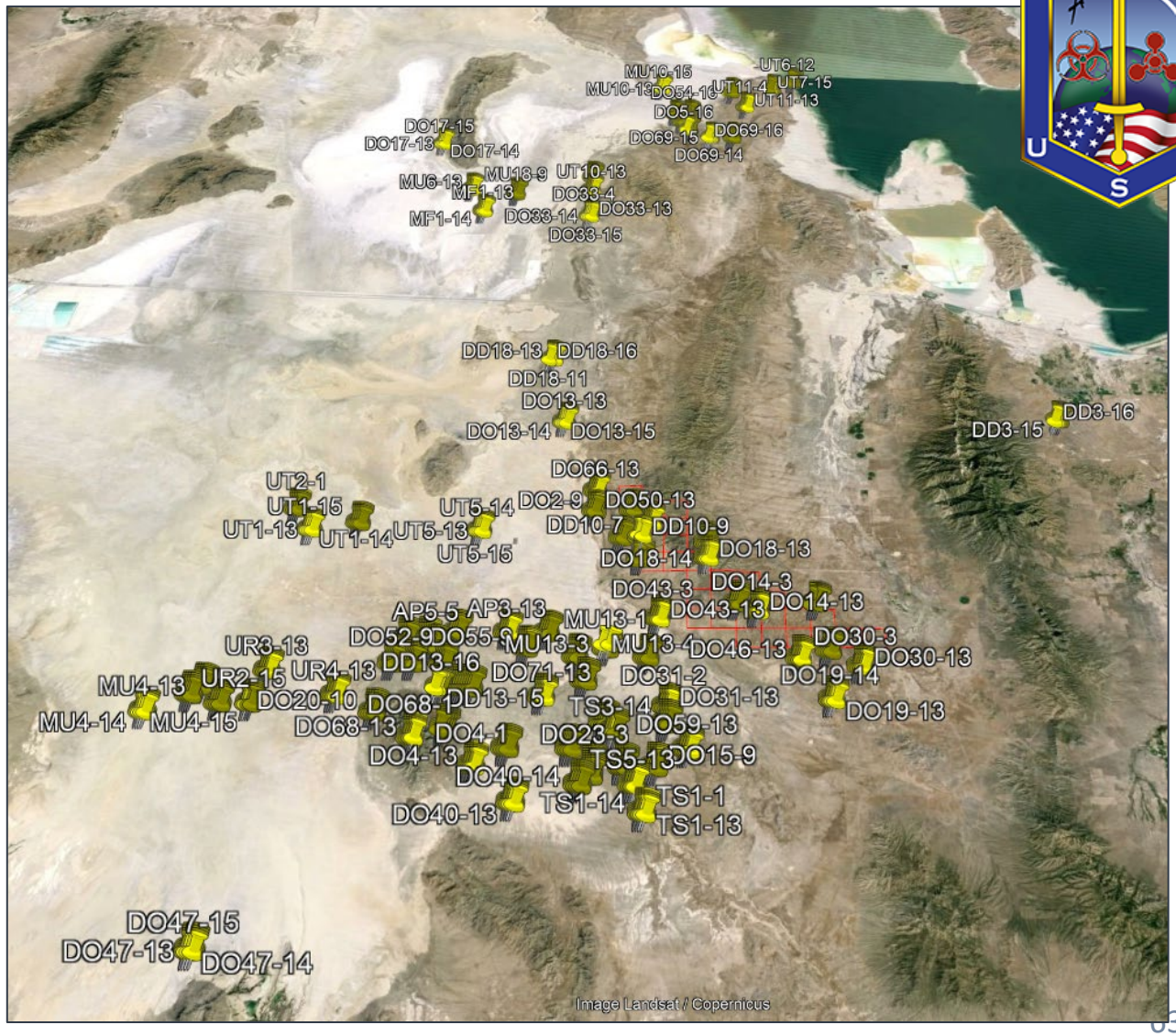
Example- Single-point Transects (independent points)

WHERE?

2a. Create Sampling Units

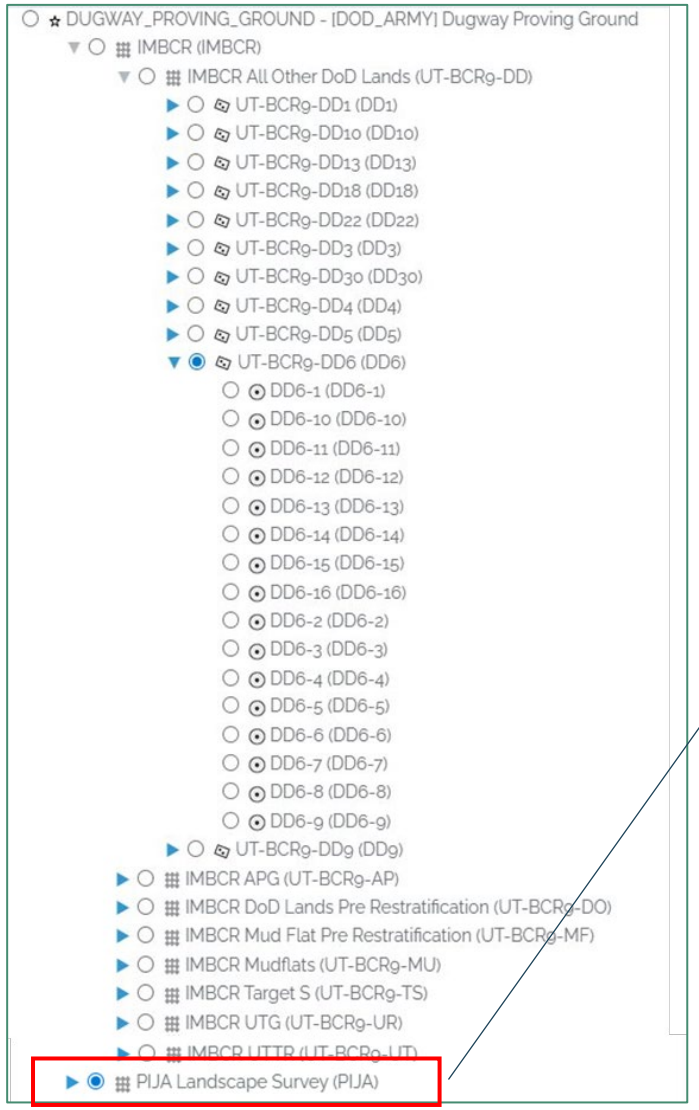
AVIAN KNOWLEDGE NETWORK

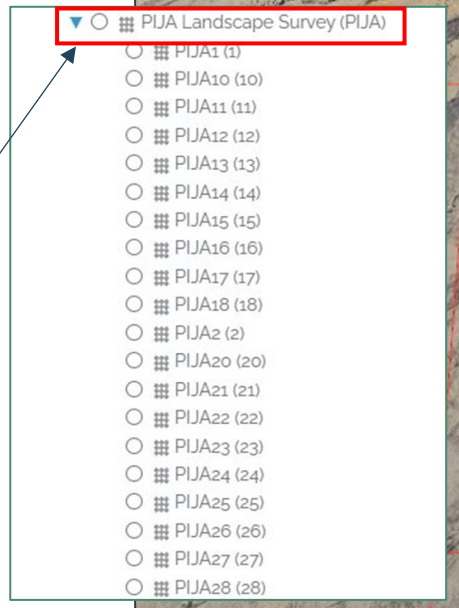
- DUGWAY_PROVING_GROUND - [DOD_ARMY] Dugway Proving Ground
  - IMBCR (IMBCR)
    - IMBCR All Other DoD Lands (UT-BCRg-DD)
    - IMBCR APG (UT-BCRg-AP)
    - IMBCR DoD Lands Pre Restratification (UT-BCRg-DO)
    - IMBCR Mud Flat Pre Restratification (UT-BCRg-MF)
    - IMBCR Mudflats (UT-BCRg-MU)
    - IMBCR Target S (UT-BCRg-TS)
    - IMBCR UTG (UT-BCRg-UR)
    - IMBCR UTTR (UT-BCRg-UT)
  - PIJA Landscape Survey (PIJA)

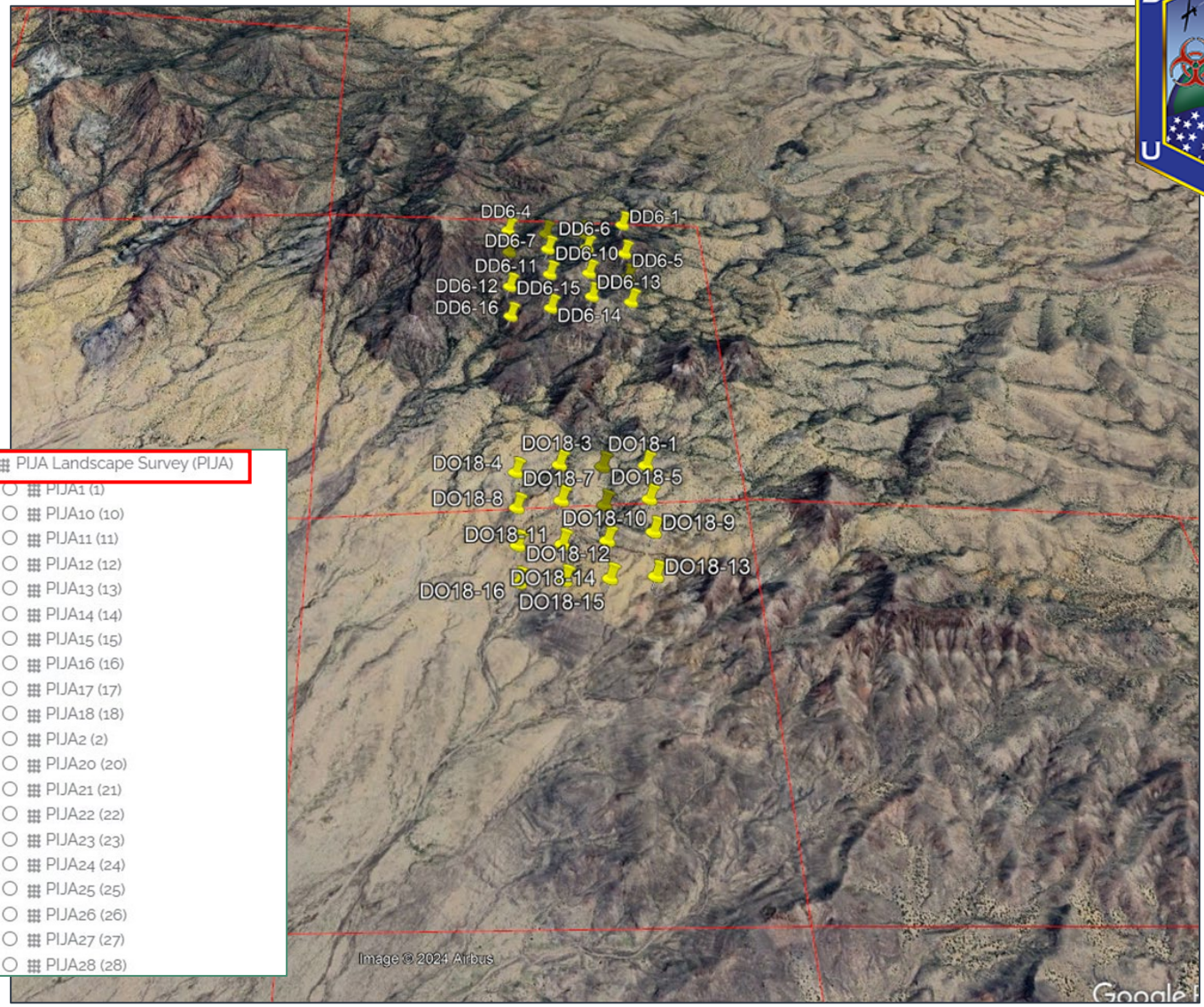


= Point Count Point

= Area Search

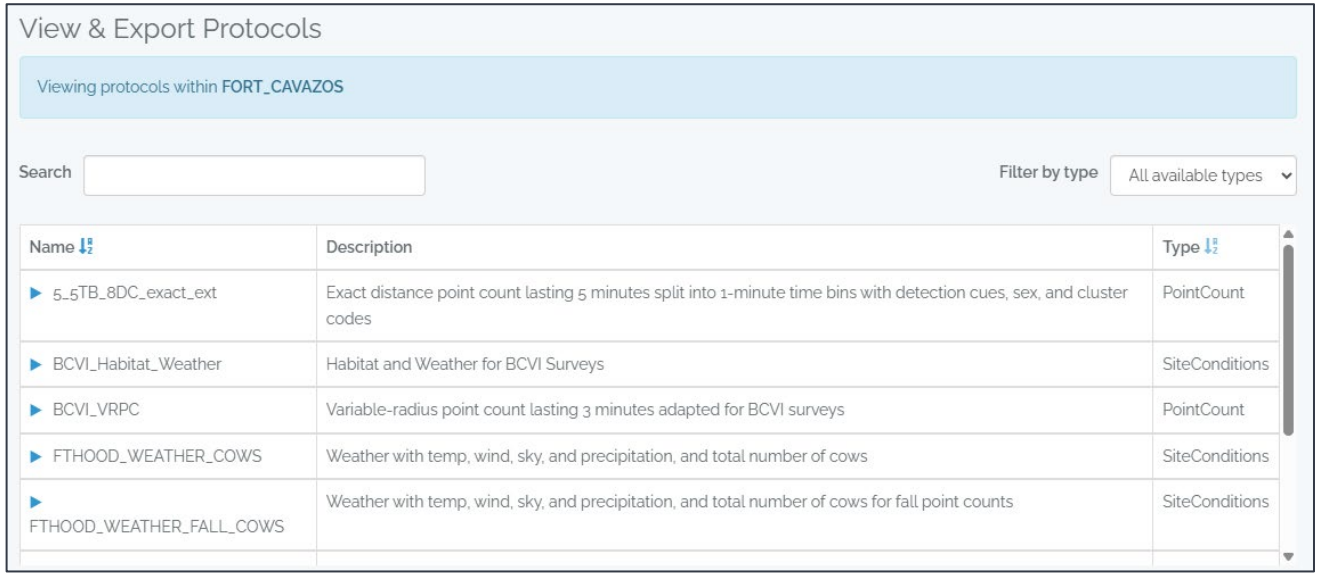


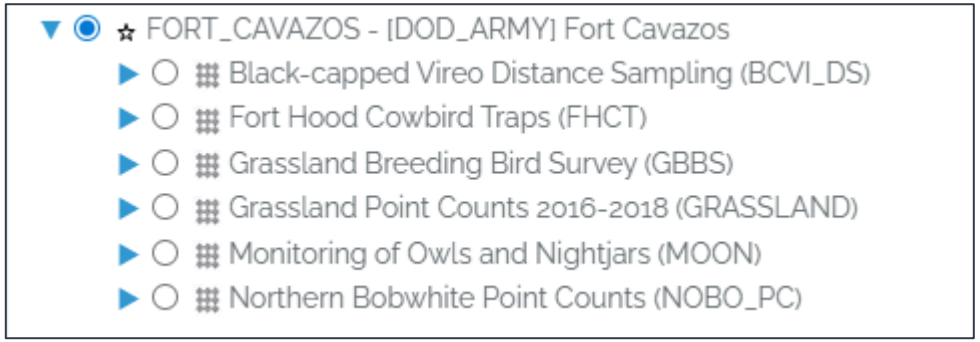




EXAMPLE: FORT HOOD, TX

- Both the Adaptive and Integrative Management Team and Endangered Species Team utilizing system in one installation project
- Structured sampling units for differing survey types





MANAGING PROJECT METADATA

EXERCISE 1: CREATE SAMPLING UNITS

Point Blue Conservation Science

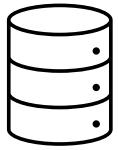
ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

CREATE SAMPLING UNITS
EXERCISE 1

Purpose: Learn how to create a sampling unit hierarchy within a project to support a point count survey

Goal: Create a new point count transect with one point under your service branch's Study Area (e.g., Army) in the "DOD_DEMO" Project



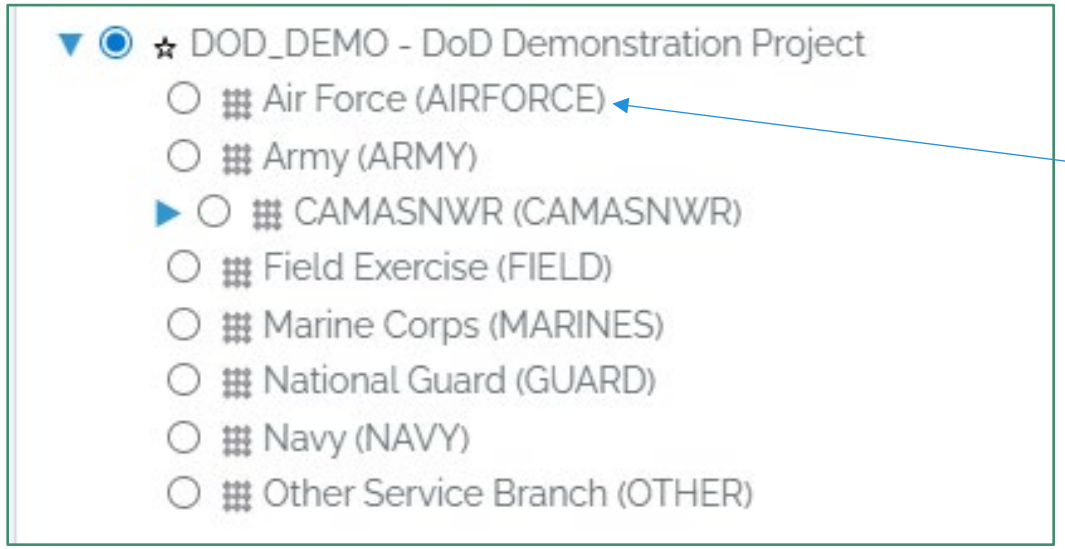
Project: DOD_DEMO

WHERE?

2a. Create Sampling Units

CREATE SAMPLING UNITS
EXERCISE 1

Reminder about Study Areas: In the project DOD_DEMO, your STUDY AREA is your service branch. The name is listed first, followed by the short name in parentheses.



For example, this Study Area Name is Air Force, and the Study Area Short Name is AIRFORCE

WHERE?

2a. Create Sampling Units

CREATE SAMPLING UNITS
EXERCISE 1

Exercise 1 instructions

CREATE SAMPLING UNITS

EXERCISE 1 *(THINKING AHEAD)*

- Consider how you might organize your data
  - Study Areas can be based on survey type rather than geography:
    - Ex- Study Area 1: multi-species point counts
    - Ex- Study Area 2: burrowing owl surveys
  - Only group points together in the same transect if they are part of the same survey (geographically grouped and collected on the same day)
  - Consider how you might name your study locations based on geographic features and numbers. (e.g., Emerald Hills 1, Alpha Maneuver Area 3)
  - Remember the hierarchy for point counts is **Study Area → Transect → Point(s)**
- We will be building on this exercise later! Think about how your naming strategy can scale as you add surveys and points.

LONG NAME VS SHORT NAME:
WHAT'S THE DIFFERENCE?

- Every sampling unit has a **Short Name** and a **Long Name**
  - Short Names and Long Names can be the same
- **Short Name** + **Long Name** combinations must be unique within an AKN Project
  - e.g., transect names and point count names **CAN NOT BE THE SAME**
- **Short Names** will be seen throughout the tools and in your data download
  - It is the shorthand name for each sampling unit
- **Short Names** are limited to 12 characters
- **Long Names** can be longer and more descriptive, if useful

WHERE?
2a. Create Sampling Units

LONG NAME VS SHORT NAME:
WHAT'S THE DIFFERENCE?

EXAMPLES (any of these would be correct):

Point Count Transect Long Name	Point Count Transect Short Name
East Training Area	ETA
East Training Area 1	ETA-1
ETA	ETA
ETA-1	ETA-1

BREAK

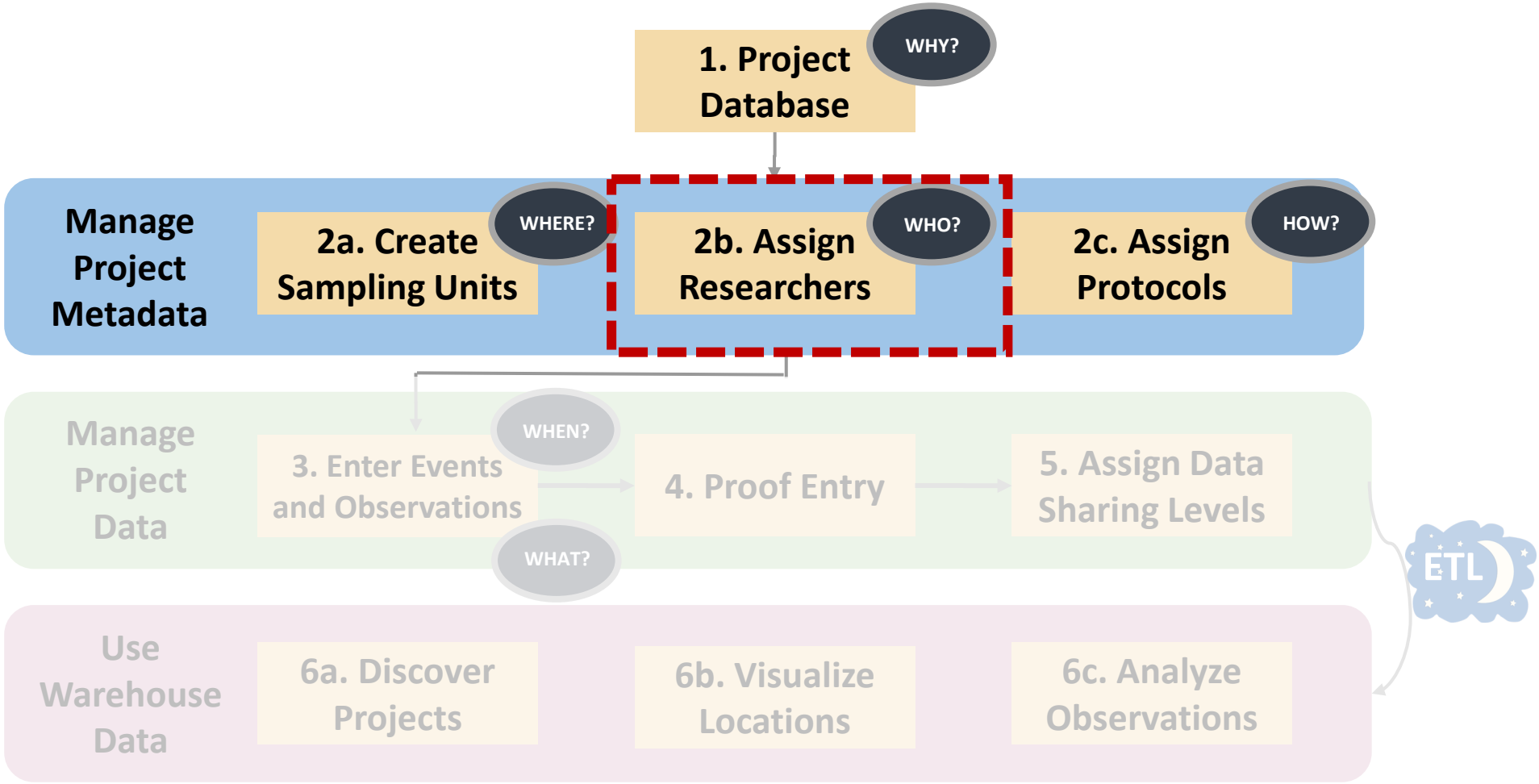
NEXT: DOWNLOADING SAMPLING UNITS & ADDING RESEARCHERS

DOWNLOAD SAMPLING UNITS
DEMONSTRATION

Download sampling units:

- Project Leaders for download sampling unit locations to GPS, GIS and more

MANAGING A PROJECT: RESEARCHERS



RESEARCHERS

People identified in a Project for getting access and/or who made observations

Created by user registration (for active users) or manual entry (for historical data)

WHO?

2b. Assign Researchers

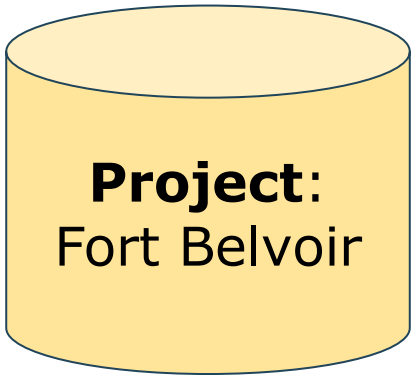
RESEARCHER TYPES

Project Leader: the data owner, has full control over data, metadata, and who gets Project access

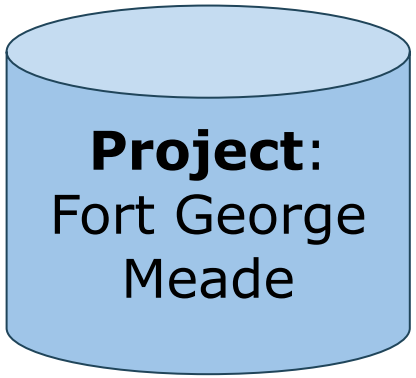
Biologist: can enter and review data in the Project

RESEARCHERS & PROJECT ACCESS

Project access assigned by Project Leader



Jane: Project Leader
Mike: Biologist
Pat: Biologist



Zac: Project Leader
Meg: Project Leader
Kim: Biologist
Pat: Biologist

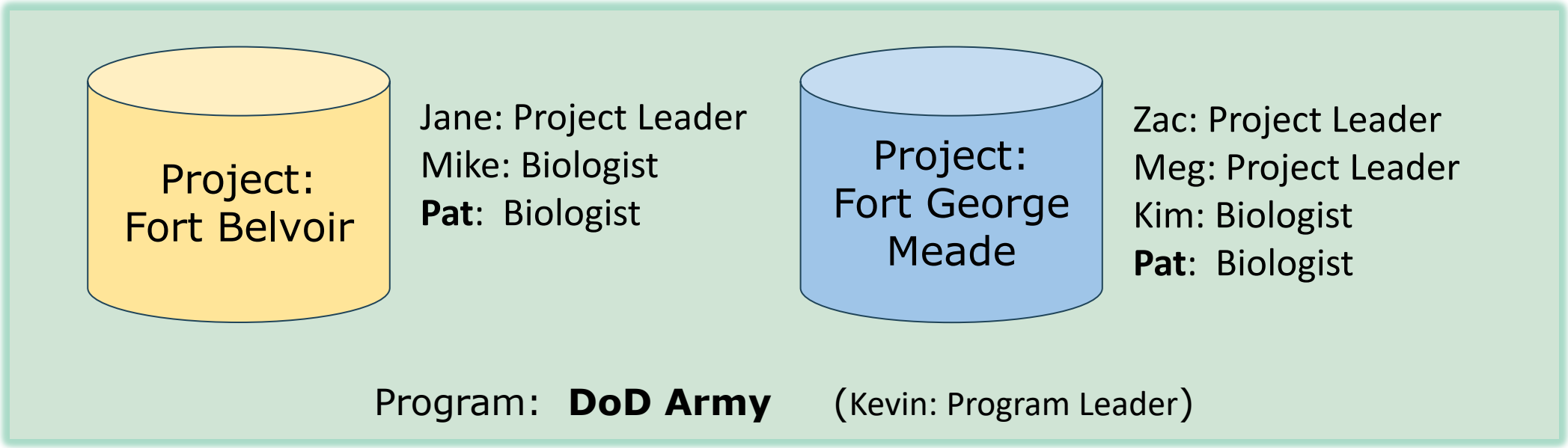
WHO?

2b. Assign Researchers

RESEARCHERS & PROJECT ACCESS

DoW also has a Program Leader (Program = group of many Projects)

(managed by Point Blue staff w/ guidance from DoD leadership)



2b. Assign Researchers WHO?

ADDING RESEARCHERS
DEMONSTRATION

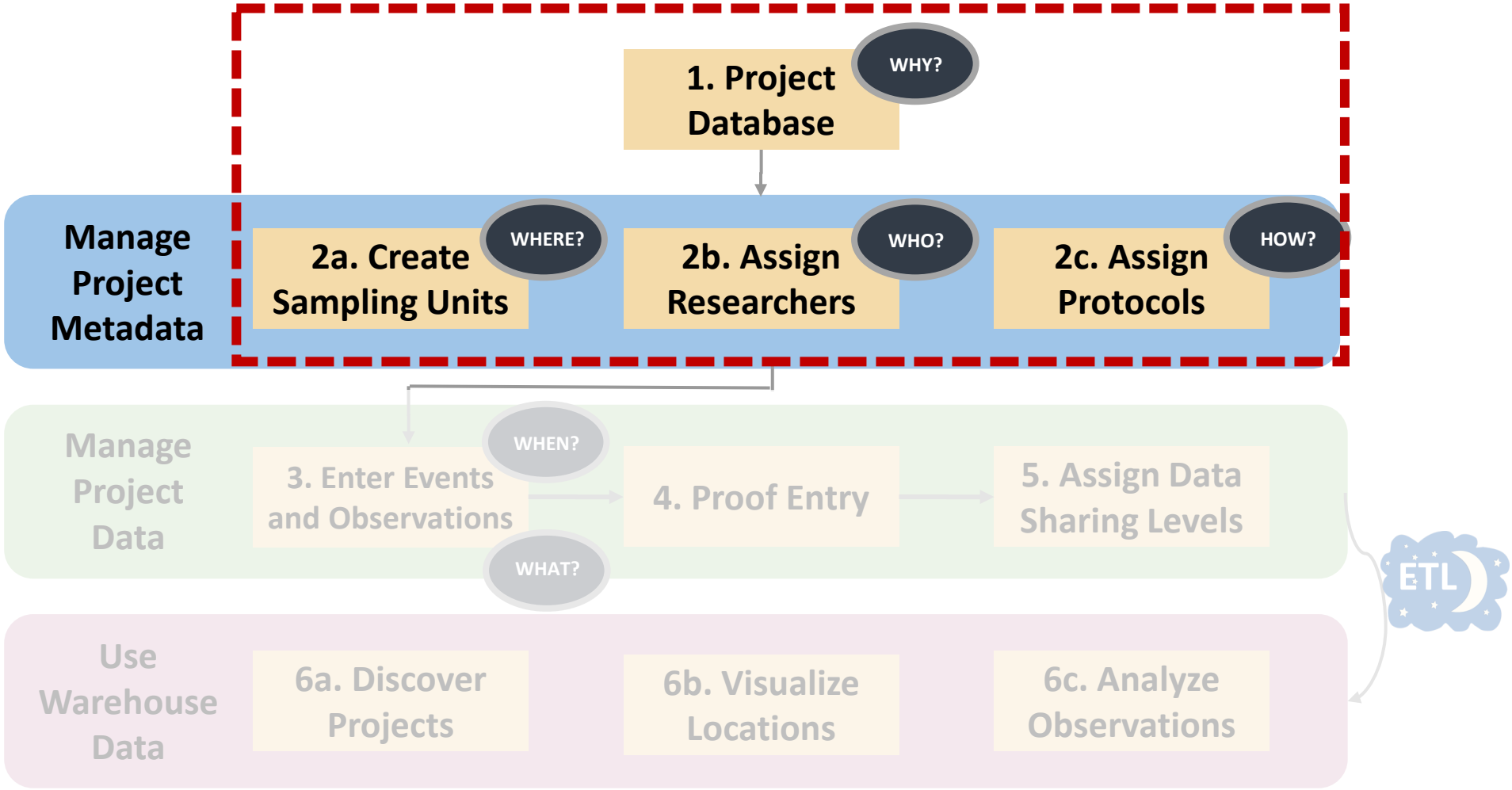
Tools:

- Project Leader for adding researchers to Project

2b. Assign Researchers

WHO?

QUESTIONS ON MANAGING PROJECT METADATA?



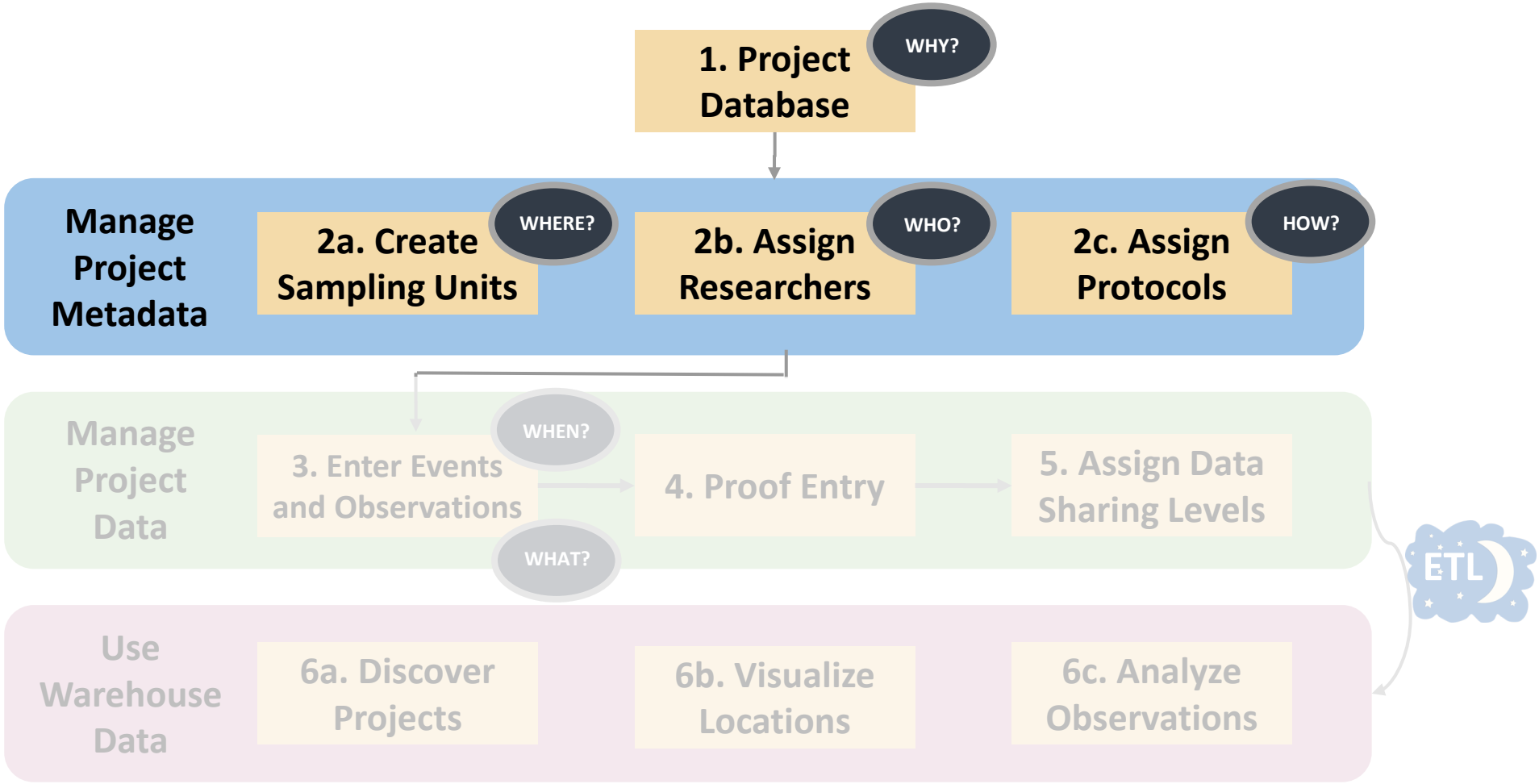
MANAGING OBSERVATION DATA

Point Blue Conservation Science

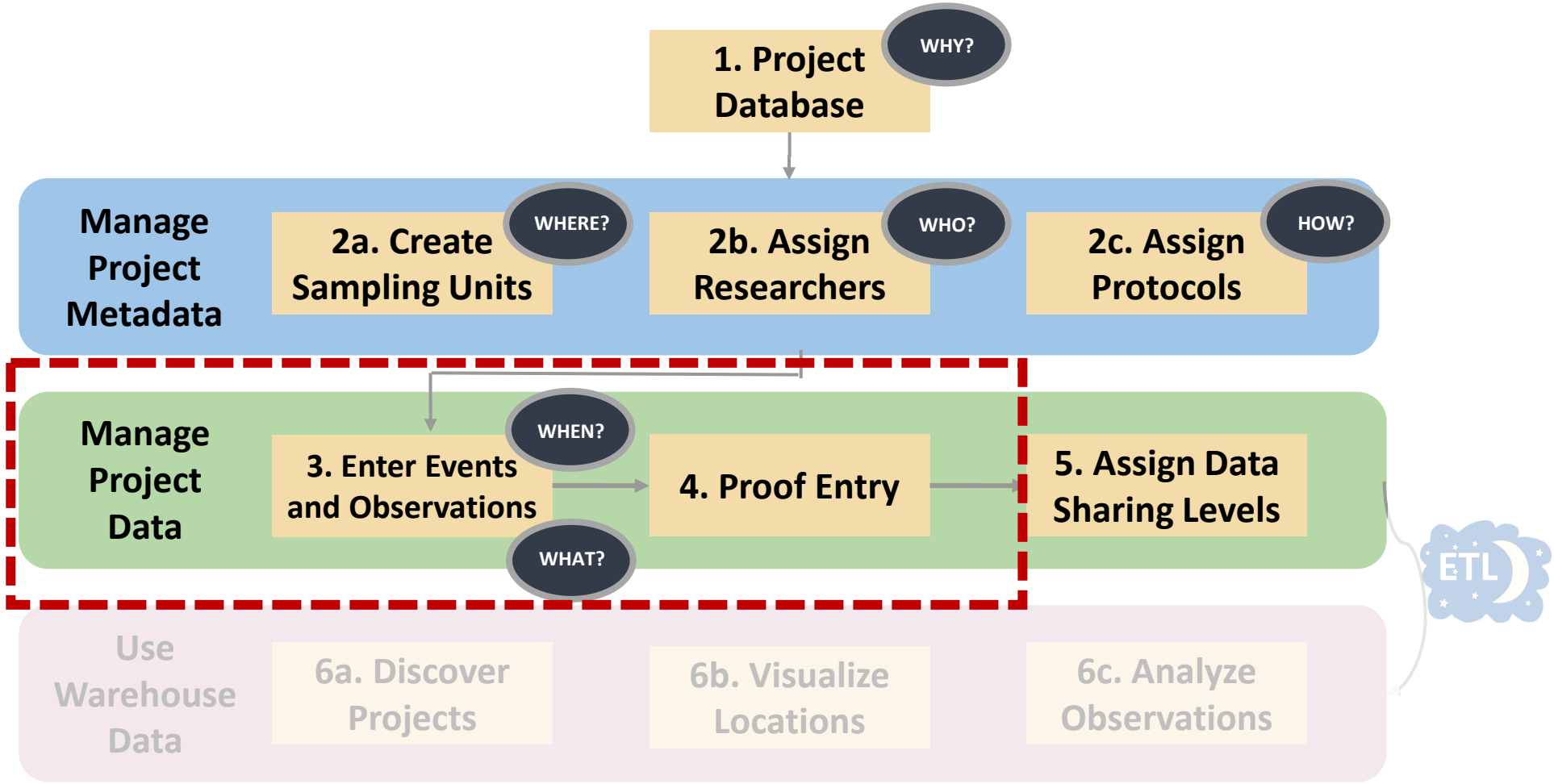
ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

WORKFLOW FOR MANAGING A PROJECT



MANAGING A PROJECT: OBSERVATION DATA



SAMPLING EVENTS AND OBSERVATIONS

Event: survey at a Sampling Unit using a Protocol by Researcher at a specific date and time

Observation: one or more individuals of a single species detected during an Event

REVIEW LEVELS FOR EACH EVENT

Steps to enter and review data in preparation for sharing

Project Biologist enters a new event and observations

Event is **RAW**

Data entered

Event is **CLEAN**

Data 1st review by Biologist

Event is **AVAILABLE**

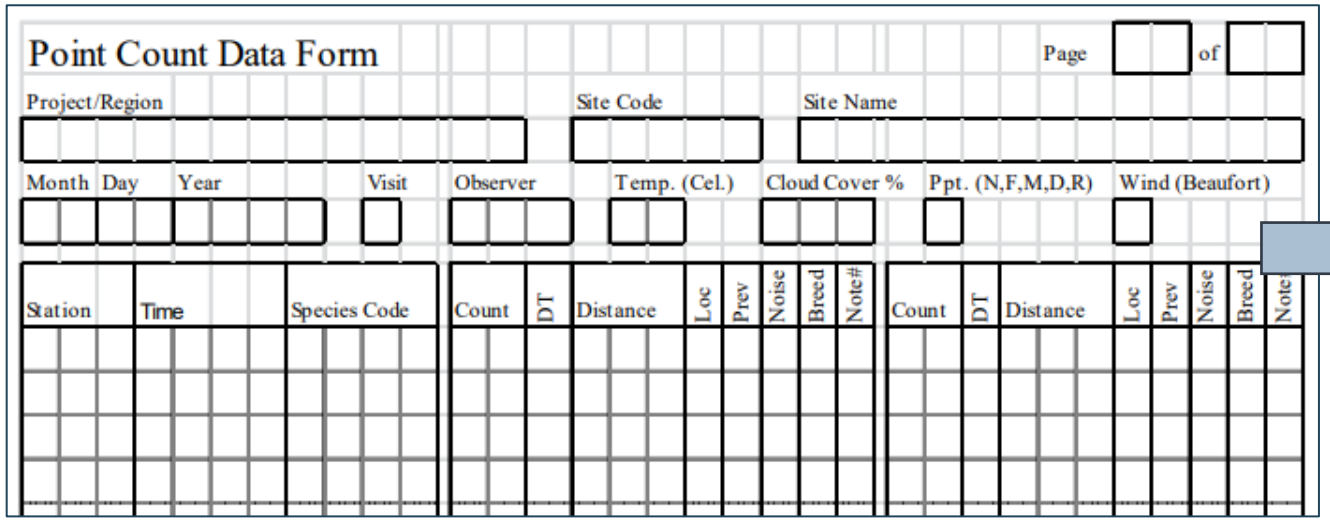
Data final review

Event is **RESTRICTED**

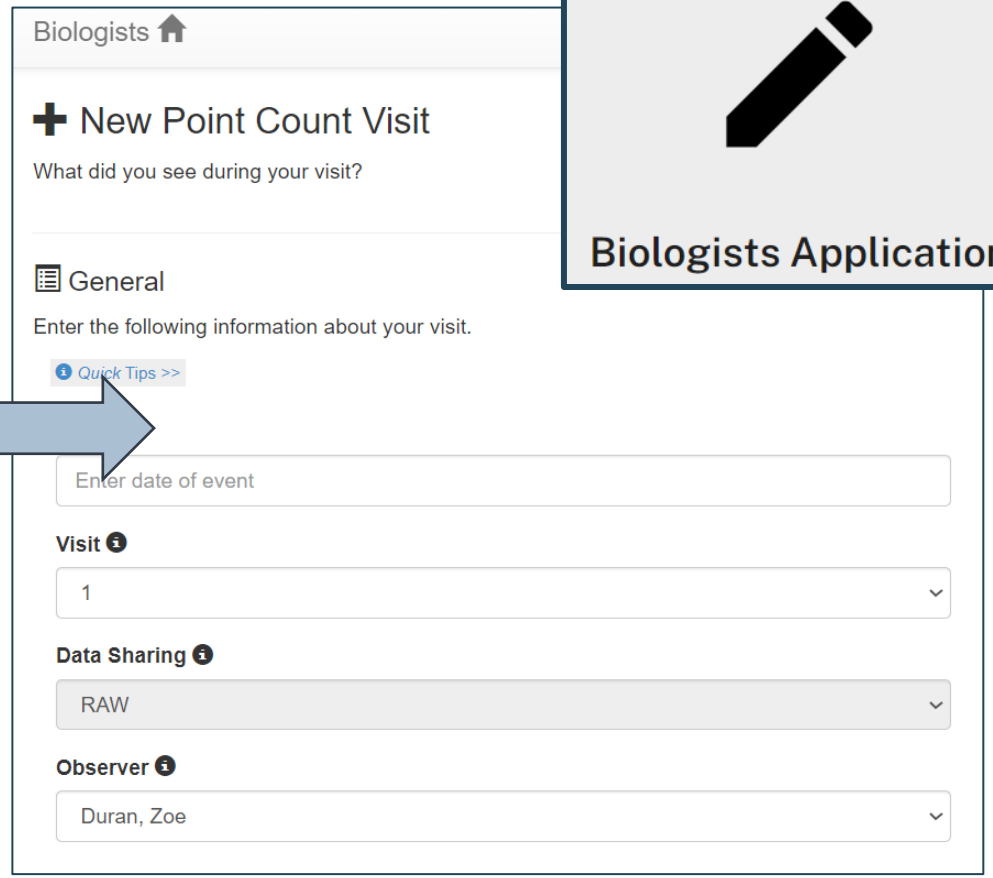
Data final review and not to be shared

MANAGING OBSERVATION DATA THROUGH BIOLOGIST

- Data entry using Biologist
  - Best for direct entry into the system



Datasheet



Web-based Form

MANAGING OBSERVATION DATA

EXERCISE 2: ENTER & PROOF POINT COUNT EVENT

Point Blue Conservation Science

ERDC ENGINEER RESEARCH & DEVELOPMENT CENTER

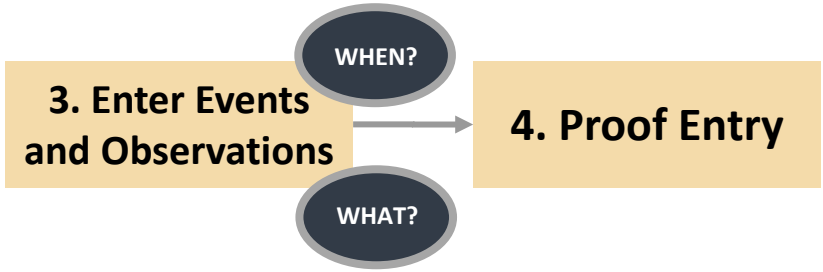
Klamath Bird Observatory

ENTER & PROOF POINT COUNT EVENT

EXERCISE 2

Purpose: Learn how to enter survey data and site conditions in Biologists and proof those data

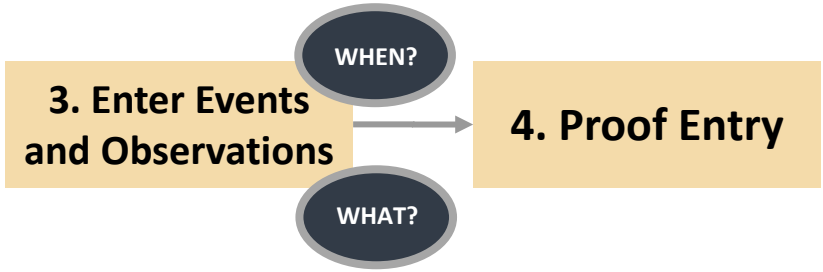
Goal: Enter the sample data for the sampling unit you created in Exercise 1, save it, and proof those data



ENTER & PROOF POINT COUNT EVENT

EXERCISE 2

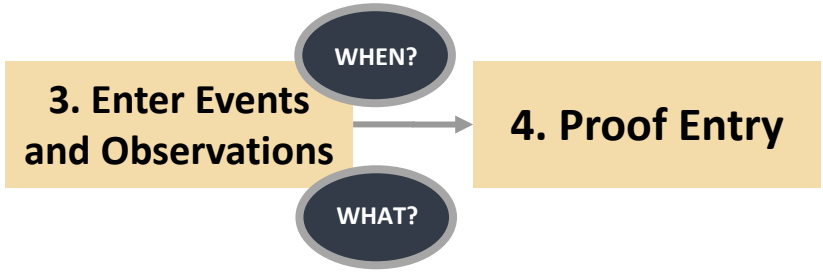
[Exercise 2 instructions]



ENTER & PROOF POINT COUNT EVENT

EXERCISE 2 *(THINKING AHEAD)*

- Data marked Clean through proofing will load into the data warehouse, making it available to analysis tools
- As Project Leader, you will:
  - Grant users who collect data access to Biologists to enter and proof their own data
  - Add protocols to the project and manage sampling units



DOWNLOAD POINT COUNT OBSERVATION DATA FROM PROJECT

DEMONSTRATION

Tools:

- Project Leaders for download observations from our Project

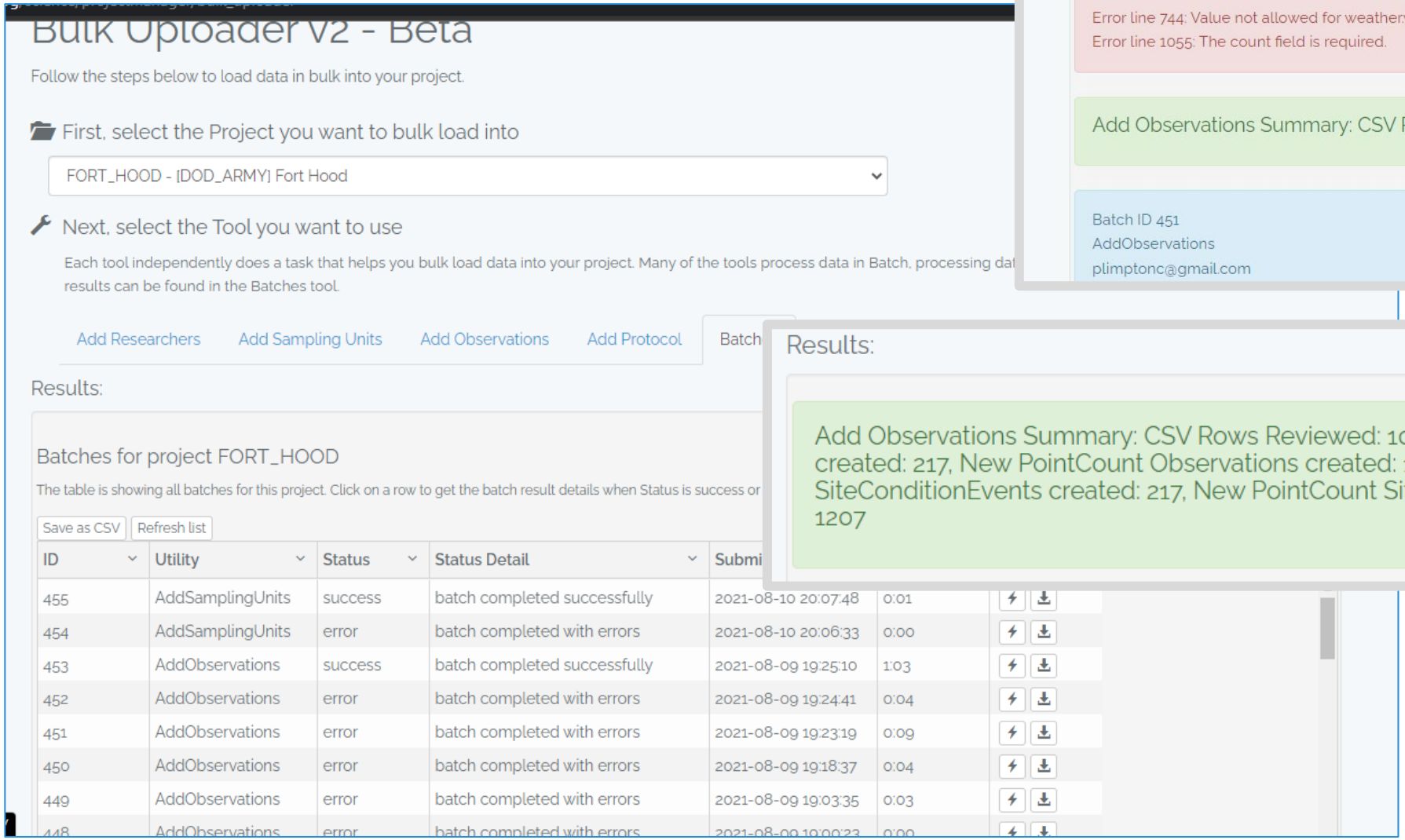
BULK UPLOADING METADATA & OBSERVATION DATA INTO A PROJECT

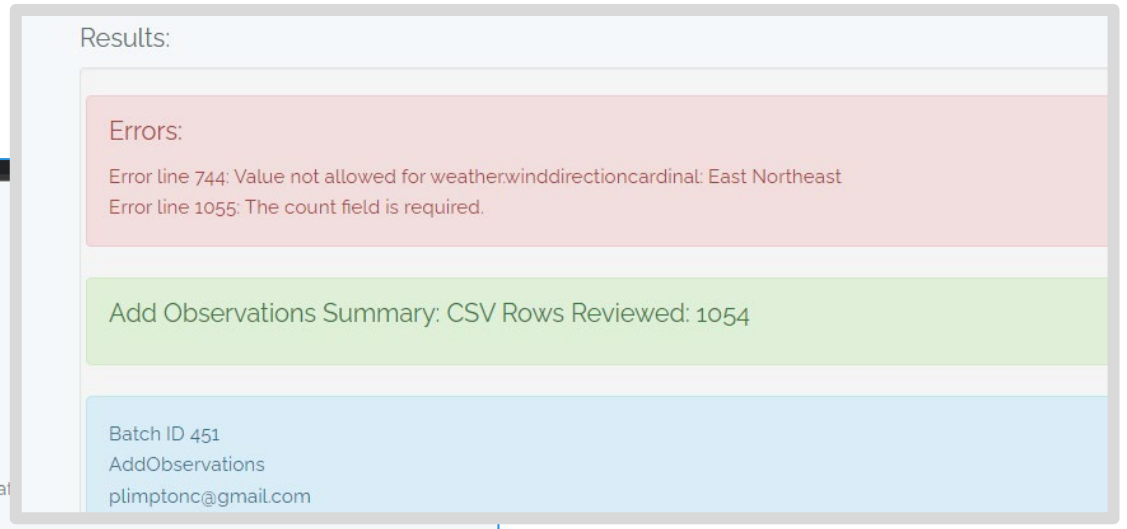
BULK LOADING DATA

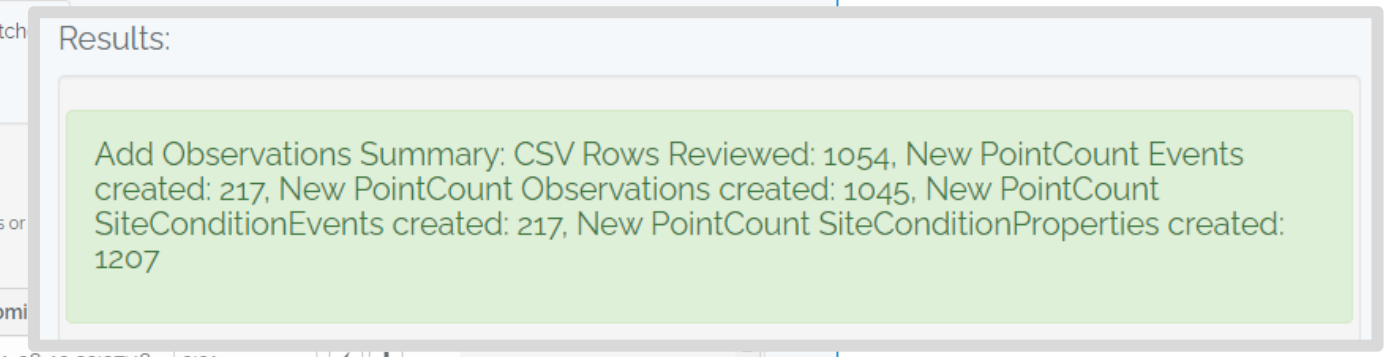
Loading spreadsheet data into the Project Database for loading Researchers, Sampling Units, and Observations
(e.g., historic datasets)

Observations: Uses definition file to describe how your spreadsheet maps into AKN

BATCH PROCESSING







BULK UPLOADING PROJECT DATA

EXERCISE 3: BULK UPLOADING SAMPLING UNITS

BULK UPLOADING SAMPLING UNITS
EXERCISE 3

Purpose: Build on Exercise 1 using the Bulk Upload tool to create multiple sampling units at once for a given survey type

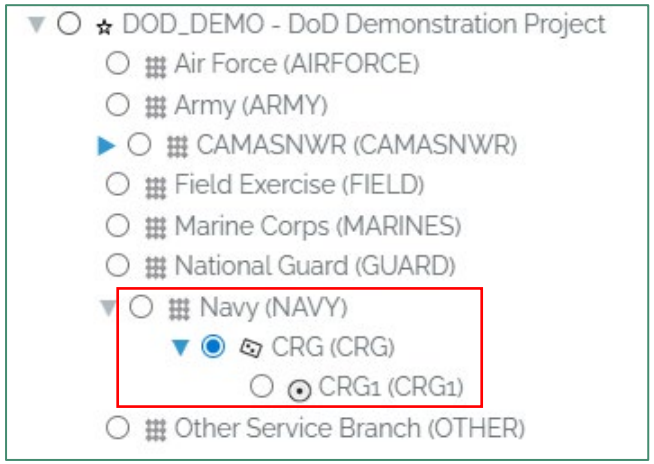
Goal: Bulk upload a new point onto your existing transect and add a new transect with three points

BULK UPLOADING SAMPLING UNITS

EXERCISE 3

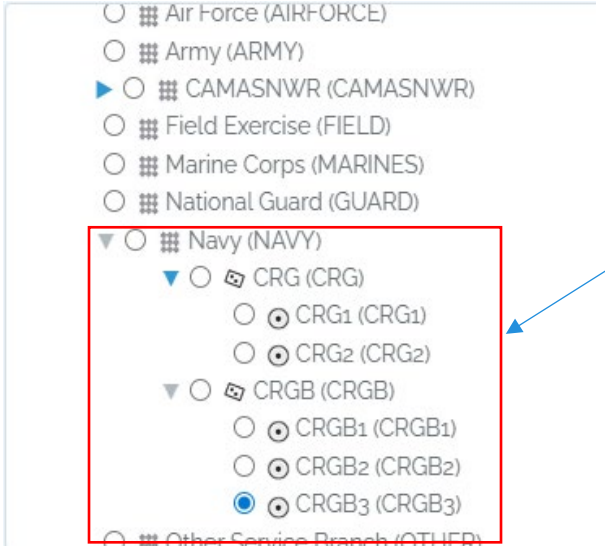
Tip: Go back to Project Leader (Sampling Units-> Create and Manage) and take a look at the sampling unit you already created in Exercise 1. In this exercise, we'll create a new point under the existing transect, plus add a new transect with new points.

After Exercise 1:



Study Area: Navy
Point Count Transect: CRG
Point Count Point: CRG1

After Exercise 3:



Make sure you are using the same Study Area (your service branch or affiliation) for Exercise 3!

In this example, the Study Area Name is Navy and the Study Area Short Name is NAVY

LONG NAME VS SHORT NAME:
WHAT'S THE DIFFERENCE?

EXAMPLES (any of these would be correct):

Point Count Transect Long Name	Point Count Transect Short Name
East Training Area	ETA
East Training Area 1	ETA-1
ETA	ETA
ETA-1	ETA-1

BULK UPLOADING SAMPLING UNITS

EXERCISE 3

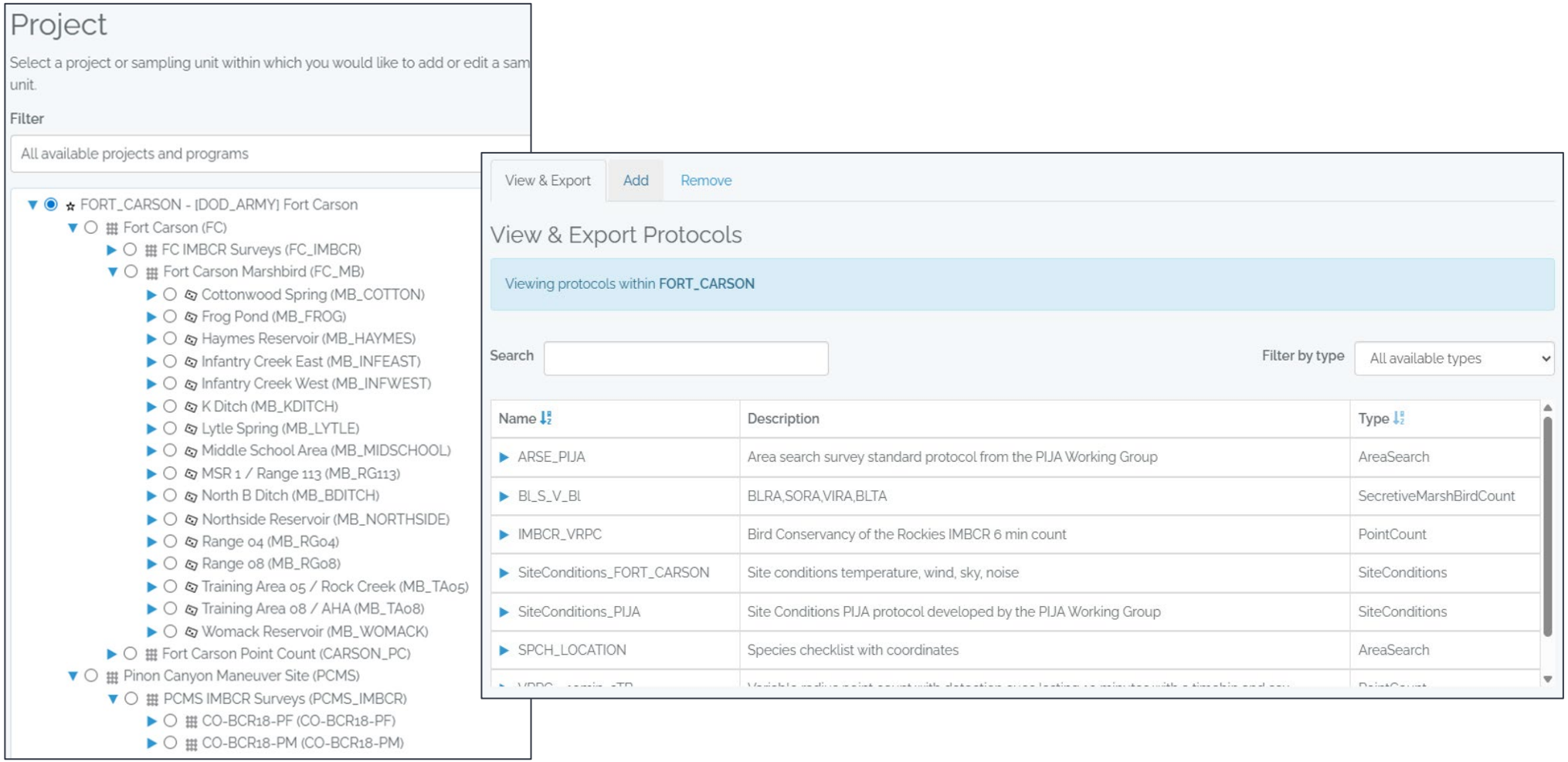
[Exercise 3 instructions]

BULK UPLOADING SAMPLING UNITS

EXERCISE 3 *(THINKING AHEAD)*

- The Bulk Uploader tool is useful when you have many sampling units to add to your project.
- The Bulk Uploader tool can add sampling units to an existing hierarchy or create an entirely new hierarchy *(remember our discussion thinking about Study Areas!)*
- The Bulk Uploader tool can also add Researchers or Observation data to your project
  - Note: we will not be covering those use cases today but can assist in office hours

EXAMPLE: FORT CARSON, CO



EDITING DATA
DEMONSTRATION

Tools:

- Biologist to edit observations from a Project

AKN DATA SHARING LEVELS

Point Blue Conservation Science

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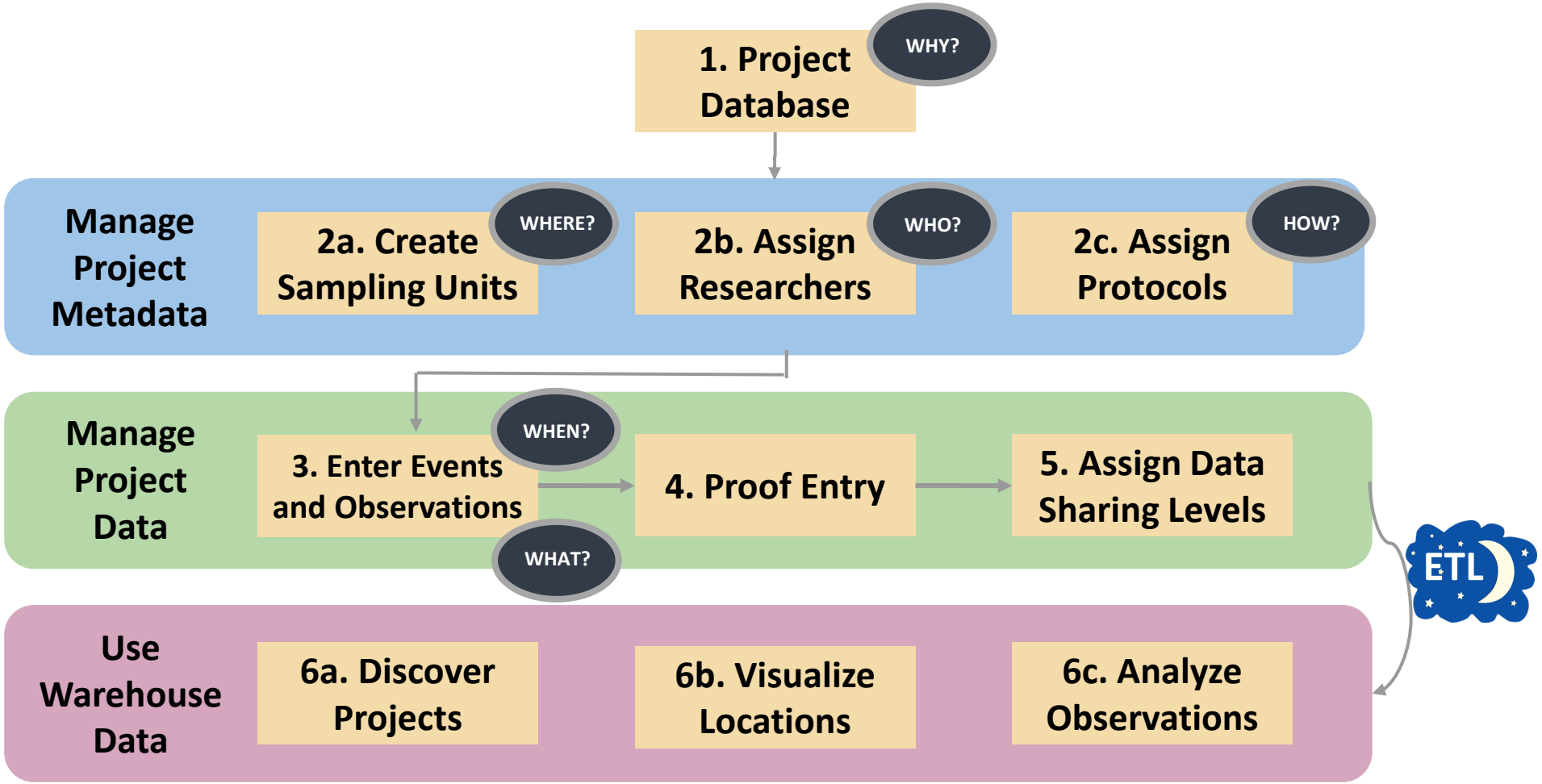
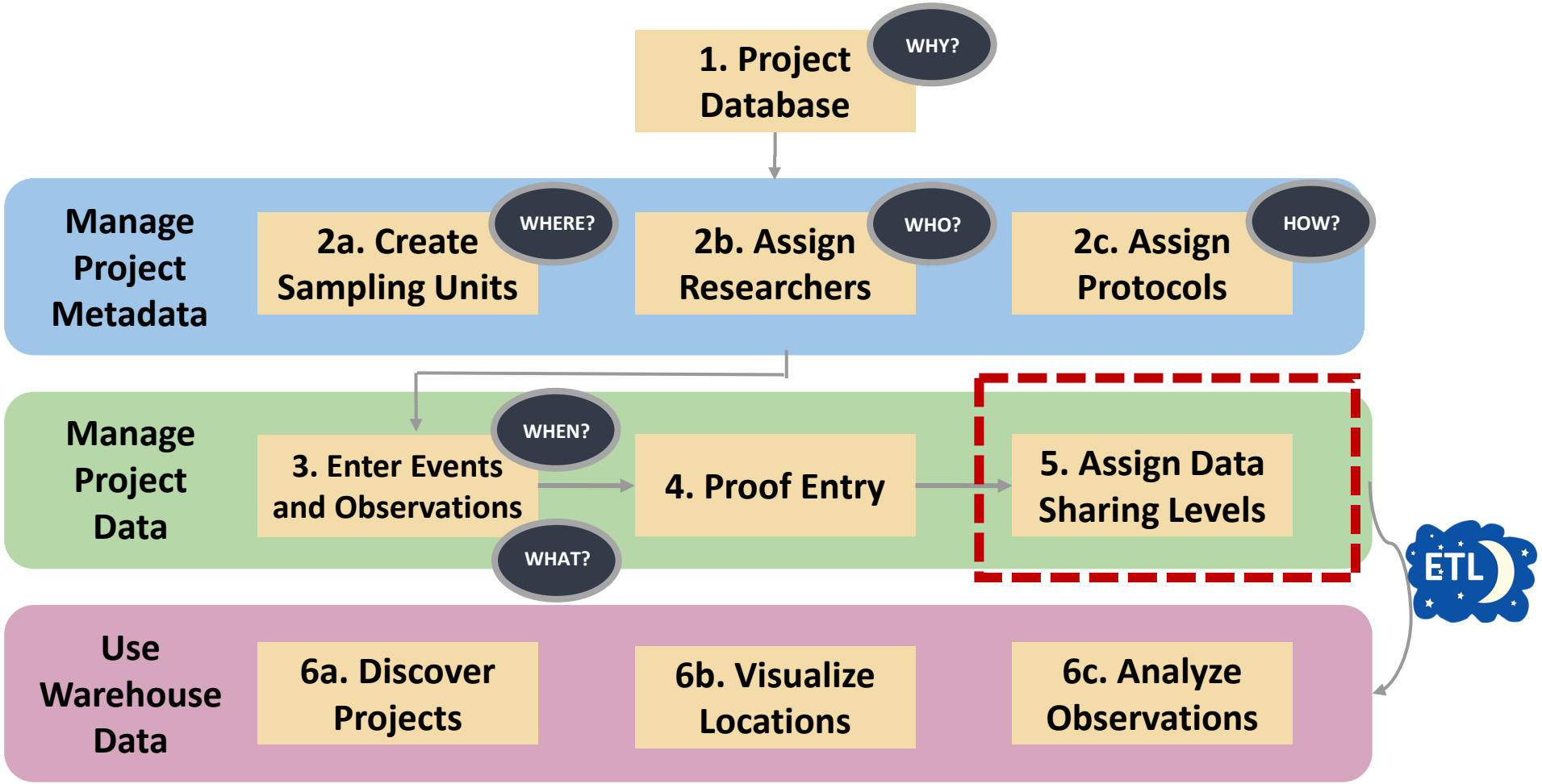
Klamath Bird Observatory

WORKFLOW FOR MANAGING A PROJECT



MANAGING A PROJECT: DATA SHARING LEVELS



DATA SHARING LEVELS

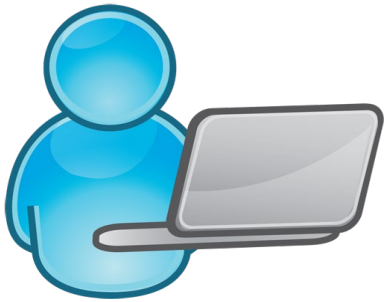
Defines how visible each observation is for querying, summarizing, visualizing, and analyzing.

Controlled by the Project Leader within each Project

5. Assign Data Sharing Levels

REVIEW LEVELS FOR EACH EVENT

Steps to enter and review data in preparation for sharing



Project Biologist enters a new event and observations

Event is **RAW**

Data entered

Event is **CLEAN**

Data 1st review by Biologist

Event is **AVAILABLE**

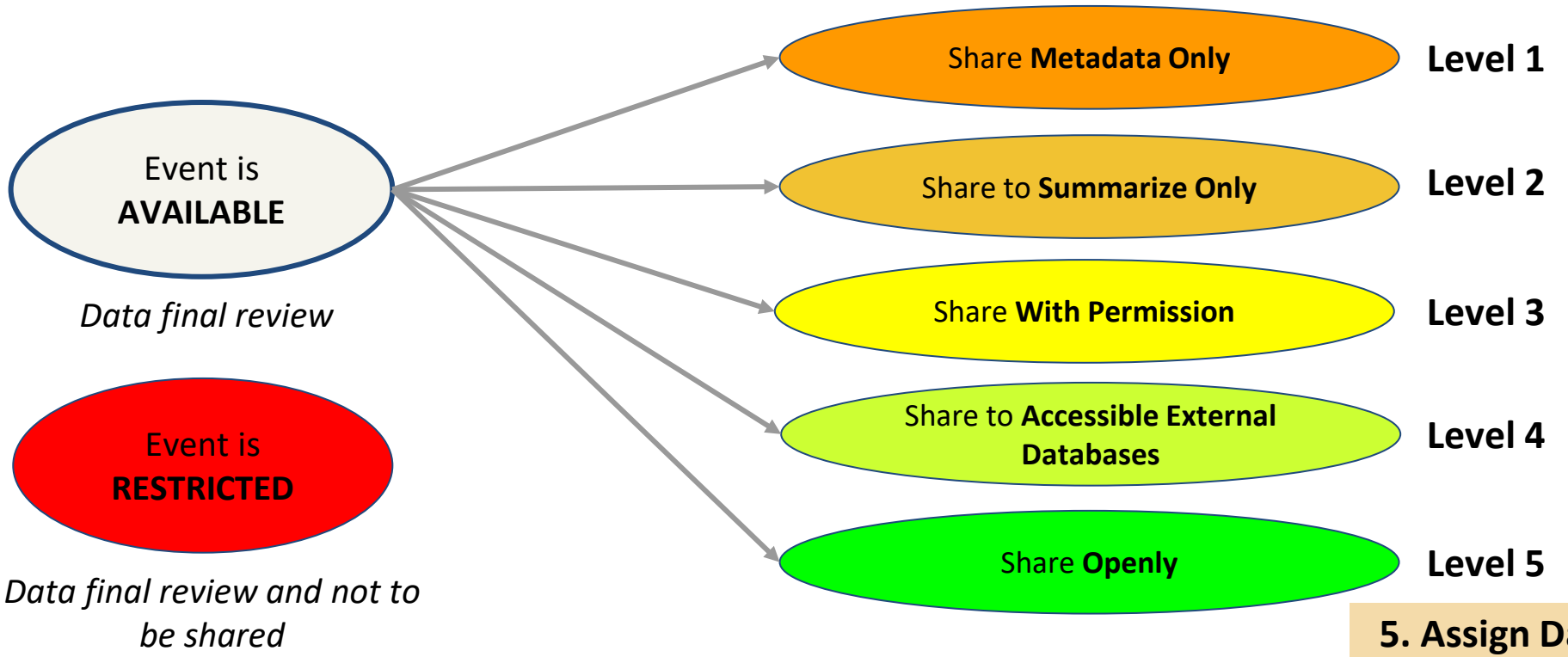
Data final review

Event is **RESTRICTED**

Data final review and not to be shared

DATA SHARING LEVELS FOR EACH EVENT

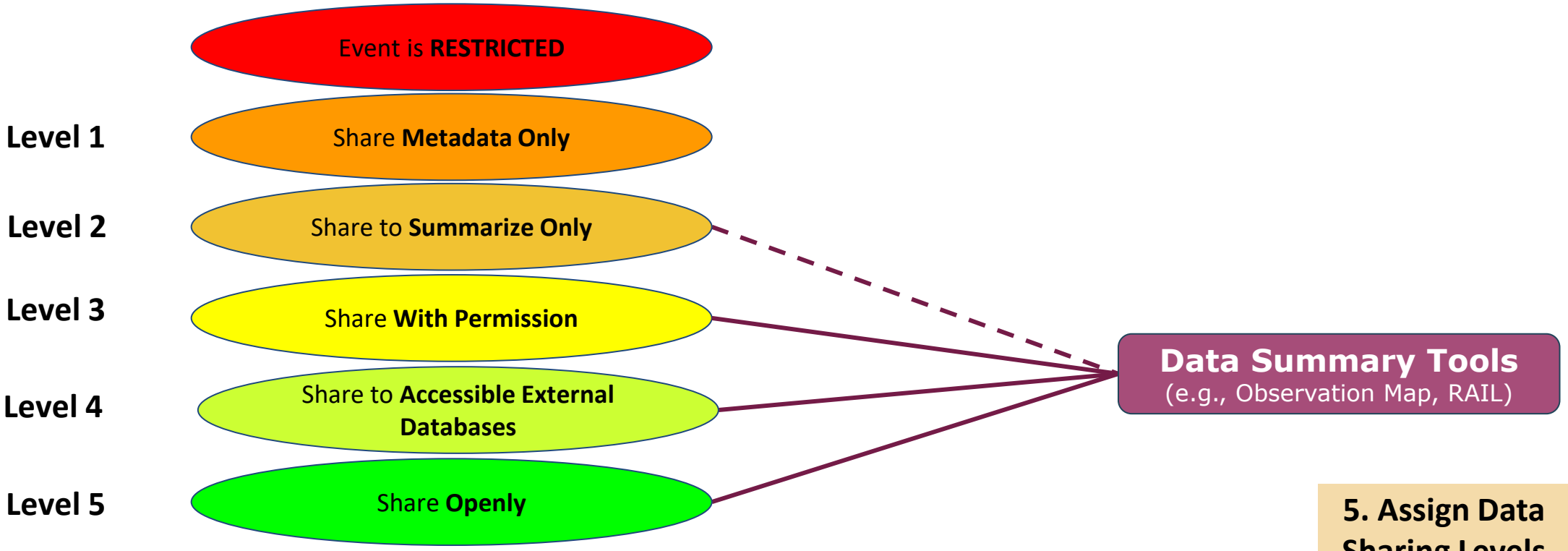
Choices informs the Point Blue Science Cloud tools of your intentions.



5. Assign Data Sharing Levels

DATA SHARING AND TOOL ACCESS

Choices informs the Point Blue Science Cloud tools of your intentions.



5. Assign Data Sharing Levels

DATA SHARING LEVEL MOTIVATION

- Organizational Policy
- Federal / State Law
- Research and Right of First Publication
- Threatened / Endangered Species
- Private Landowner Agreements
- Contribute to AKN Science
- Partnership / Collaboration Development

5. Assign Data Sharing Levels

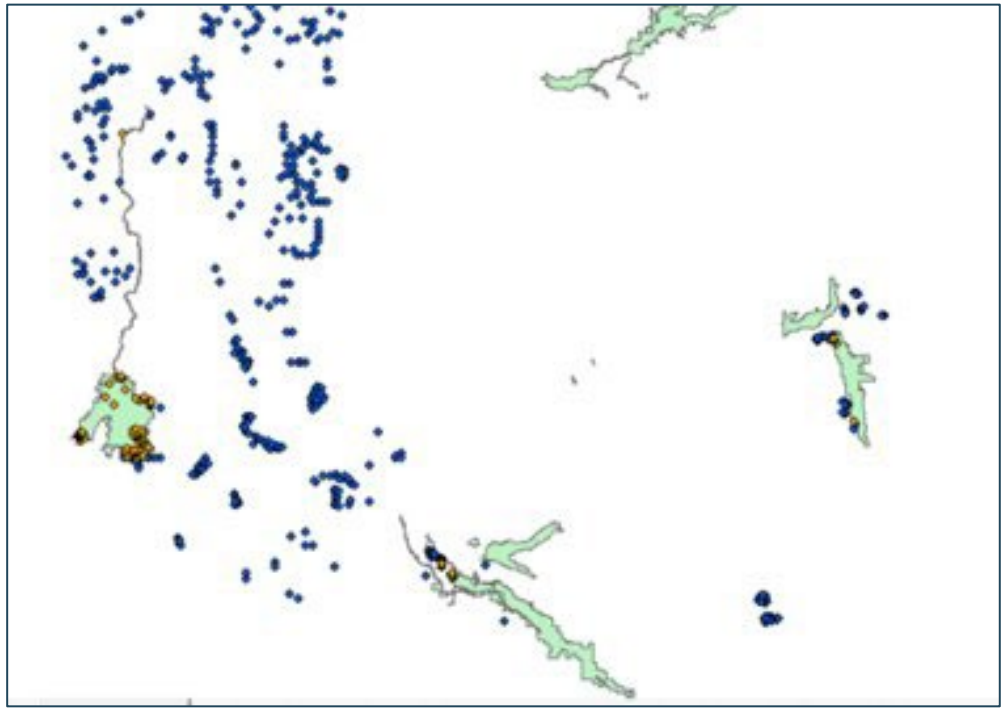
SETTING DATA SHARING LEVELS
DEMONSTRATION

Tools:

- Project Leaders to set/edit sharing levels

EXAMPLE: USACE-WILLAMETTE VALLEY PROJECT, OR

- New biologist took DoW AKN training at NMFWA
- Worked with DoW AKN Team to ID data within boundary
- Data was both USACE and partner data
- Created USACE WVP within USACE enterprise
- Gained access to USACE-owned data
- Reaching out to partners about sharing data within boundary



OFFICE HOURS

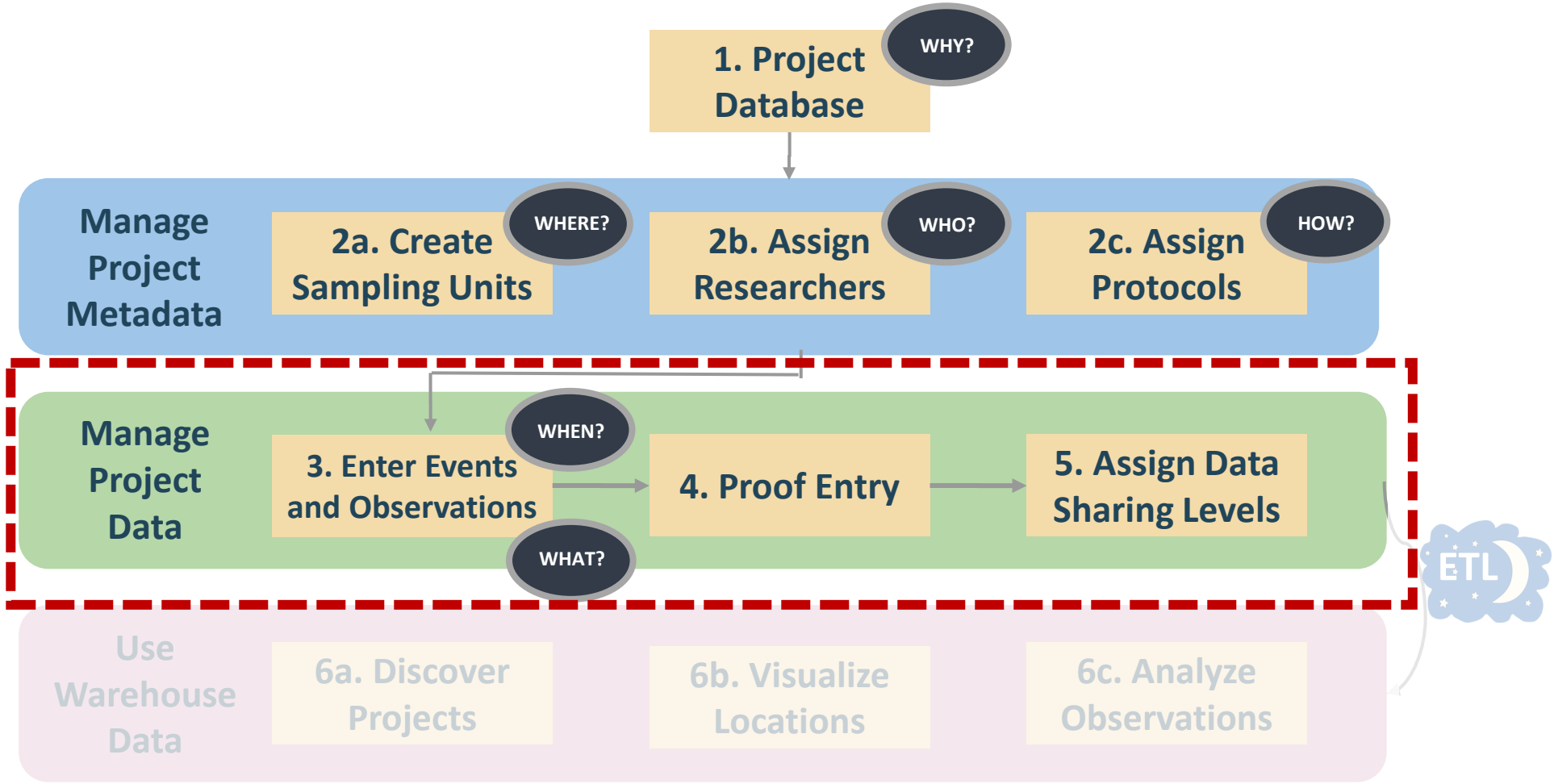
Discuss bulk loading and other issues regarding your observation data

Office Hours sign up is on the DoW AKN Portal page: https://www.dodakn.org/office-hours-booking-page/

- Next virtual appointment dates: April 21 & 23

- **In-person Office Hours this week! Wednesday 1300-1700**

ANY QUESTIONS ON MANAGING PROJECT DATA?



MORNING WRAP-UP

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Klamath Bird Observatory

LUNCH (RETURN @ 1245)

Point Blue Conservation Science

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ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

DoW and the AKN: Who, What, Where, When, Why, and How

DoW AKN NMFWA Training
30 March 2026

Sam Veloz
Dianne Miller

Elizabeth Neipert
Zoe Duran

John Alexander
Caitlyn Gillespie
Nora Honkomp

Point Blue Conservation Science

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ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

AVIAN KNOWLEDGE NETWORK

pointblue.github.io/dod_workshop

Northern Cardinal, Williamsburg, VA; Credit: Paul Block

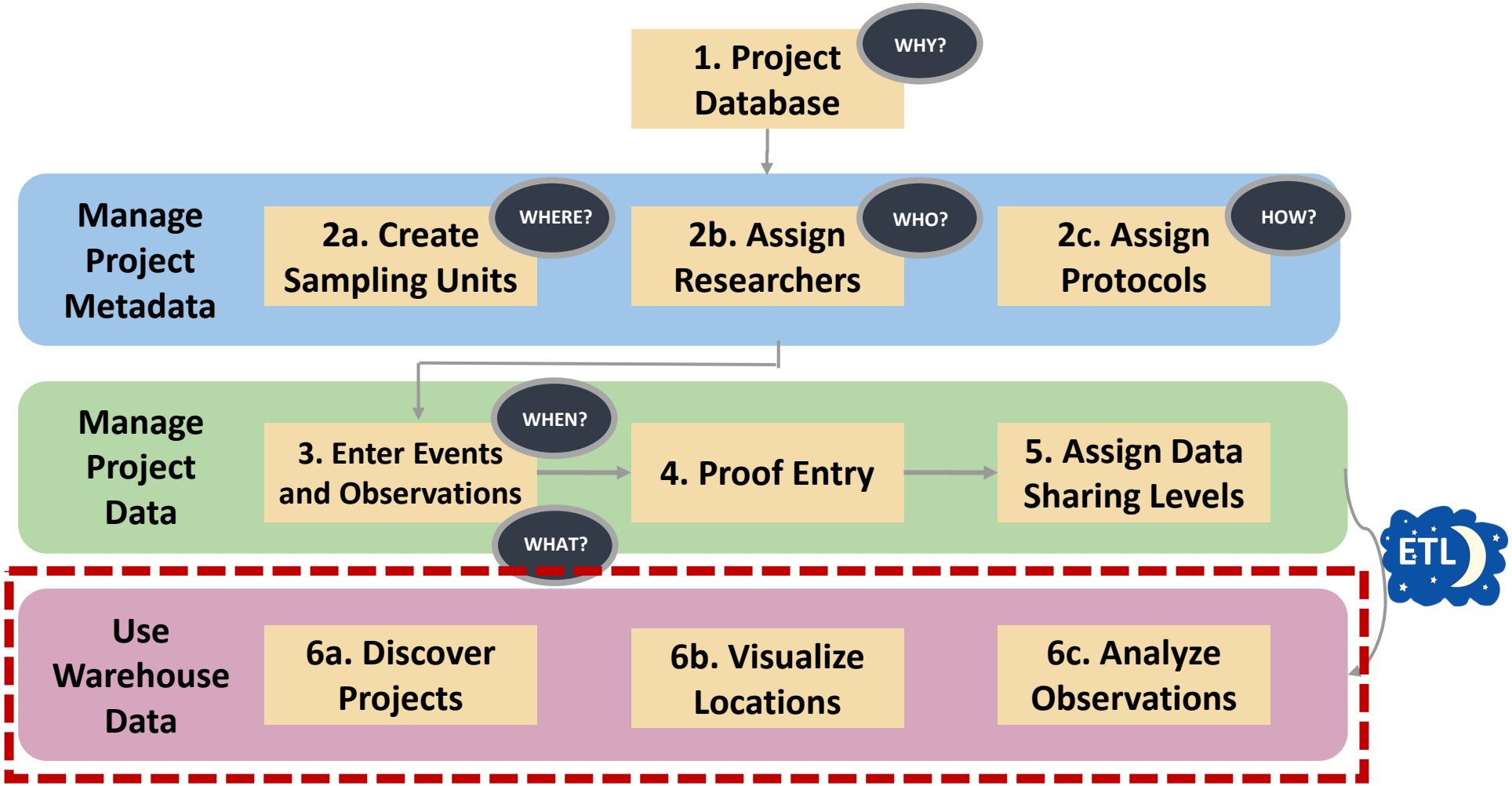
AKN WAREHOUSE DATA 101

Point Blue Conservation Science

ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

MANAGING A PROJECT: DATA WAREHOUSES



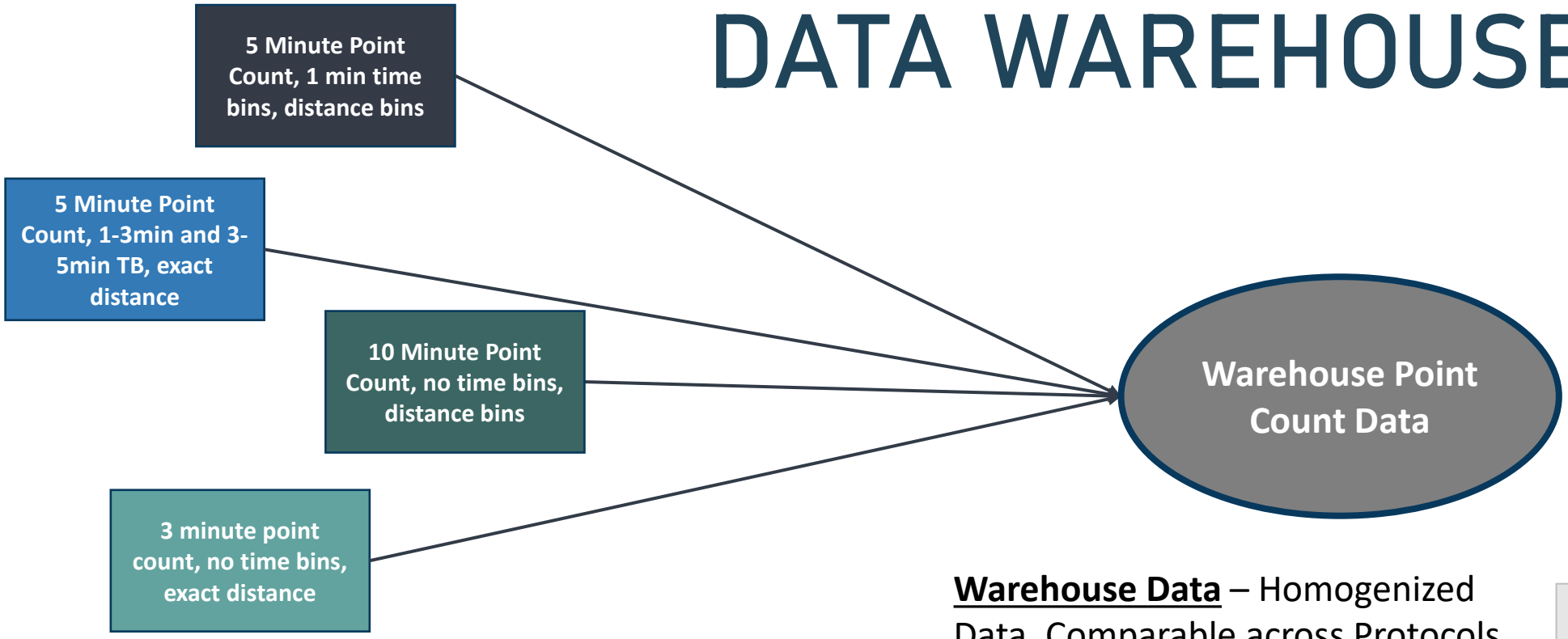
DATA WAREHOUSES

Database with homogenized copy of observation data, organized by sampling method for cross-project query and analysis

Enables data from **different Protocols** under the same data type (e.g., Point Count) to be aggregated

White-breasted Nuthatch, Williamsburg, VA; Credit: Paul Block

DATA WAREHOUSES



<u>Warehouse Data</u> – Homogenized Data, Comparable across Protocols

Stored in the Warehouse database

*Only **data you have access to** or that are shared at Level 5*

Public Data Download

<u>Raw Data</u> – Differs by Protocol Fields

Stored in its full fidelity in your AKN Project Database

Raw Data Download

PROJECT DATA VS. WAREHOUSE DATA

Study Area	Transect	Point	Protocol	Visit	Date	Start Time	End Time	Time Bi	Time Bin	Count	Spp	Common Name	Scientific Name	Detection	Distance B	Distance B	Point Note	Obs	Researcher	Data Status
LITTLERIVER	COMP_5	164	3_5_10m2	1	6/3/2019	8:01:00	8:11:00	3	0_3min	1	PIWA	Pine Warbler	Setophaga pinus	NR	G25	25 to 50	Light sprinkle, light rain		Arbour, David	AVAILABLE Level 5
LITTLERIVER	COMP_5	164	3_5_10m2	1	6/3/2019	8:01:00	8:11:00	3	0_3min	1	GCFL	Great Crested Flycat	Myiarchus crinitu	NR	G50	50 to 100	Light sprinkle, light rain		Arbour, David	AVAILABLE Level 5
LITTLERIVER	COMP_5	164	3_5_10m2	1	6/3/2019	8:01:00	8:11:00	3	0_3min	1	KEWA	Kentucky Warbler	Geothlypis formc	NR	G50	50 to 100	Light sprinkle, light rain		Arbour, David	AVAILABLE Level 5
LITTLERIVER	COMP_5	164	3_5_10m2	1	6/3/2019	8:01:00	8:11:00	10	5_10min	1	BHCO	Brown-headed Cow	Molothrus ater	NR	G50	50 to 100	Light sprinkle, light rain		Arbour, David	AVAILABLE Level 5

Project	Location	Protocol	Date	Time	HabitatPlot HabitatPlotId	HabitatPlot Composition Vine	HabitatPlot Composition Cane	HabitatPlot Composition Overstory	HabitatPlot Composition Midstory	HabitatPlot Composition Understory	Researcher
LITTLERIVERNWR	164	FWS_PC_HAB_LWRMISS	6/3/2019	8:01:00	164	3	1	3	3	4	Arbour, David

Raw Data Download

Project Database Version

Warehouse Version

Public Data Download

GlobalUniqueIdentifier	ProjectCode	ProjectName	LocalityID	StudyArea	Transect	TransectName	Point			
URN:catalog:PRBO:LITTLERIVERNWR.300600.PointCount.3_5_10m25_50_100MFlyByTm.329406.1	LITTLERIVERNWR	Little River NWR	LITTLERIVERNWR:COMP_5	Little River NWR	COMP_5	Compartment_5				
URN:catalog:PRBO:LITTLERIVERNWR.300600.PointCount.3_5_10m25_50_100MFlyByTm.329406.2	LITTLERIVERNWR	Little River NWR	LITTLERIVERNWR:COMP_5	Little River NWR	COMP_5	Compartment_5				
URN:catalog:PRBO:LITTLERIVERNWR.300600.PointCount.3_5_10m25_50_100MFlyByTm.329406.3	LITTLERIVERNWR	Little River NWR	LITTLERIVERNWR:COMP_5	Little River NWR	COMP_5	Compartment_5	164	300600	348115	Poin
URN:catalog:PRBO:LITTLERIVERNWR.300600.PointCount.3_5_10m25_50_100MFlyByTm.329406.4	LITTLERIVERNWR	Little River NWR	LITTLERIVERNWR:COMP_5	Little River NWR	COMP_5	Compartment_5	164	300600	348115	Poin

DecimalLatitu	DecimalLon	Visit	ProtocolCode	Observatic	YearCollec	Month	DayC	JulianDa	JulianDayV	P	Time	Collec	ScientificN	CommonN	SpeciesCo	PhylogenC	DistanceFr	Flyc	I	Detectic	E	Observa	NoObse	RecordPermissions
33.9699705	-94.70262	1	3_5_10m25_50_100MFlyByTm	6/3/2019	2019	6	3	154	75		8:01:00	DA	Setophaga	Pine Warb	PIWA	1696	37.5			NR		1	0	AVAILABLE LEVEL 5
33.9699705	-94.70262	1	3_5_10m25_50_100MFlyByTm	6/3/2019	2019	6	3	154	75		8:01:00	DA	Myiarchus	Great Cres	GCFL	1254	75			NR		1	0	AVAILABLE LEVEL 5
33.9699705	-94.70262	1	3_5_10m25_50_100MFlyByTm	6/3/2019	2019	6	3	154	75		8:01:00	DA	Geothlypis	Kentucky V	KEWA	1718	75			NR		1	0	AVAILABLE LEVEL 5
33.9699705	-94.70262	1	3_5_10m25_50_100MFlyByTm	6/3/2019	2019	6	3	154	75		8:06:00	DA	Molothrus	Brown-hea	BHCO	2015	75			NR		1	0	AVAILABLE LEVEL 5

PROJECT DATA VS. WAREHOUSE DATA

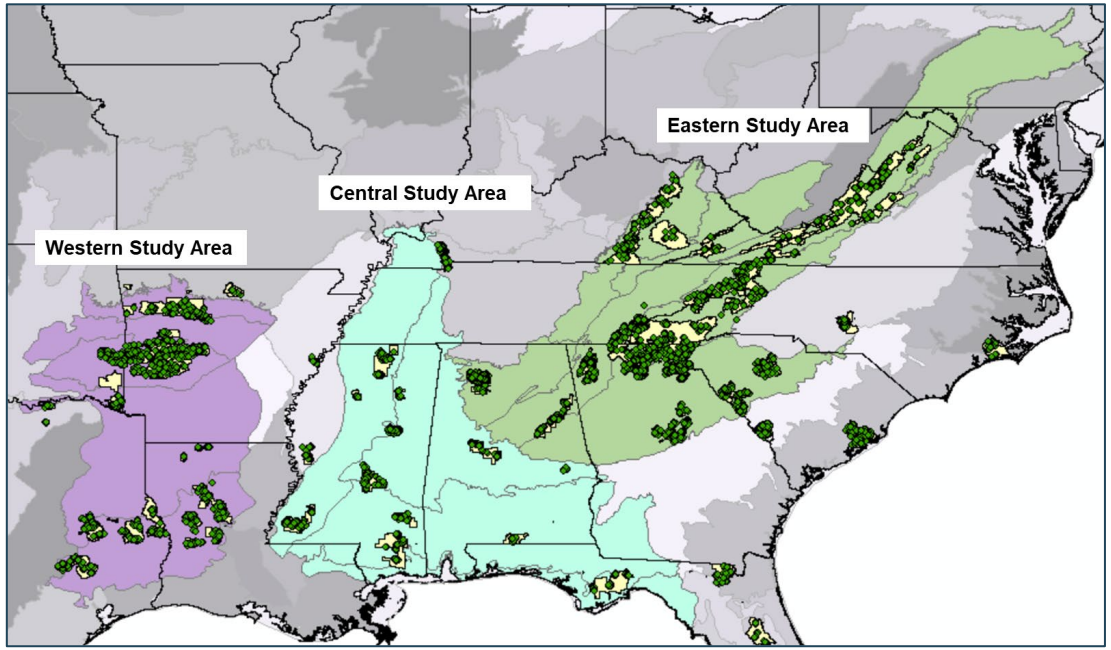
Point Count Data

Same: Species, Count, Protocol, Locations, Detection Cues, Observation Time, Data Sharing Levels

Differences: Binned Distance averaged, Comments missing, no Site Conditions, Observer Names to Initials, no Time Bin

CASE STUDY:
USFS REGION 8

- **30-year** USFS database with bird monitoring data across 34 national forests and 13 states was being **decommissioned**
- FS regional biologist wanted to save data and make sure current FS biologists could access it
- **1,121,654** point count observation records(**13,664** sampling locations) uploaded to AKN!
- **100+** FS biologists in Region 8 now have access to their data and continue to contribute new data every year
- Data used to create species distribution models, now being applied in multiple AKN decision support tools



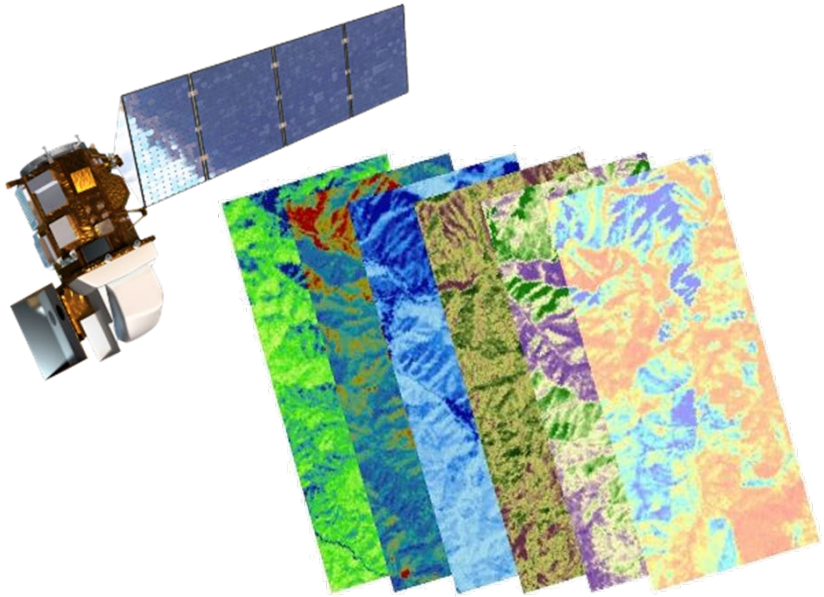
Klamath Bird Observatory

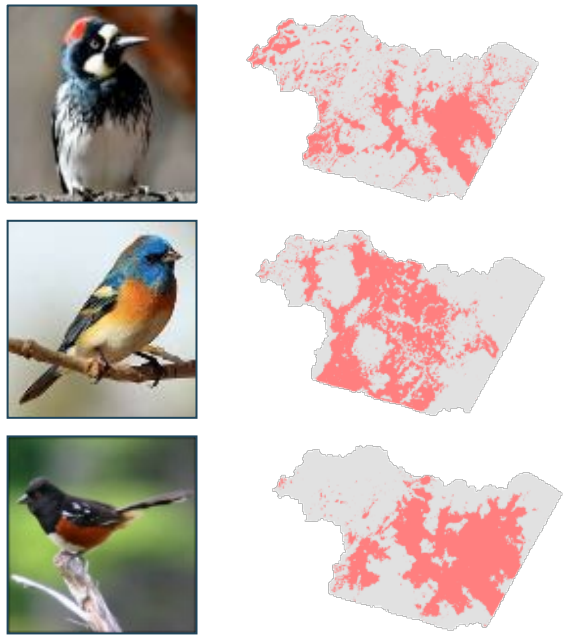
Point Blue Conservation Science

CASE STUDY:

SPECIES-CENTERED HABITAT MODELING

(Shirley et al 2013, Betts et al 2014, Halstead et al 2019)



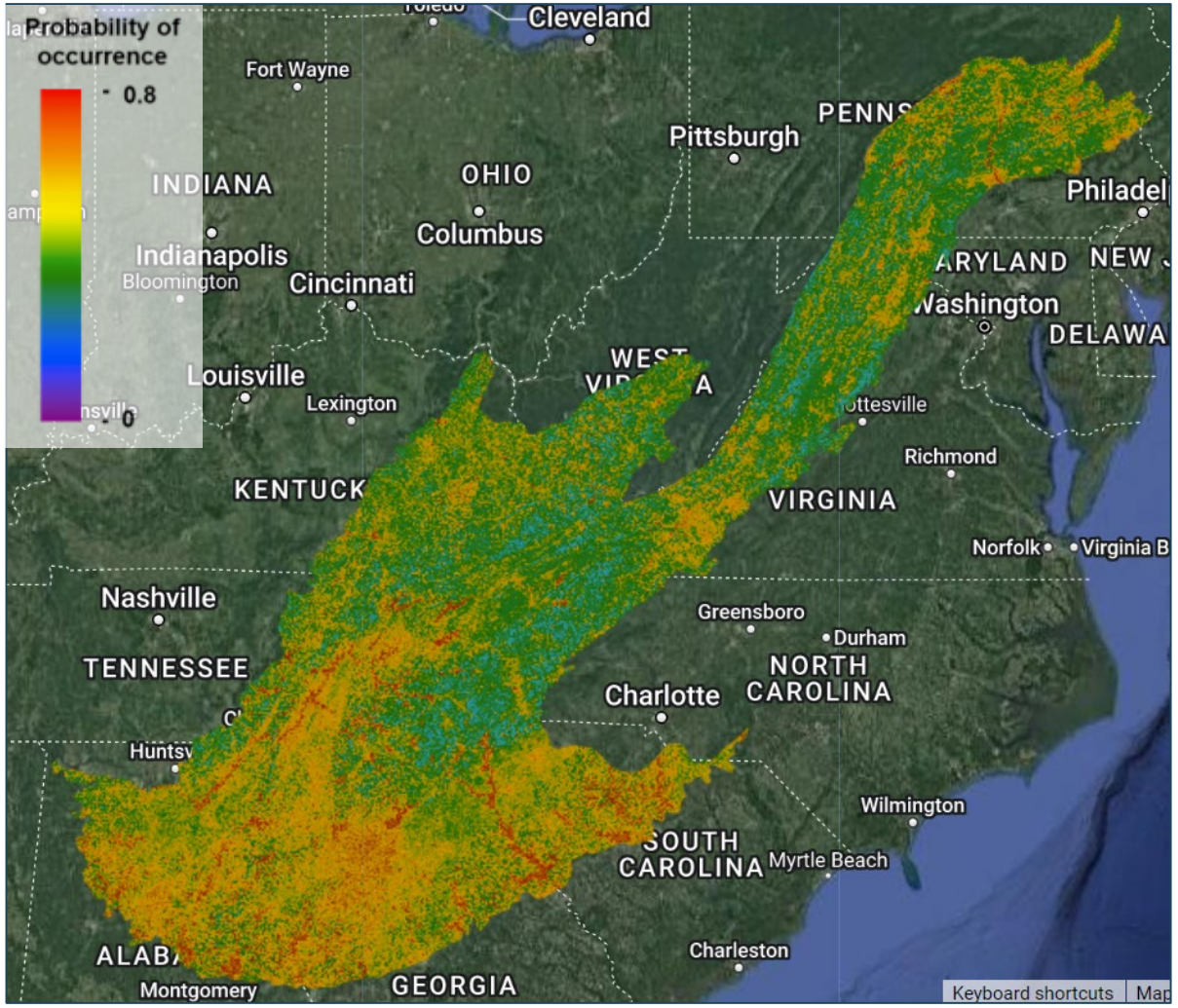


Compared to Land Cover Derived Models:

- High prediction ability
- Wider temporal range
- Avoid uncertainty:
  - misclassification of habitats
  - omission of fine-scale features
  - subtle changes in vegetation

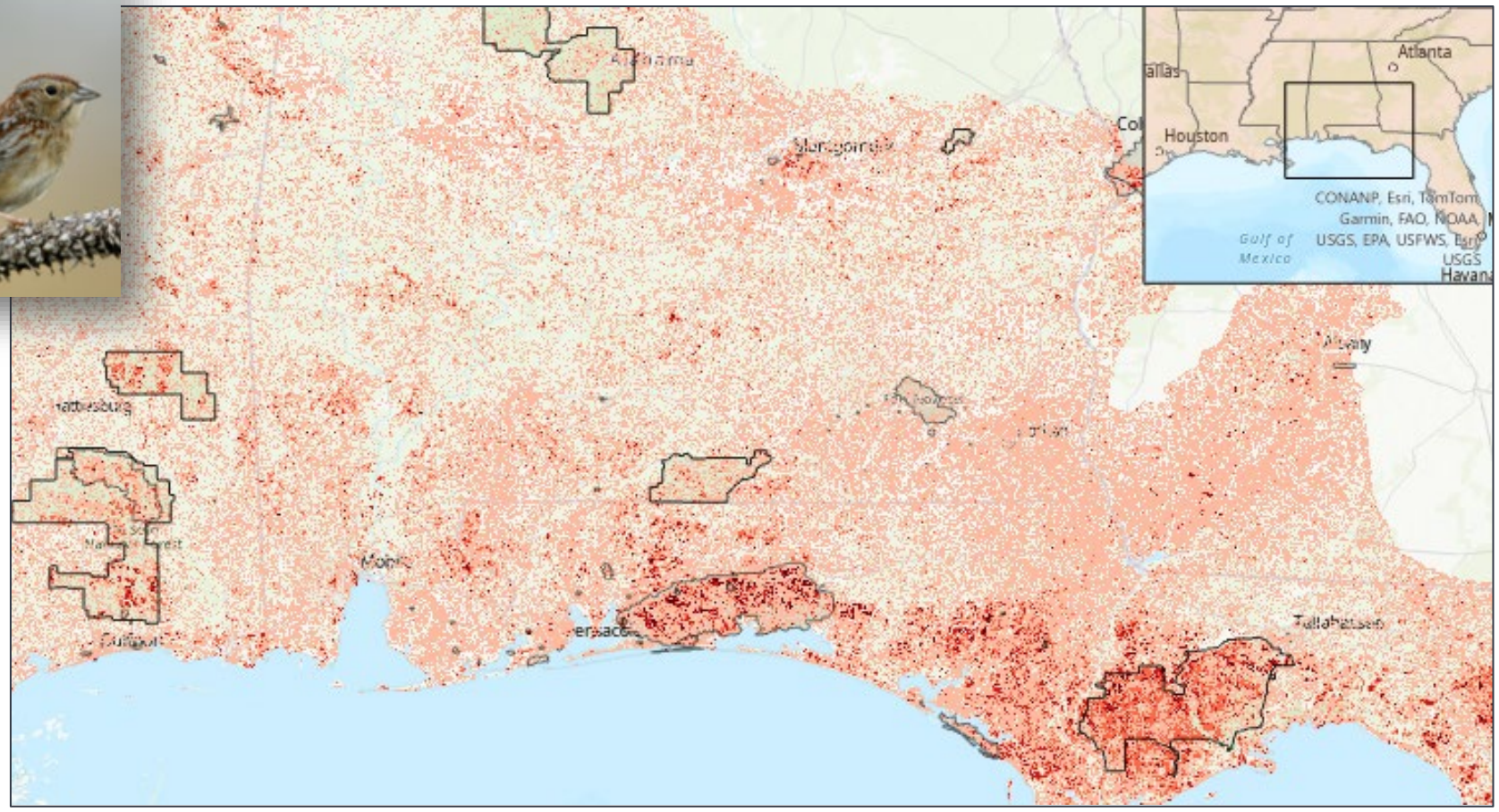
CASE STUDY:

PINE WARBLER HABITAT DISTRIBUTION -- 2019



CASE STUDY: MAPPING HABITAT FOR PRIORITY SPECIES

Bachman's sparrow



USFS + DoW

DOWNLOAD POINT COUNT DATA FROM WAREHOUSE

DEMONSTRATION

Tools:

- **Data Downloader**

6c. Analyze Observations

DATA OWNERSHIP, SHARING, AND CONTRACTORS

DATA OWNERSHIP AND CONTROL

Project Leaders / Organizations are the owner of data from a Project, regardless of where it is stored

Project Leaders can change Data Sharing Levels at any time, including making more restrictive

PARTNERSHIPS AND CONTRACTORS

Partner / Contractors

- DoW collects data for a Partnership
- Hiring independent contractors for survey work

DoW

- Wants to ask questions across DoW
- Needs to manage and control all data on installations

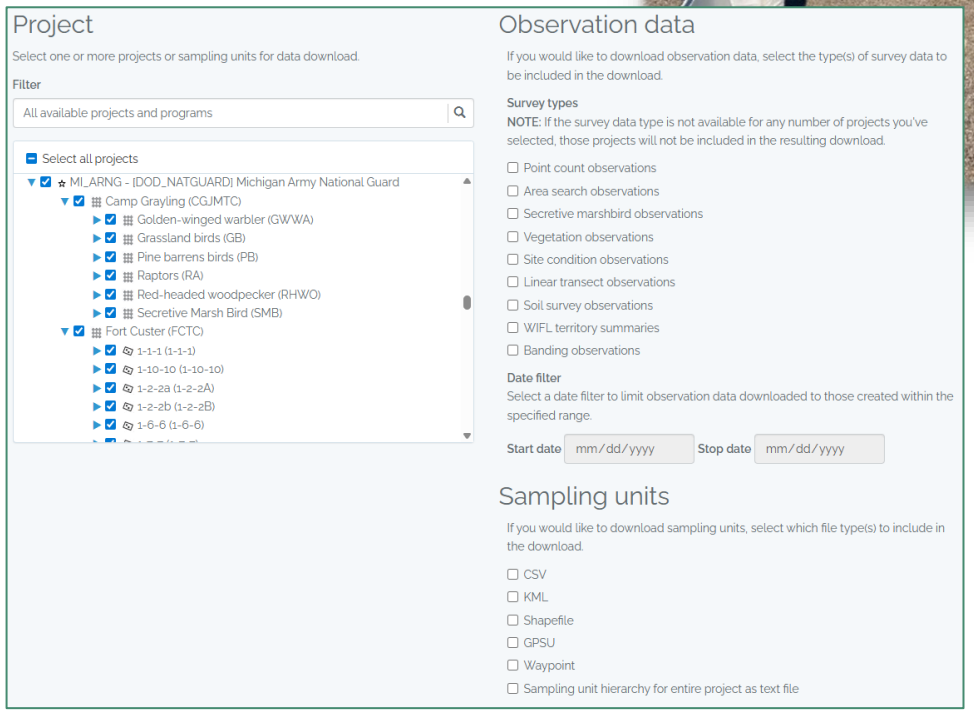
We want data collected on/near DoW installations in DoW Projects

CONTRACTORS & TRAINING

MICHIGAN ARMY NATIONAL GUARD (MIARNG)

- Contracts Kalamazoo Nature Center (KNC) to complete bird surveys
- Wanted to train long-term staff to use AKN
- Attended training and entering data
- Additional benefit, KNC to enter other data, supplementing MIARNG data

>>Same story with AZGFD!



DISCOVERING OBSERVATION DATA

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Klamath Bird Observatory

EXAMPLE: R.A.I.L. TOOL
VANCE AIR FORCE BASE, OK

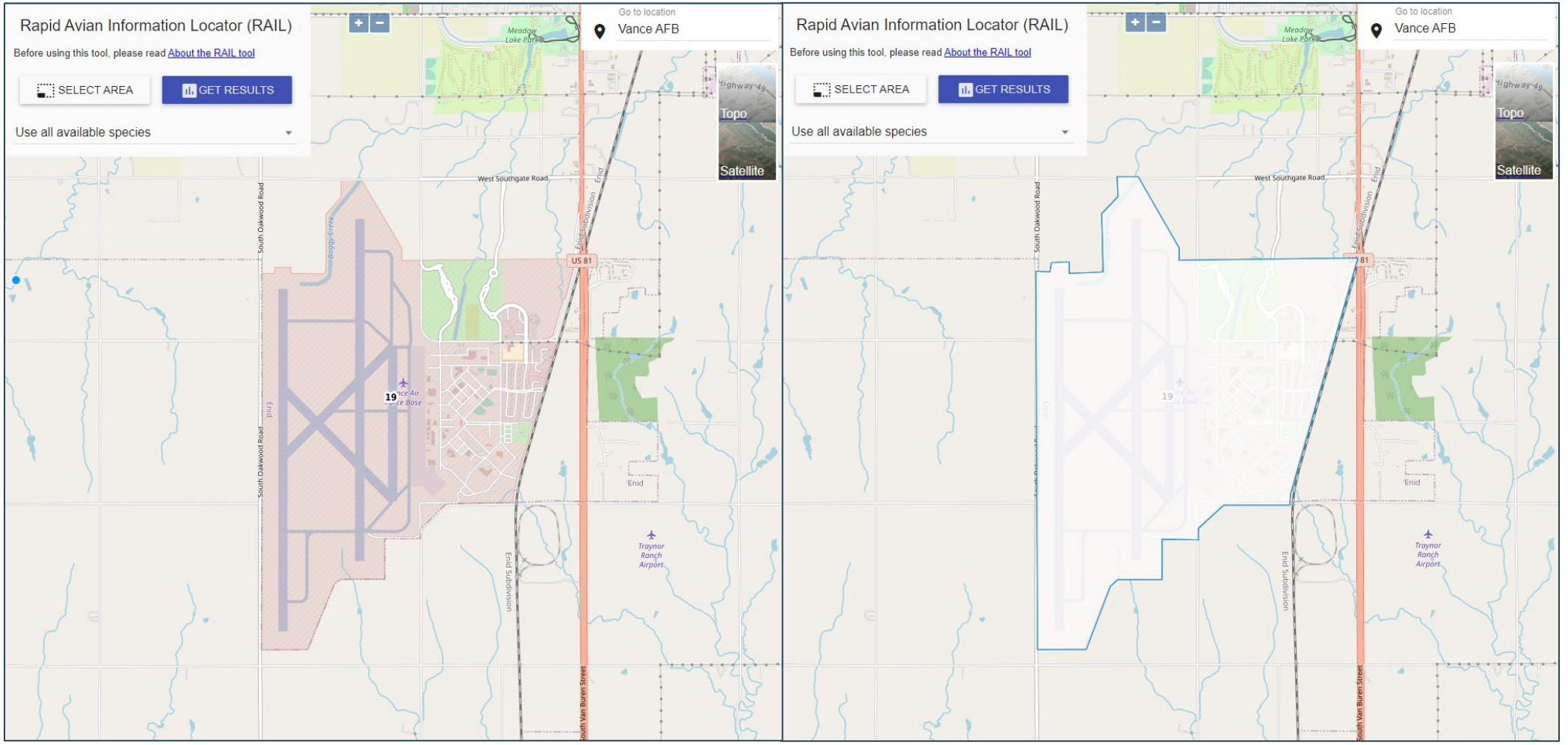
- Biologist was new to AF and did not have any bird data
- Wanted a list of birds on Vance for NEPA and INRMP updates
- RAIL tool available at no cost and without an account

  Integrates data from AKN, Partners in Flight, US Fish and Wildlife, Breeding Bird Survey, eBird, All About Birds, and the Macaulay image library at Cornell

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

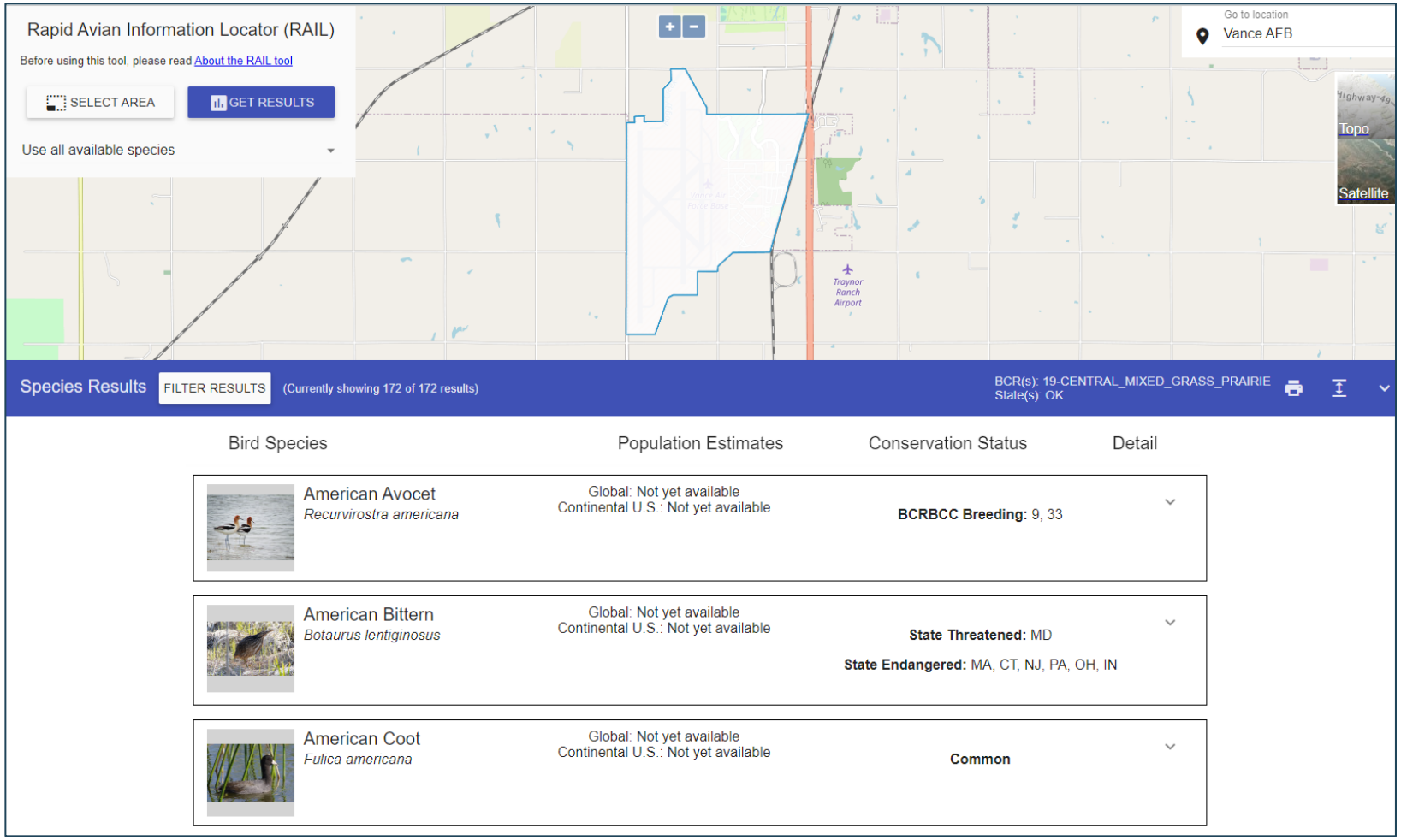
EXAMPLE: R.A.I.L. TOOL

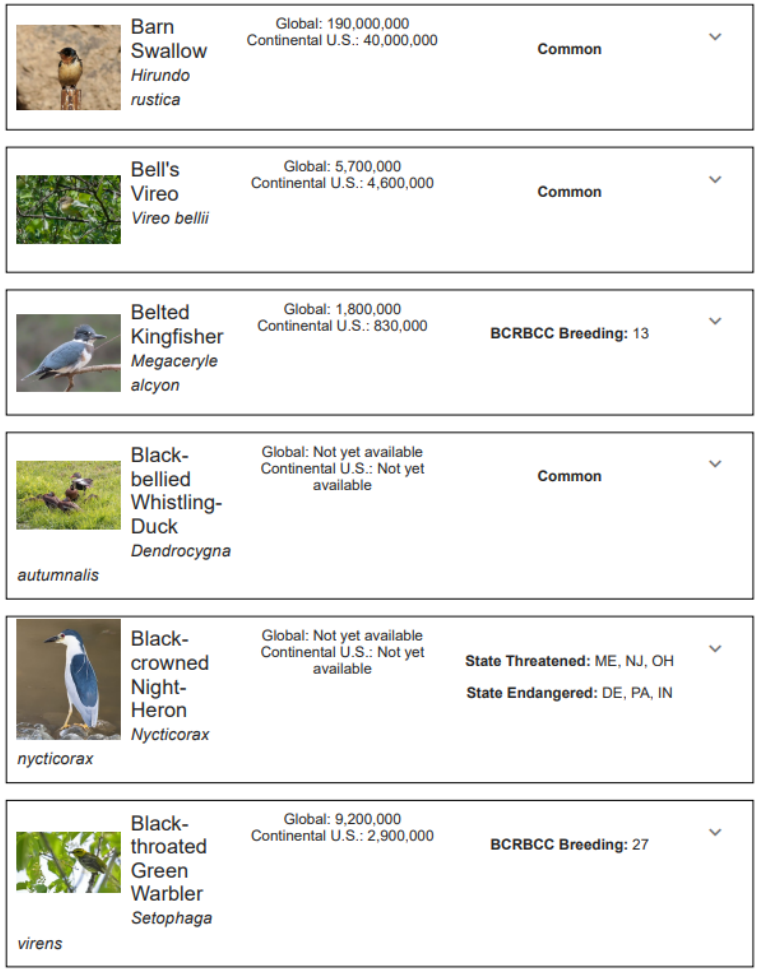
VANCE AIR FORCE BASE, OK



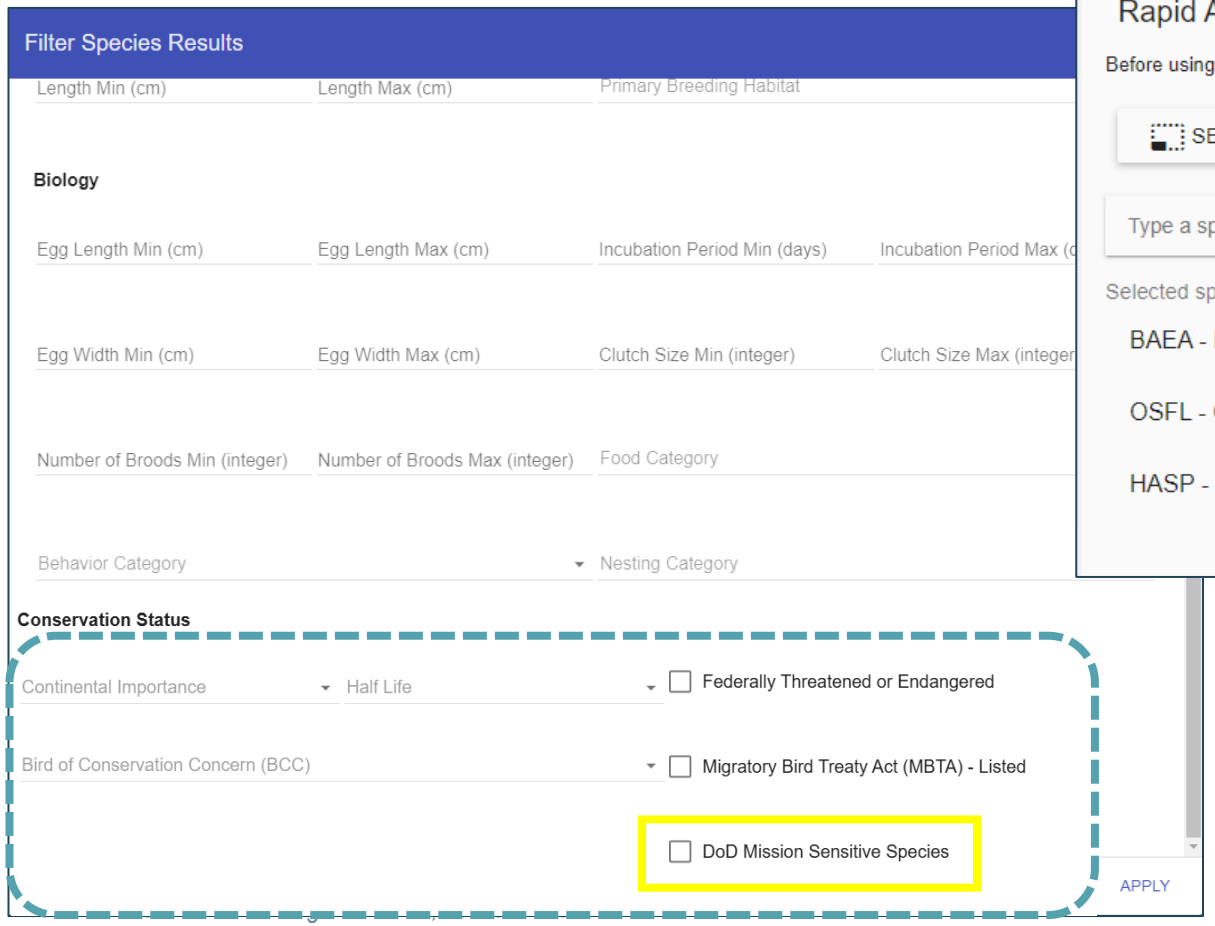
EXAMPLE: R.A.I.L. TOOL

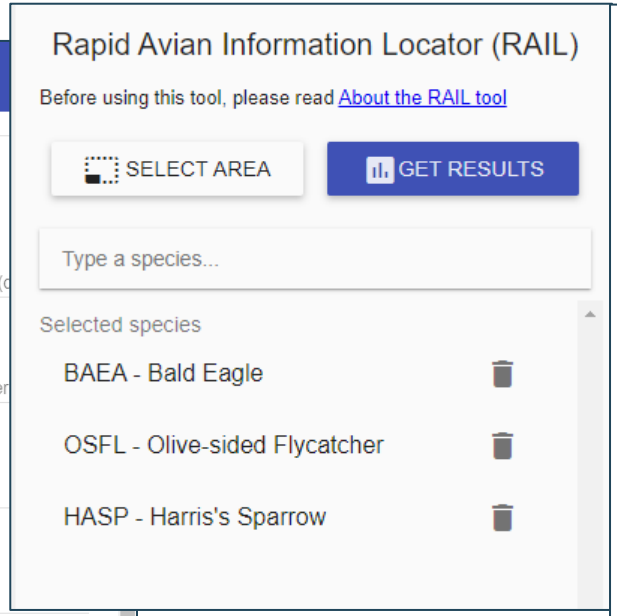
VANCE AIR FORCE BASE, OK

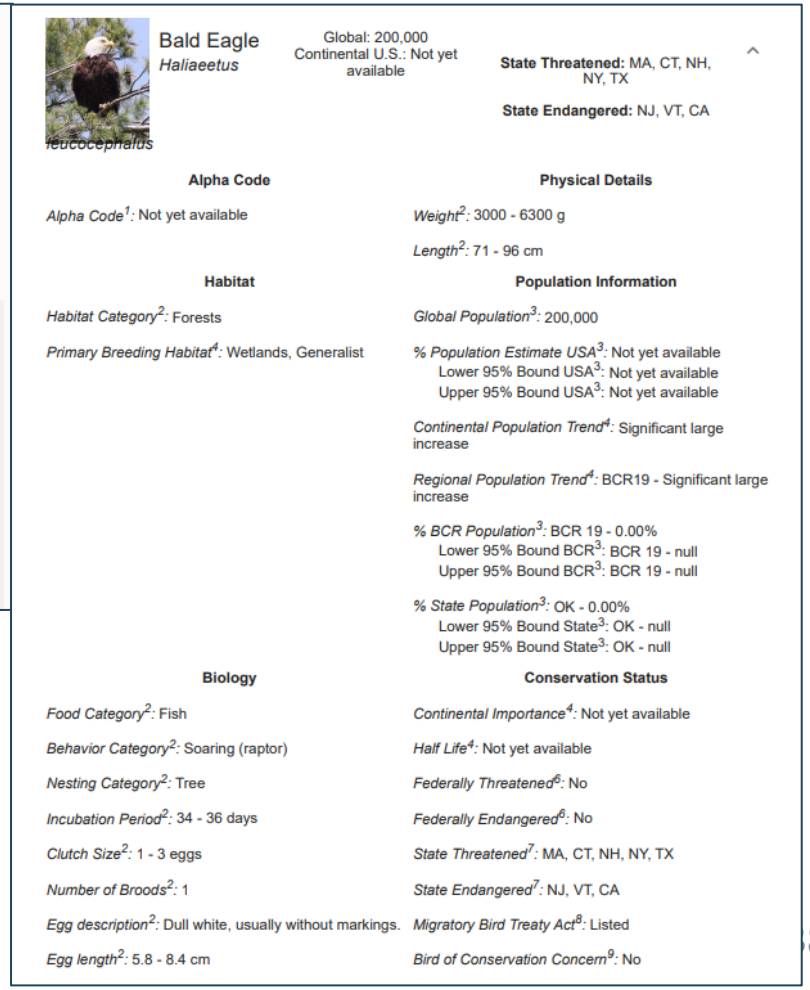




EXAMPLE: R.A.I.L. TOOL
VANCE AIR FORCE BASE, OK







NAVIGATING THE R.A.I.L. TOOL
DEMONSTRATION

Tools:

- RAIL Tool

EXERCISE 4: CREATE A SPECIES LIST WITH THE R.A.I.L. TOOL

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ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

CREATE A SPECIES LIST WITH THE R.A.I.L. TOOL

EXERCISE 4

Purpose: Get familiarized with the RAIL tool, which can help you find general information about the species in a particular area and their conservation status

Goal: Be comfortable navigating the RAIL tool to find information about species on your installation and understand the limitations of the tool

Thinking Ahead: Consider how RAIL might be helpful for your analyses and reporting

6c. Analyze Observations

CREATE A SPECIES LIST WITH THE R.A.I.L. TOOL

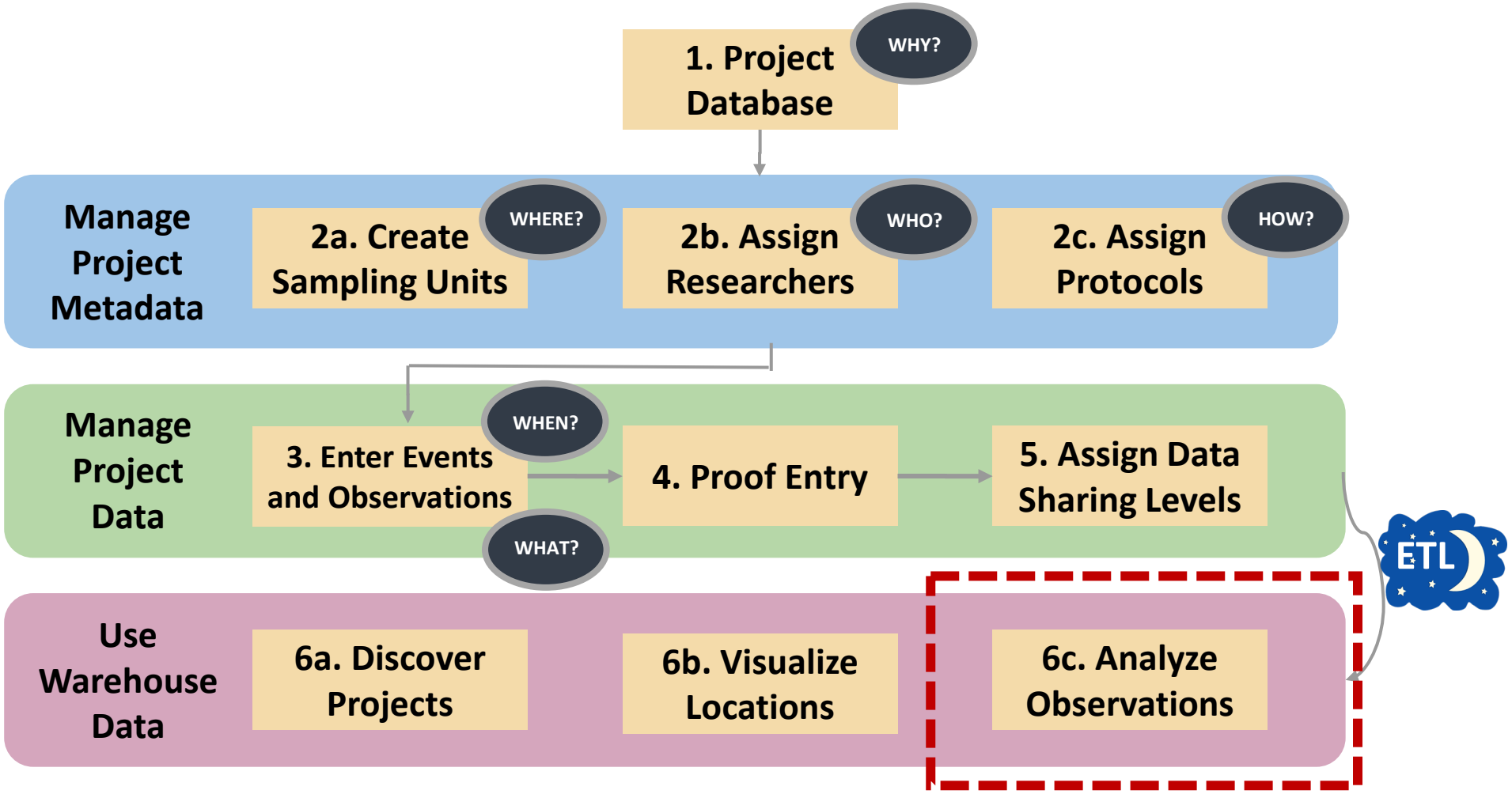
EXERCISE 4

Exercise:

- **Exercise 4 instructions**

6c. Analyze Observations

MANAGING A PROJECT: LOOKING FOR TRENDS

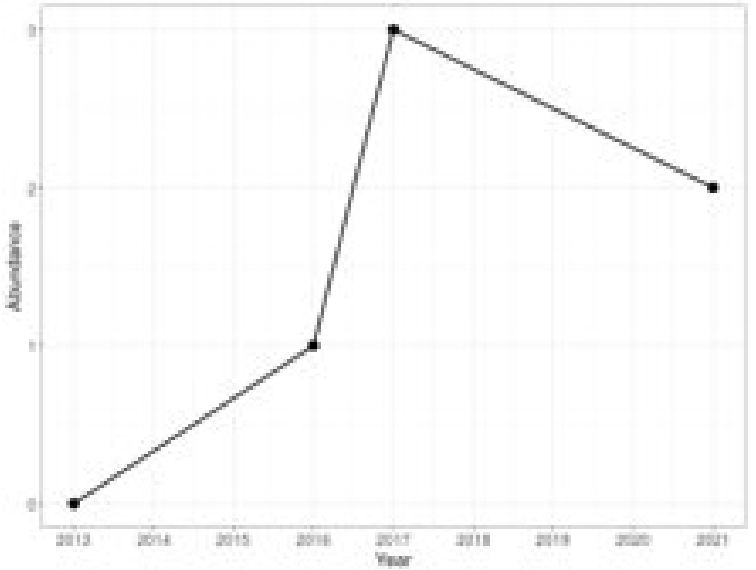


USING THE ANALYST TOOL
DEMONSTRATION

Tools:

- https://data.pointblue.org/apps/analysts/

Common Name	2013	2014	2015	2016	2017	2021
Acadian Flycatcher	6	11	25	12	14	15
Alder Flycatcher	0	0	0	0	1	0
American Crow	41	28	42	29	24	113
American Goldfinch	14	1	5	6	3	16
American Redstart	0	1	0	1	1	2
American Robin	0	0	0	0	1	0
Barred Owl	0	0	0	0	0	1



LOOKING FOR TRENDS

EXERCISE 5

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LOOKING FOR TRENDS

EXERCISE 5

Purpose: Introduce you to more data exploration and discovery tools

Goal 1: Understand how to use the Observations Map to find survey locations from different datasets for a particular species and examine species trends

Goal 2: Use the Analyst Application to create a species list, check effort summaries, and examine trends.

Thinking Ahead: Consider how Observations Map may be helpful for your analyses and reporting; consider how the Analyst Application can assist in your data visualization and annual reporting needs.

LOOKING FOR TRENDS

EXERCISE 5

- Exercise:
  - Orientation of **Observation Map**
  - **Exercise 5 instructions**

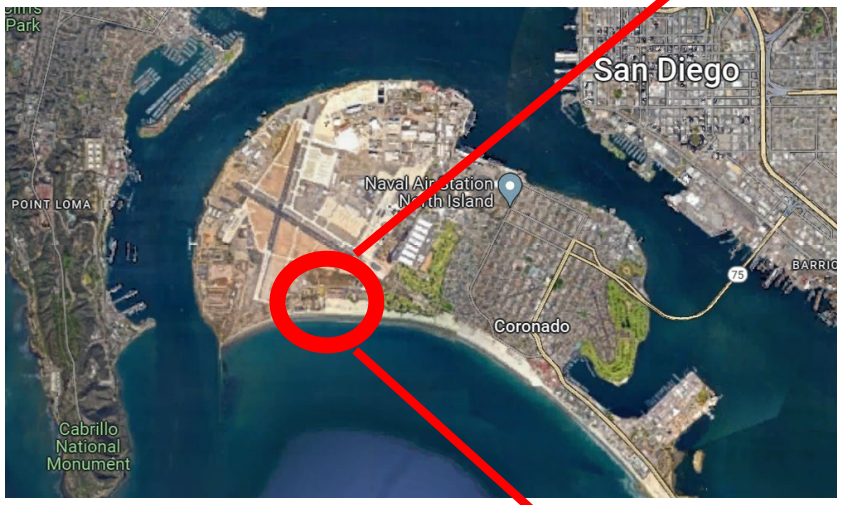
CASE STUDY:
MIGRATORY SHOREBIRD PROJECT

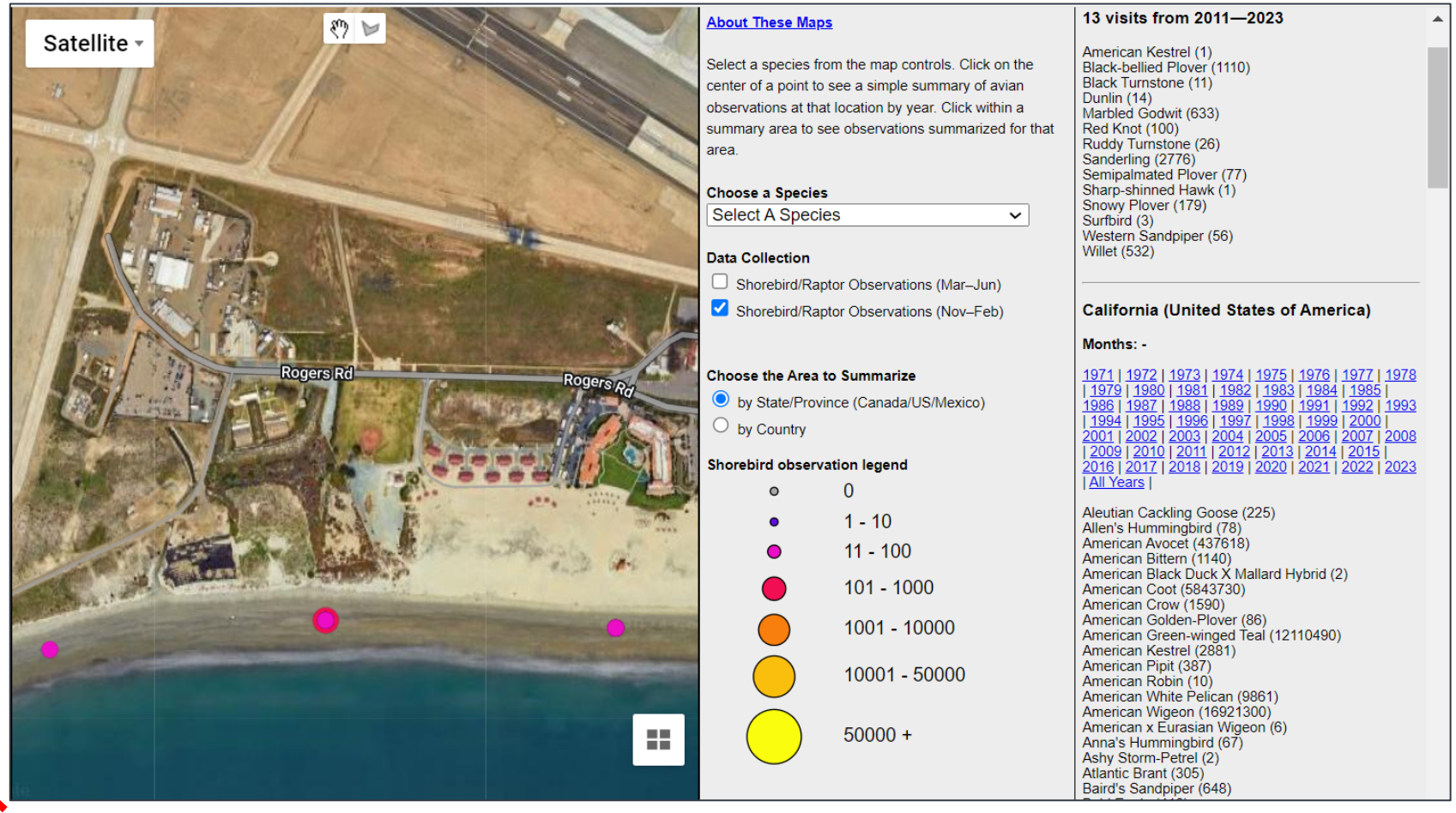
- Largest coordinated effort to monitor wintering shorebirds across all **13 countries** of the Pacific Coast of the Americas
- Project goals
  - Wintering Shorebird **abundance and distribution**
  - Factors **influencing** shorebird populations
  - Provide **science-based management** guidance from site to fly-way level

Western Sandpiper, Dam Neck Annex, VA; Credit: Paul Block

CASE STUDY:

MIGRATORY SHOREBIRD PROJECT

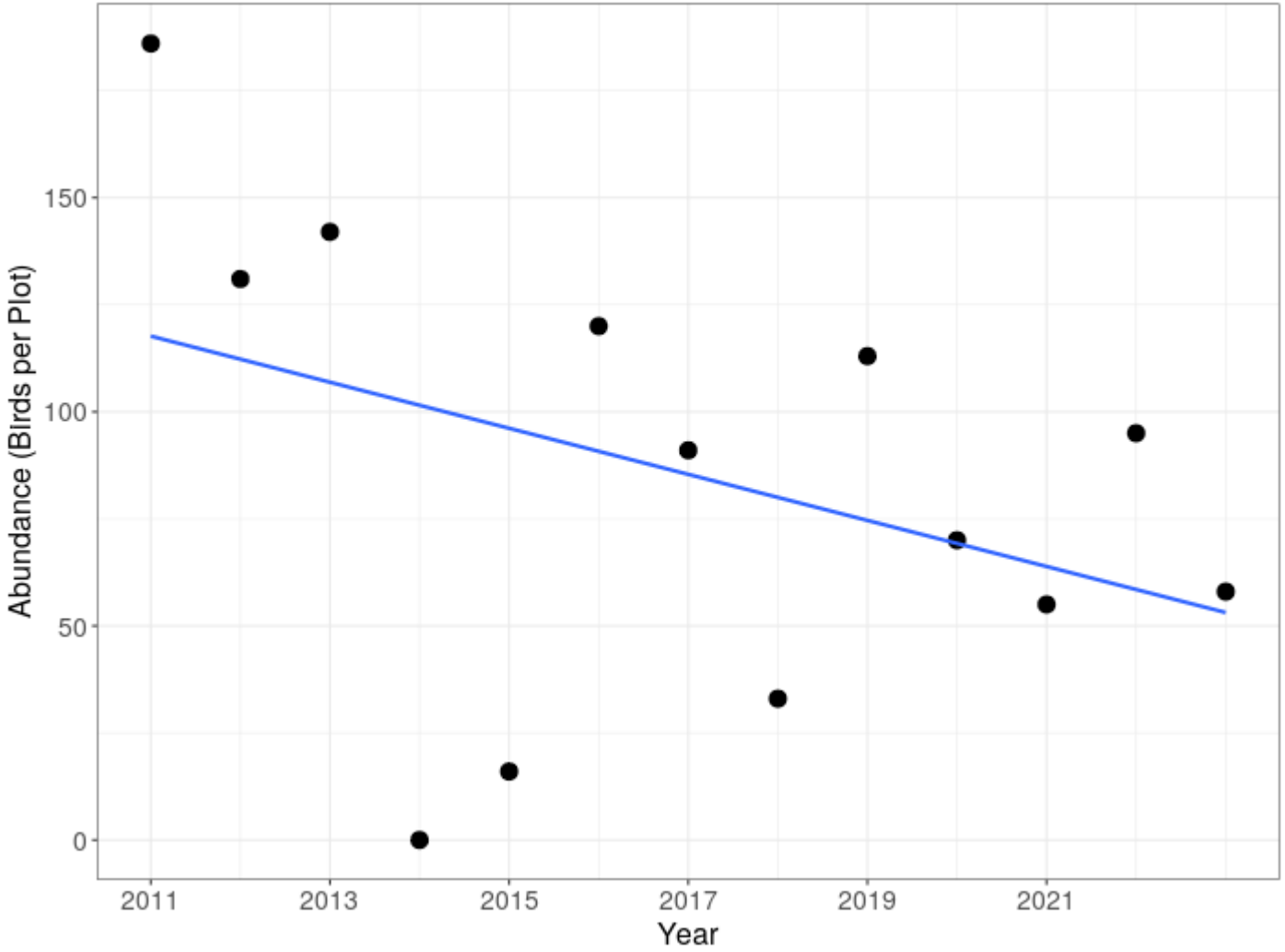




CASE STUDY:

MIGRATORY SHOREBIRD PROJECT

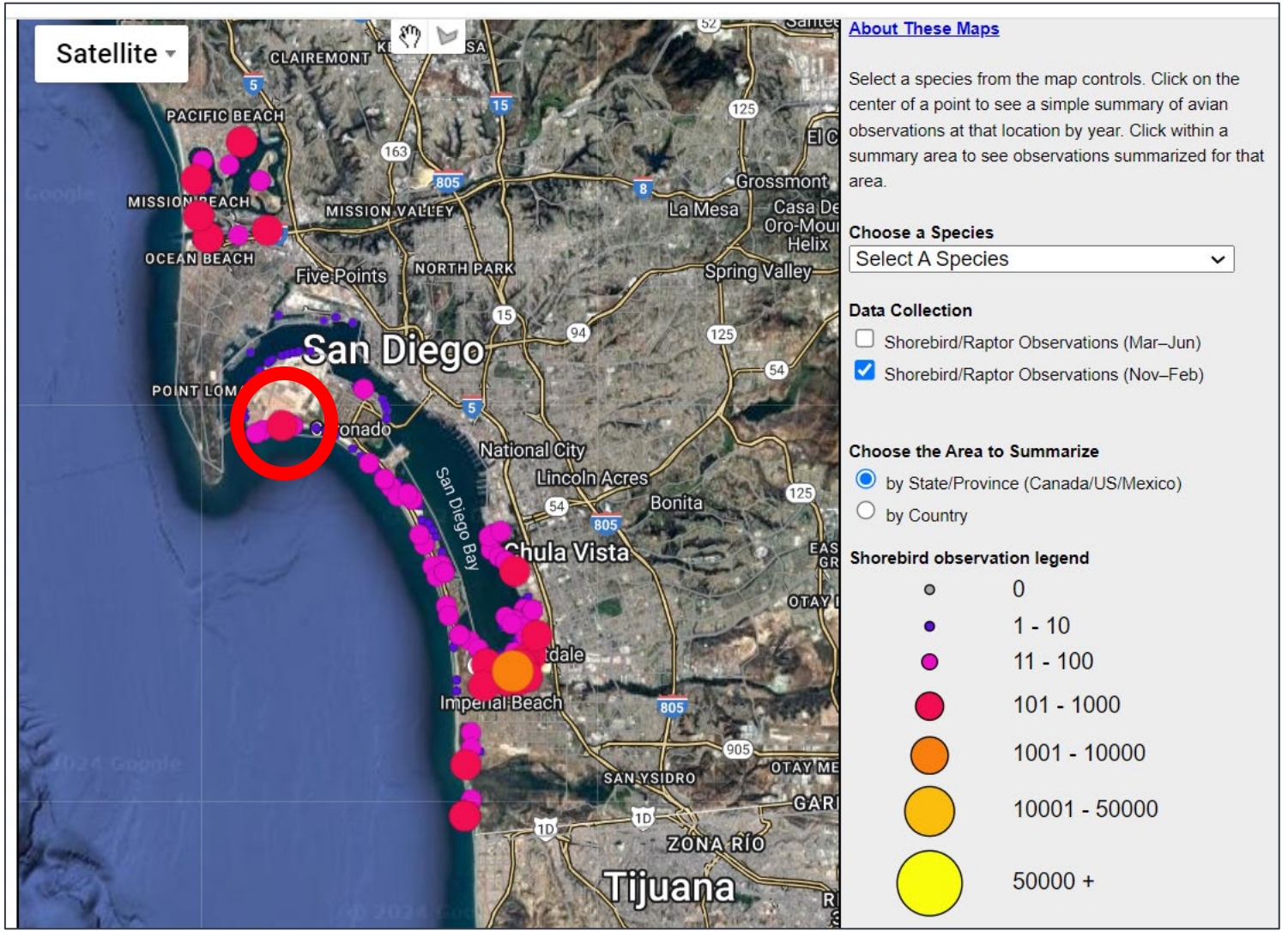
North Island Coronado Beach Black-bellied plover abundance



CASE STUDY:

MIGRATORY SHOREBIRD PROJECT

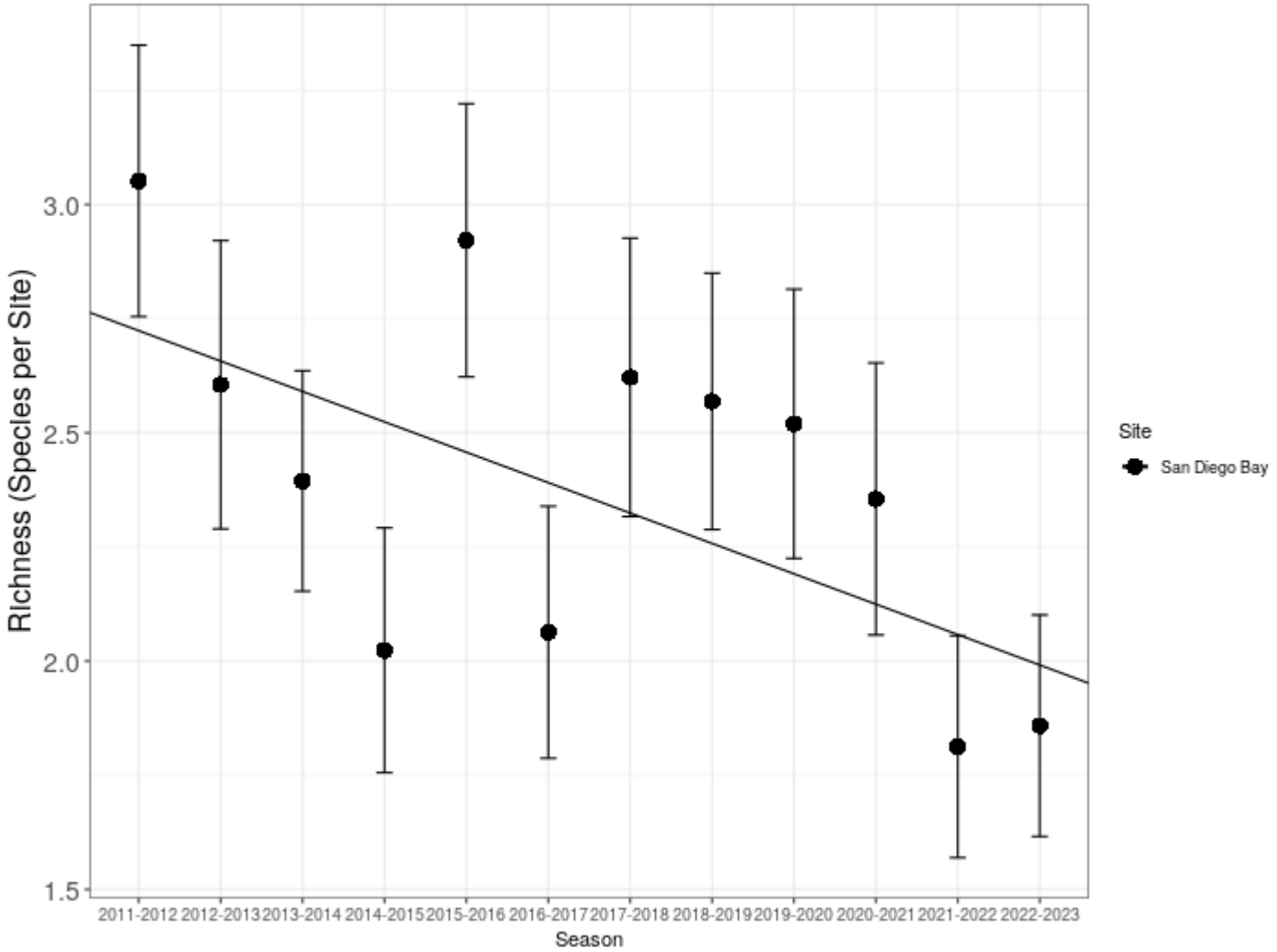
- Data collected between November and December every year since 2011
- https://migratoryshorebirdproject.org



CASE STUDY:

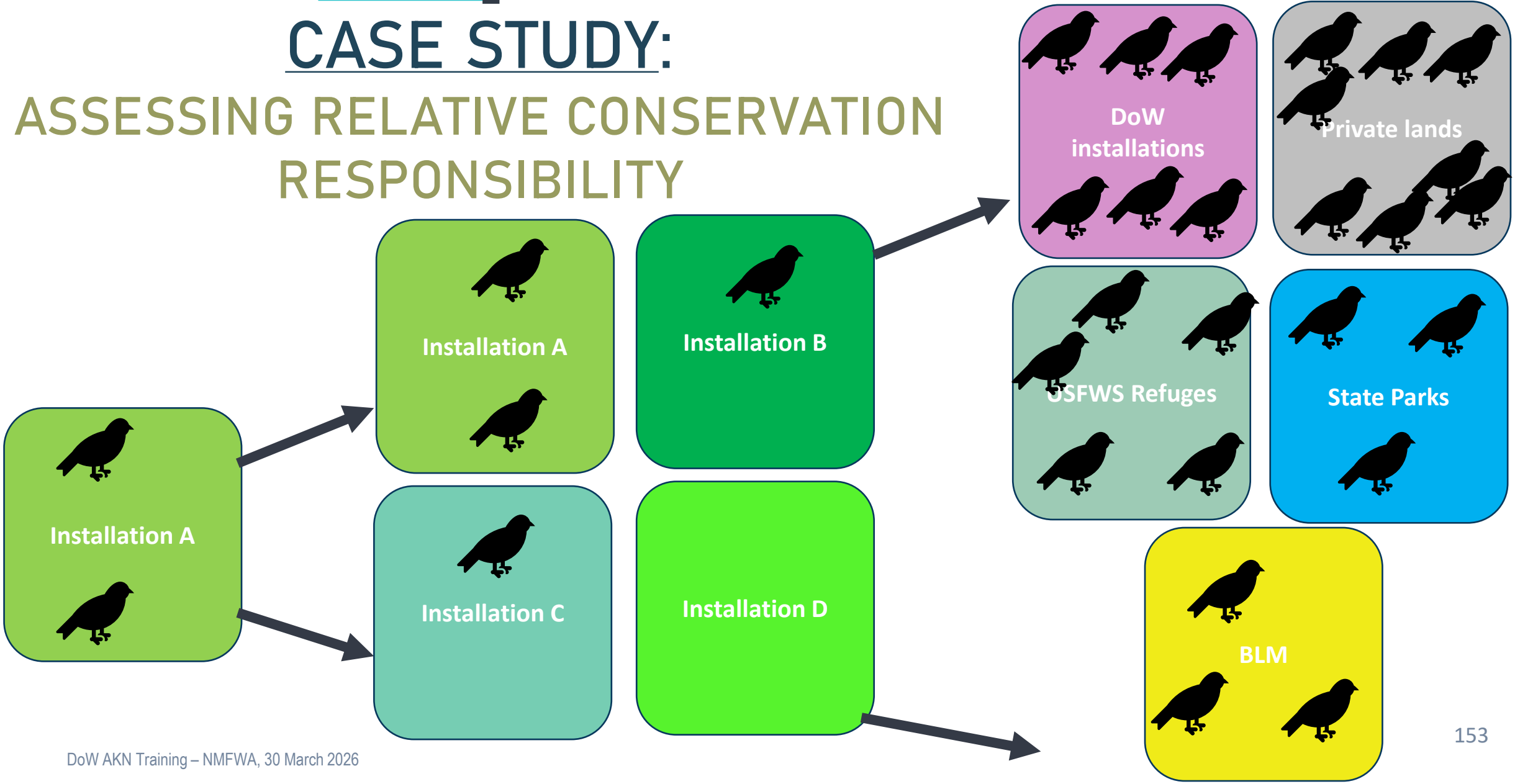
MIGRATORY SHOREBIRD PROJECT

San Diego Bay: Wintering shorebird species richness



CASE STUDY:

ASSESSING RELATIVE CONSERVATION RESPONSIBILITY

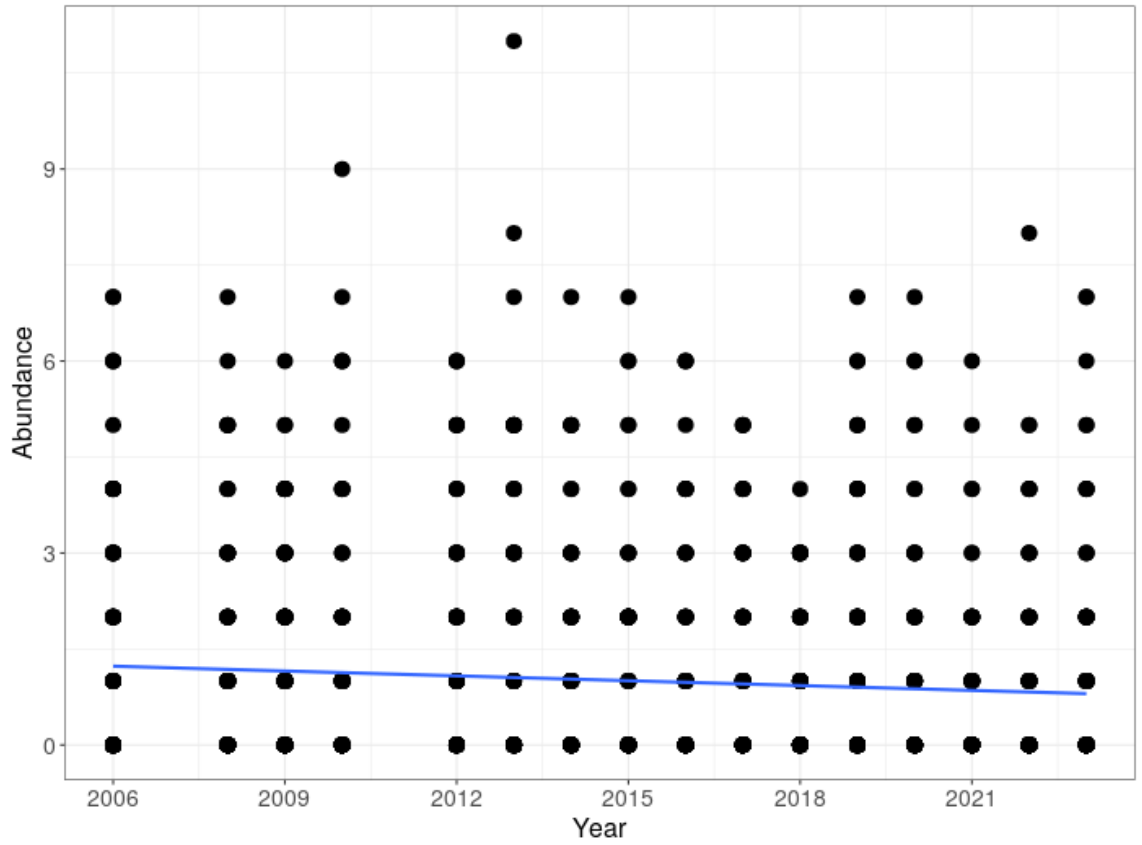


CASE STUDY:

ASSESSING RELATIVE CONSERVATION RESPONSIBILITY – NORTHERN BOBWHITE

AKN Analyst output

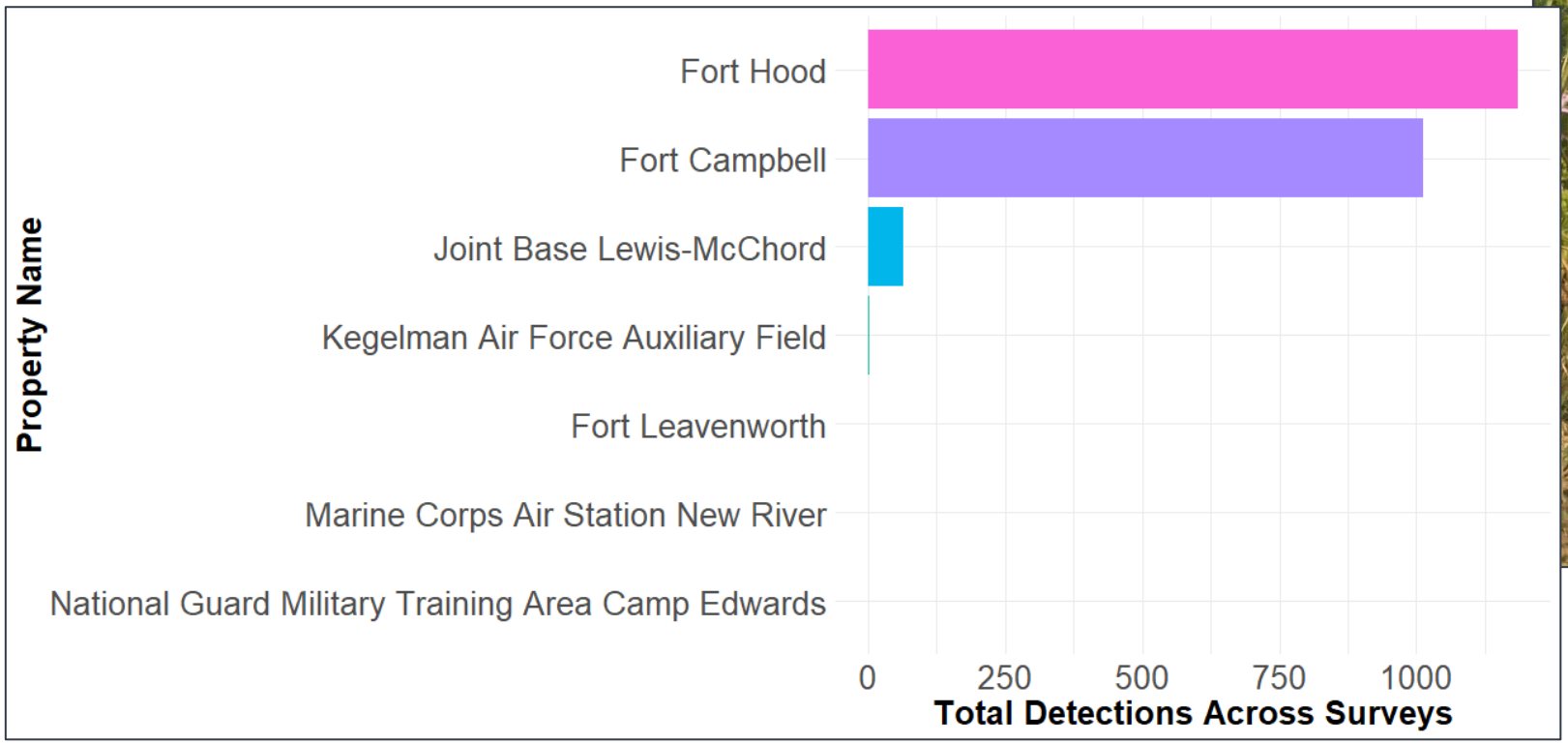
Fort Campbell

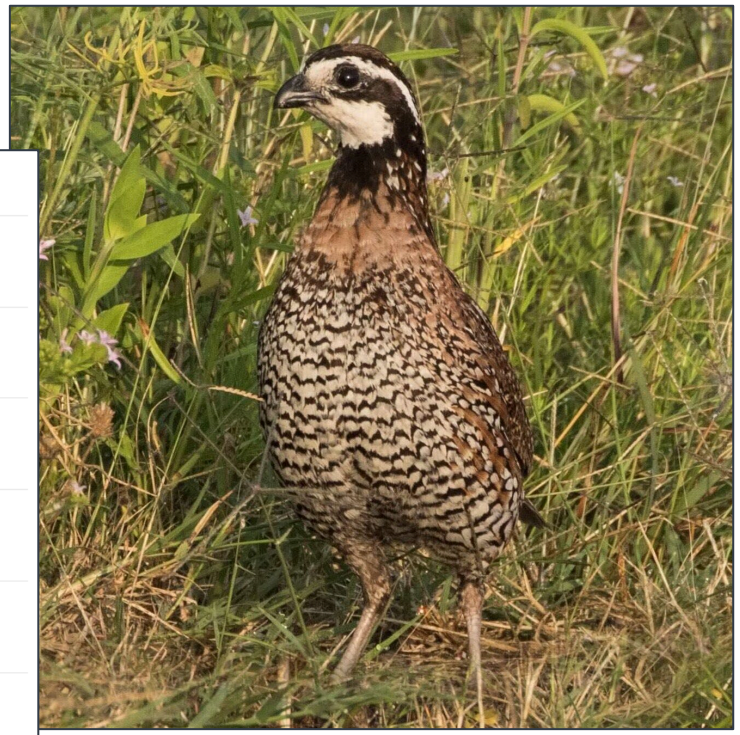


CASE STUDY:

ASSESSING RELATIVE CONSERVATION RESPONSIBILITY – NORTHERN BOBWHITE

Which DoW installations have the most detections?

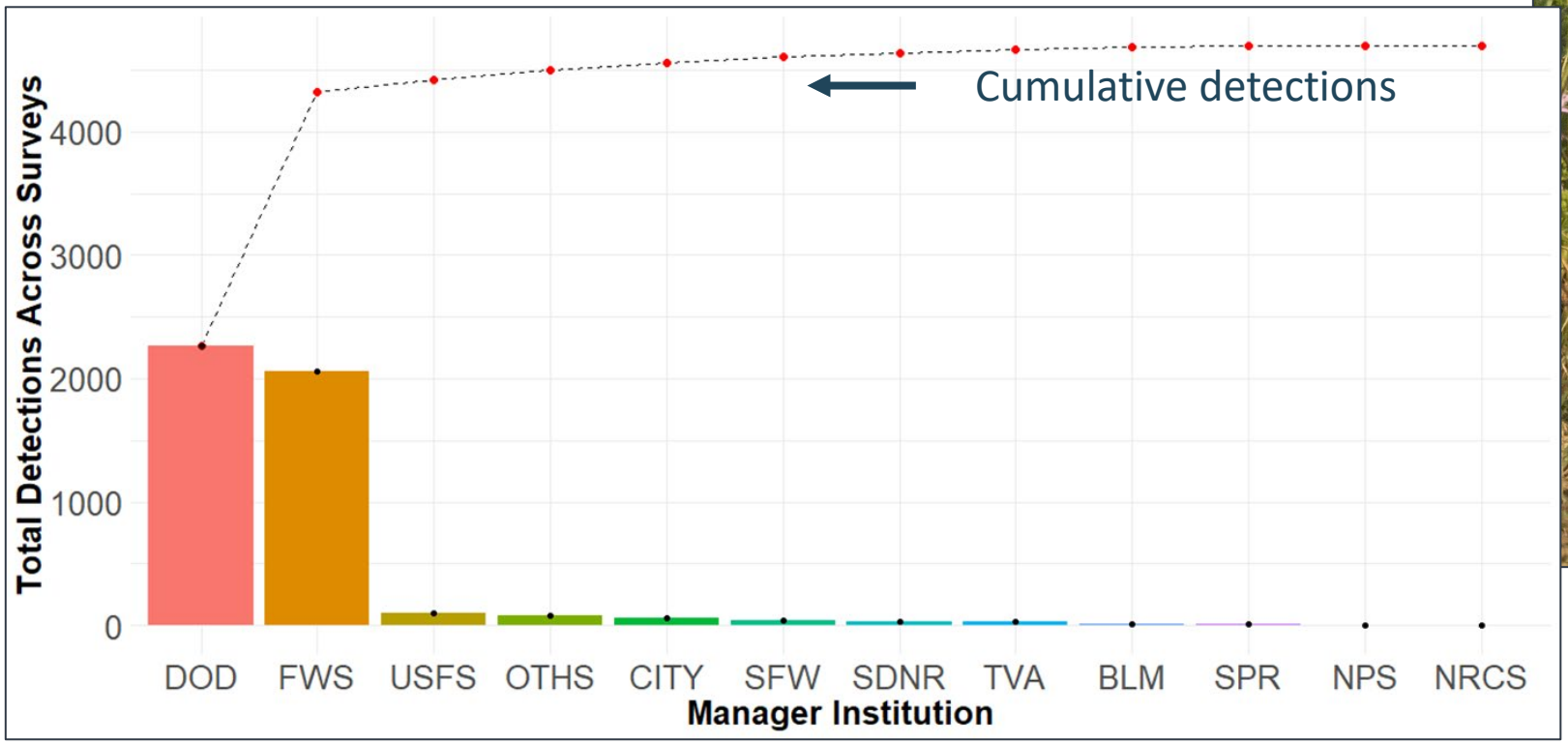


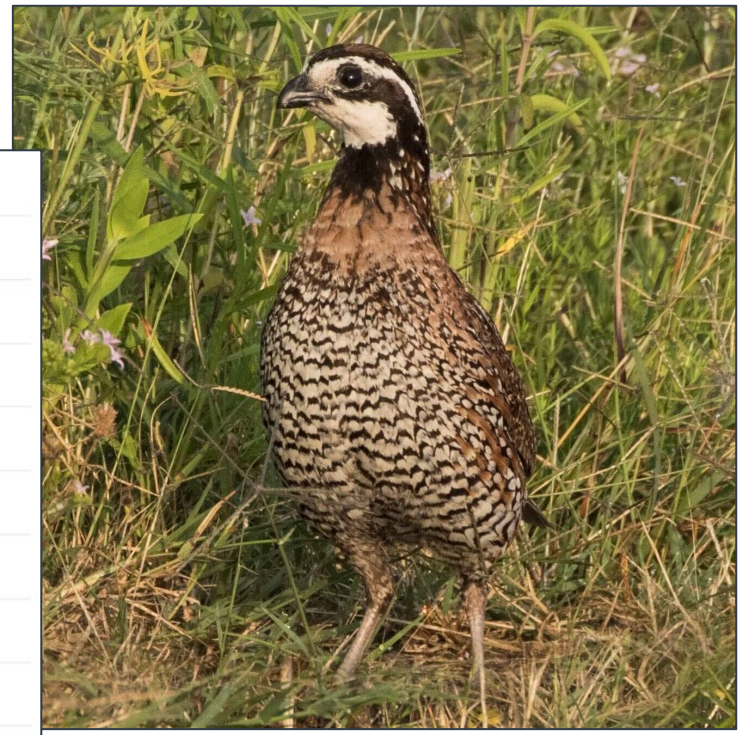


CASE STUDY:

ASSESSING RELATIVE CONSERVATION RESPONSIBILITY – NORTHERN BOBWHITE

Across protected areas?

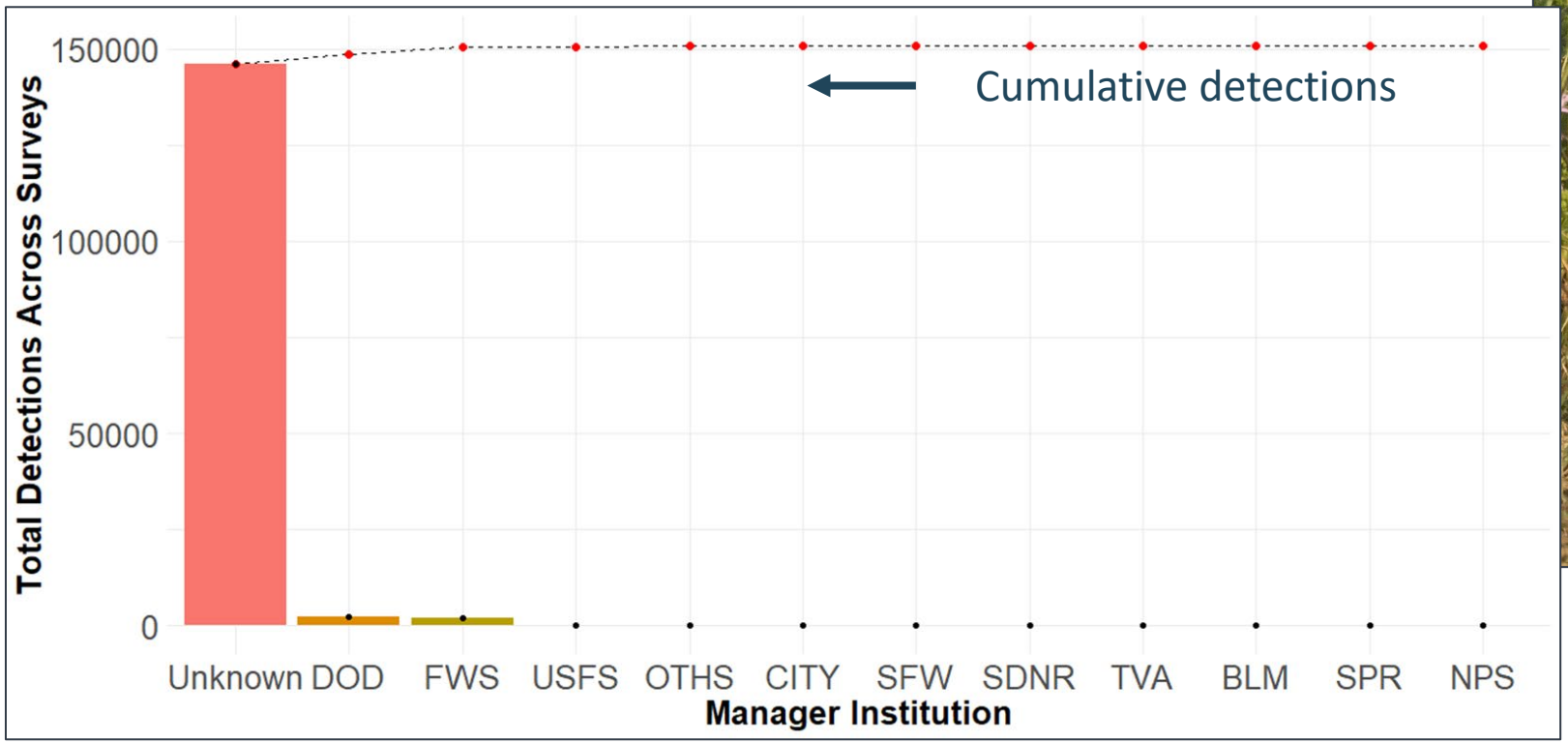


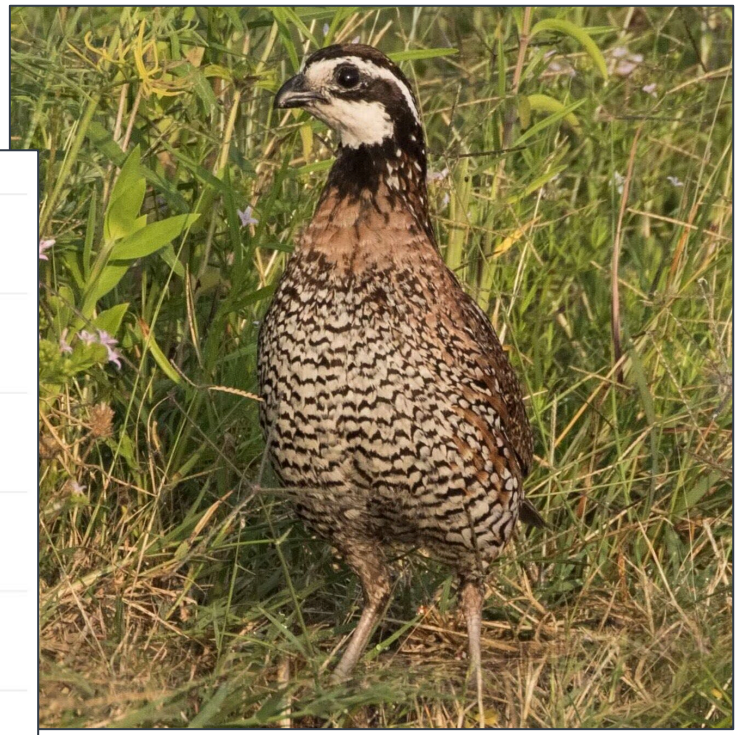


CASE STUDY:

ASSESSING RELATIVE CONSERVATION RESPONSIBILITY – NORTHERN BOBWHITE

Across jurisdictions?



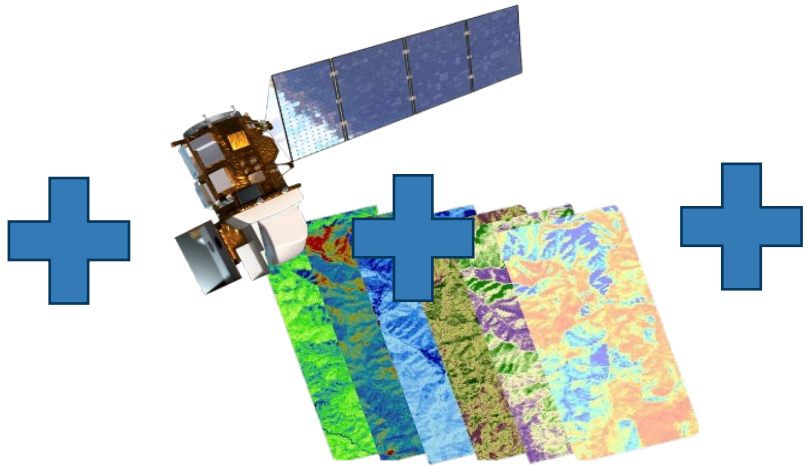


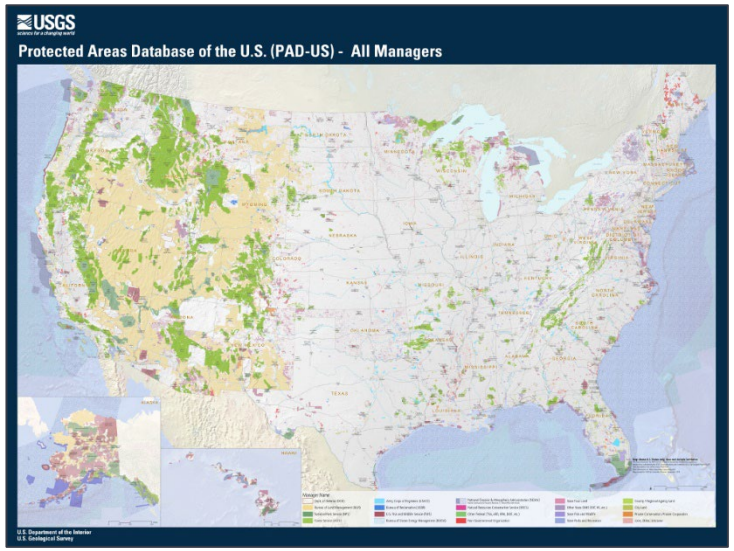
CASE STUDY:

ASSESSING RELATIVE CONSERVATION RESPONSIBILITY

Avian Distributions Across Land Ownerships (ADALO) Tool Expansion

- Use **AKN data** in conjunction with **NASA remote sensing products** to model avian distribution and abundance across the U.S.
- Incorporate **DoW AKN data** for Mission-Sensitive Species





*Proposal **through NASA Research Opportunities in Space and Earth Science (ROSES) – ACCEPTED!***

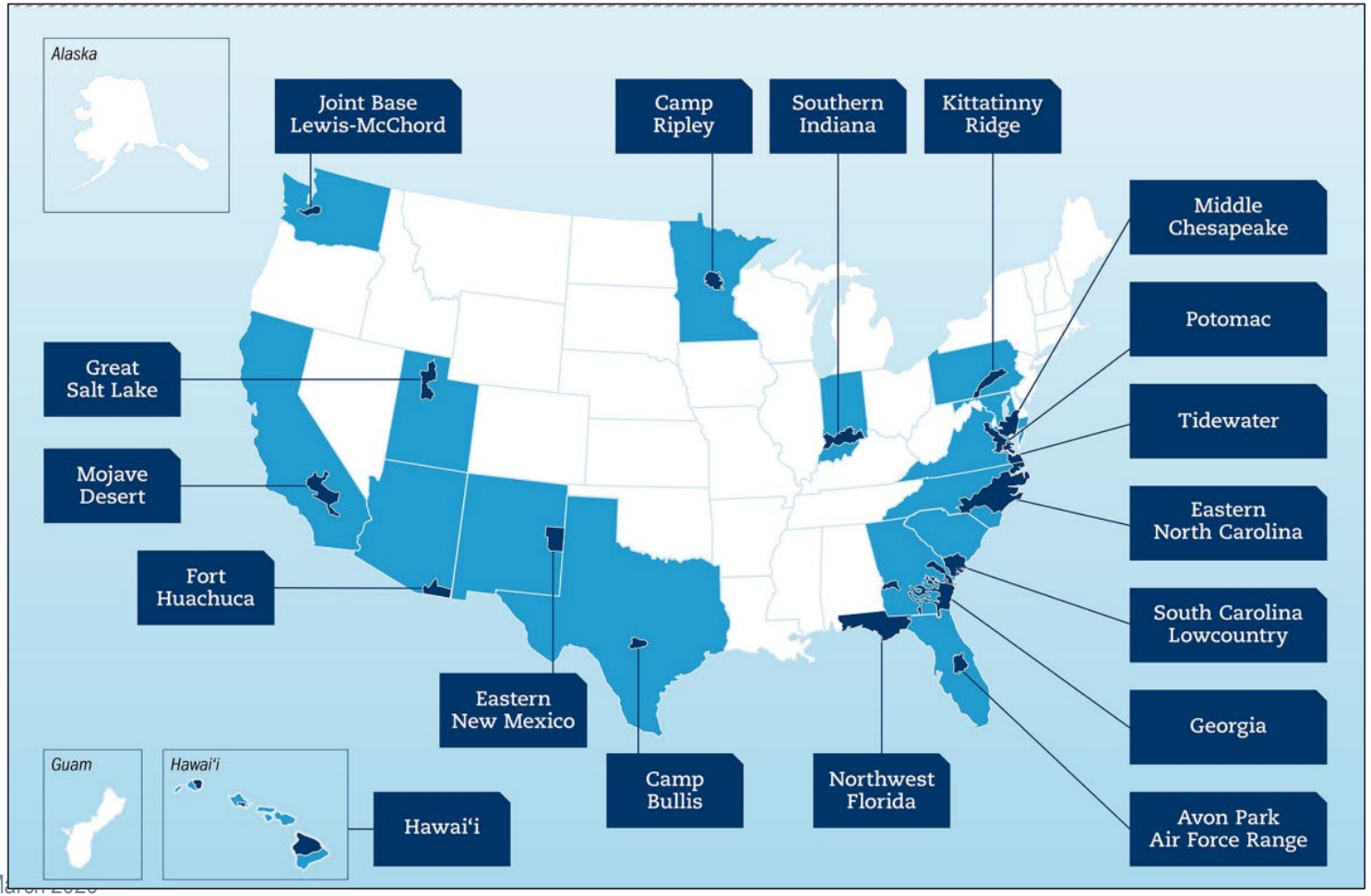
CASE STUDY:

AVIAN DISTRIBUTIONS ACROSS LANDOWNERSHIPS (ADALO) PHASE 2

- Create species distribution models for Mission-Sensitive Species across the US
- Data from **192 AKN point count projects**
- **Over 50 different protocols**
- Warehouse delivers all of this data in **one spreadsheet** ready for our modeling process
- Models will be updated annually with new observation data and satellite remote sensing data

CASE STUDY:

APPLICATION- SENTINEL LANDSCAPES



BREAK

NEXT: PULLING IT ALL TOGETHER AND THE DOW AKN PROGRAM

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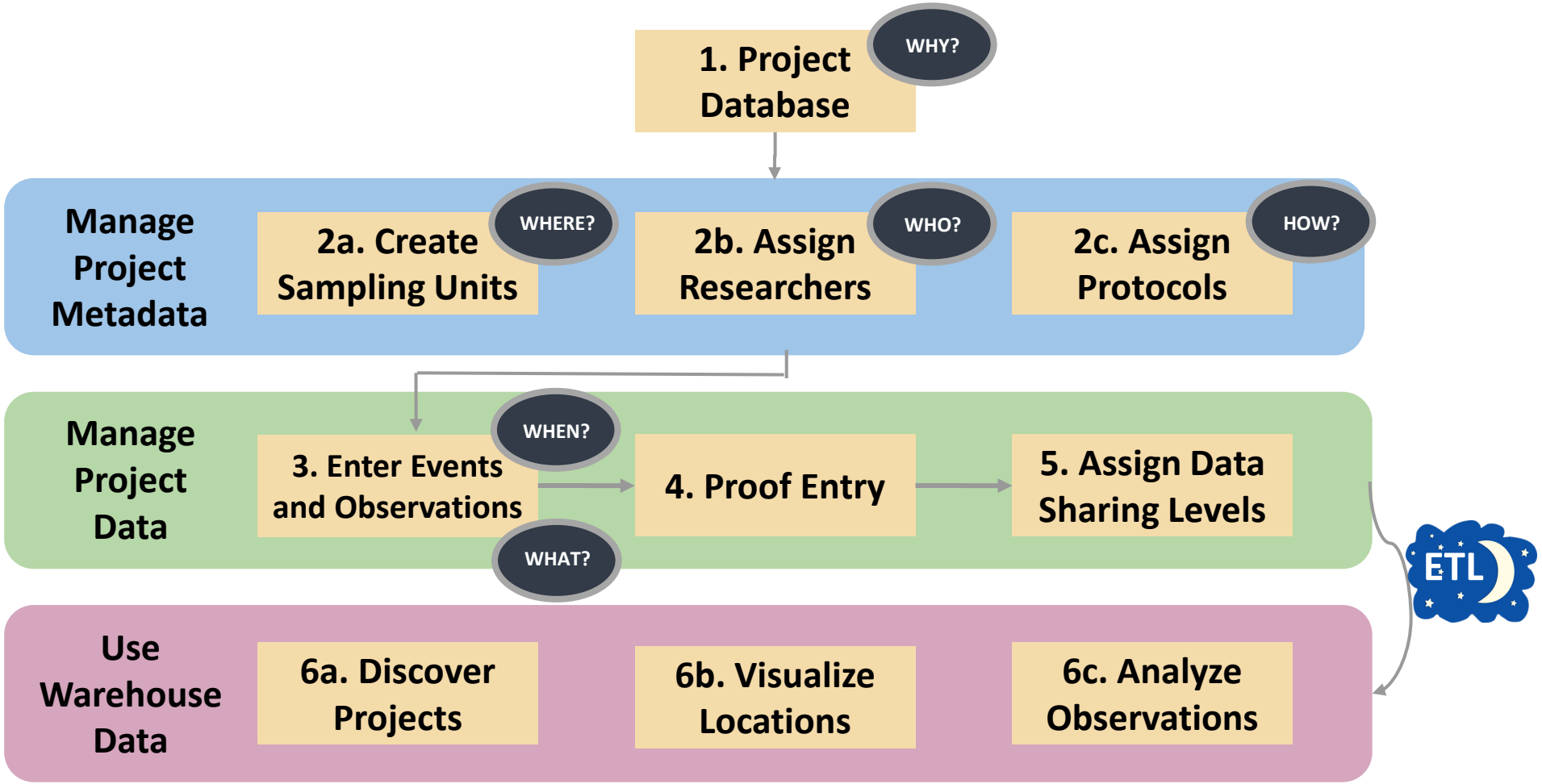
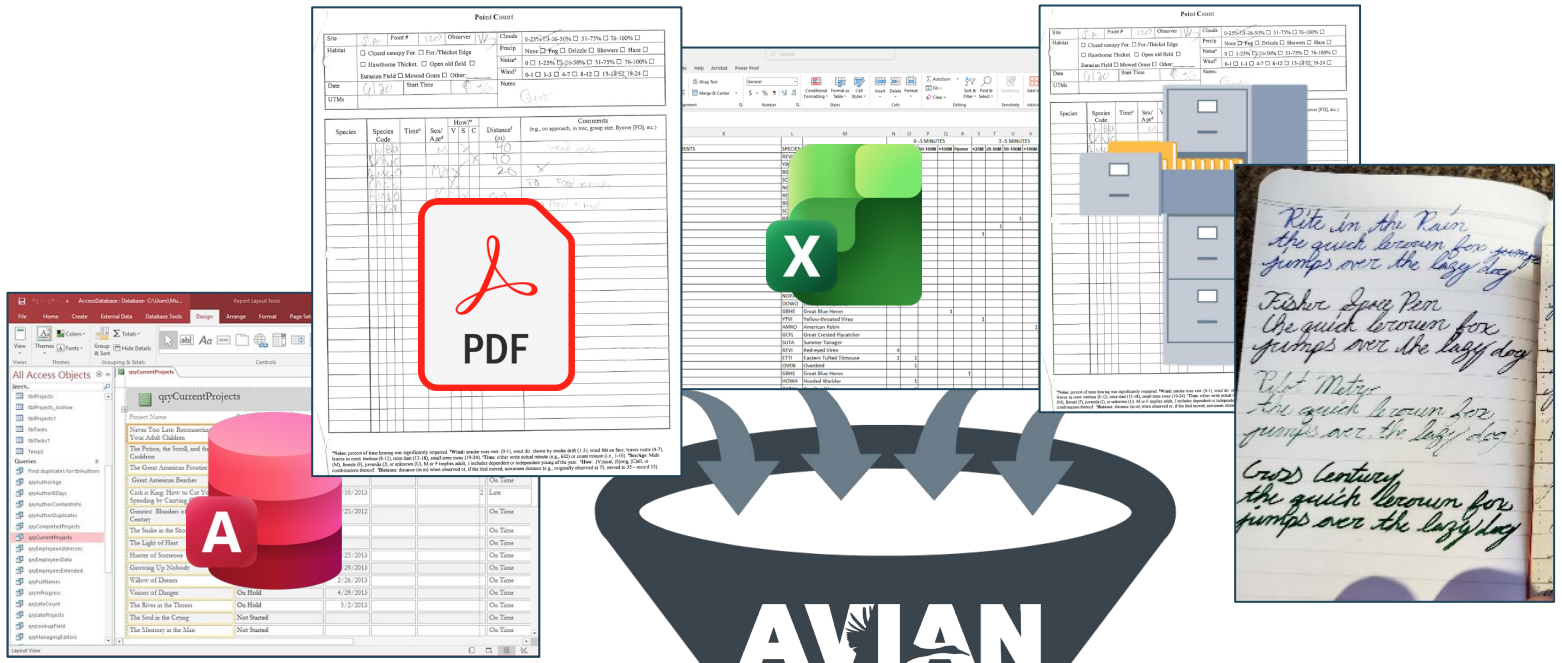
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

WORKFLOW FOR MANAGING A PROJECT



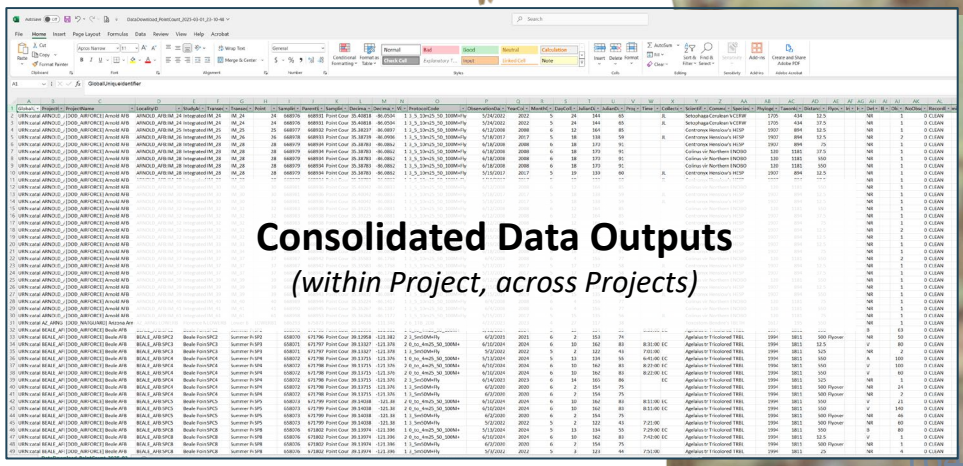
AVIAN KNOWLEDGE NETWORK



Data from multiple sources, varying formats, historic and contemporary datasets

Consolidated Data Outputs

(within Project, across Projects)



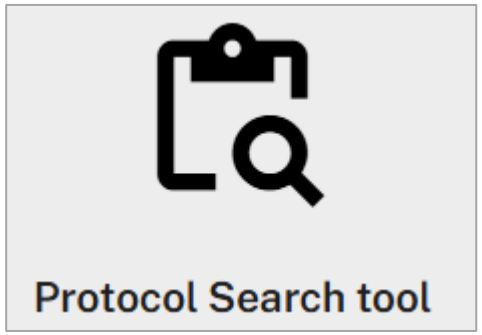
AKN & THE AVIAN DATA LIFE CYCLE

FULL AVIAN DATA LIFE CYCLE

AKN & THE AVIAN DATA LIFE CYCLE

Plan

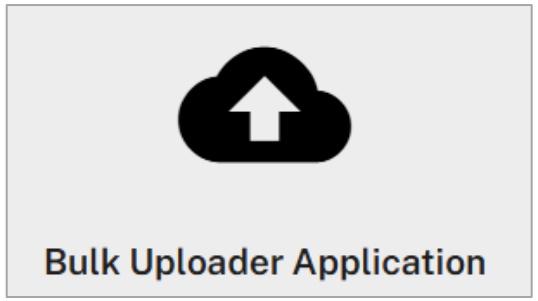
- Methodological alignment with partners
- What is your question?
- Office Hours



AKN & THE AVIAN DATA LIFE CYCLE

Create & Organize

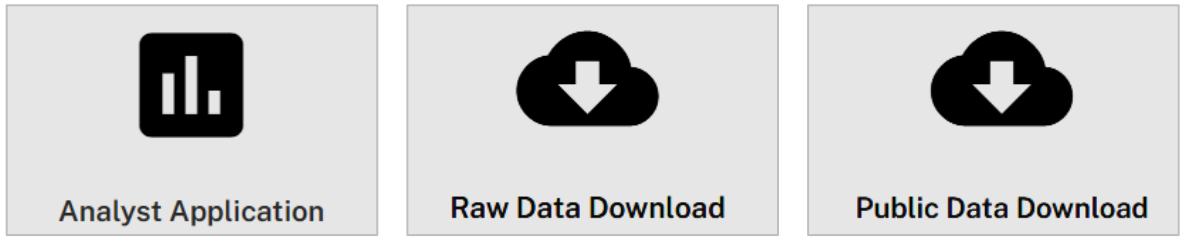
- Align AKN Protocols with field methodologies
- Standardized data input & QA/QC via Biologist, Bulk Uploader



AKN & THE AVIAN DATA LIFE CYCLE

Analyze

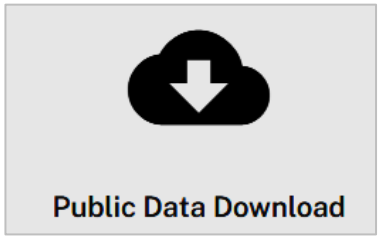
- Coarse analyses via Analyst tool
- Raw Data Downloader to download clean, raw data for external analyses
- Public Data Downloader to download homogenized

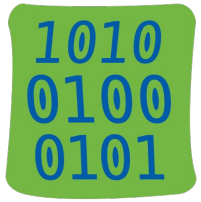


AKN & THE AVIAN DATA LIFE CYCLE

Share

- Data sharing levels
- Sharing homogenized data via warehouse export
- Program Enterprise capacities





Sharing Levels

AKN & THE AVIAN DATA LIFE CYCLE

Archive

- Staff turnover
- Full description of essential metadata
- Historic and contemporary data
- You own and control in perpetuity

WHAT SHOULD YOU EXPECT THIS YEAR WITH AKN AND DoW PARTICIPATION?

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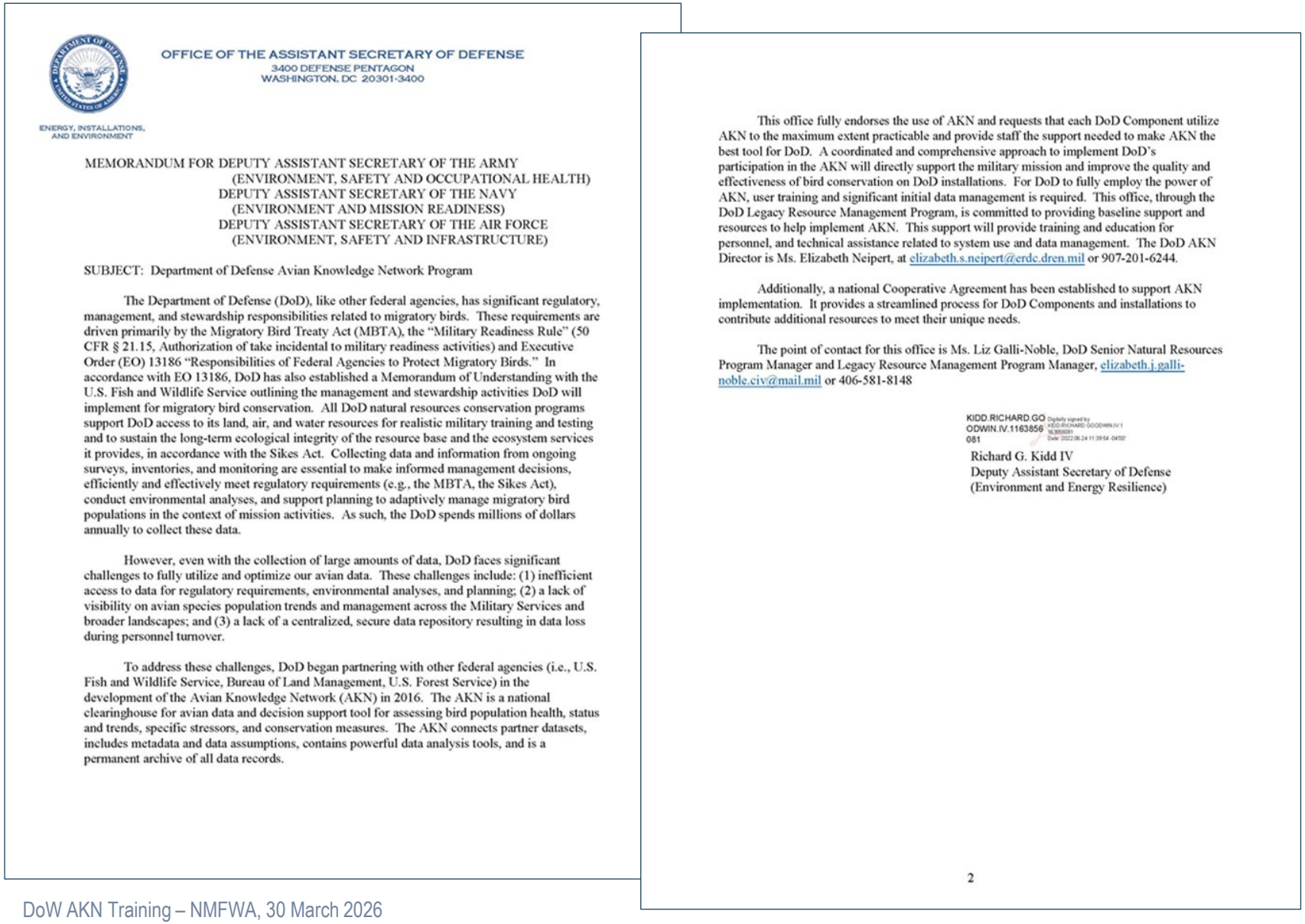
Klamath Bird Observatory

DoW MANDATE MEMO



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

ENERGY, INSTALLATIONS, AND ENVIRONMENT

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 AKN to the maximum extent practicable and provide staff the support needed to make AKN the best 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 effectiveness of bird conservation on DoD installations. For DoD to fully employ the power of AKN, user training and significant initial data management is required. This office, through the DoD 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 Director 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-noble.civ@mail.mil or 406-581-8148

KIDD.RICHARD.GODWIN.IV.1163856081

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

2

DOW AKN STRATEGIC APPROACH

- DoW AKN Program Management Plan
- Status of DoW Data
- Data Initiatives
- DoW-Specific and AKN-wide Tools
- Priority Tasks for FY26

DoW AKN Program

Task Categories

DOW MISSION BENEFITS

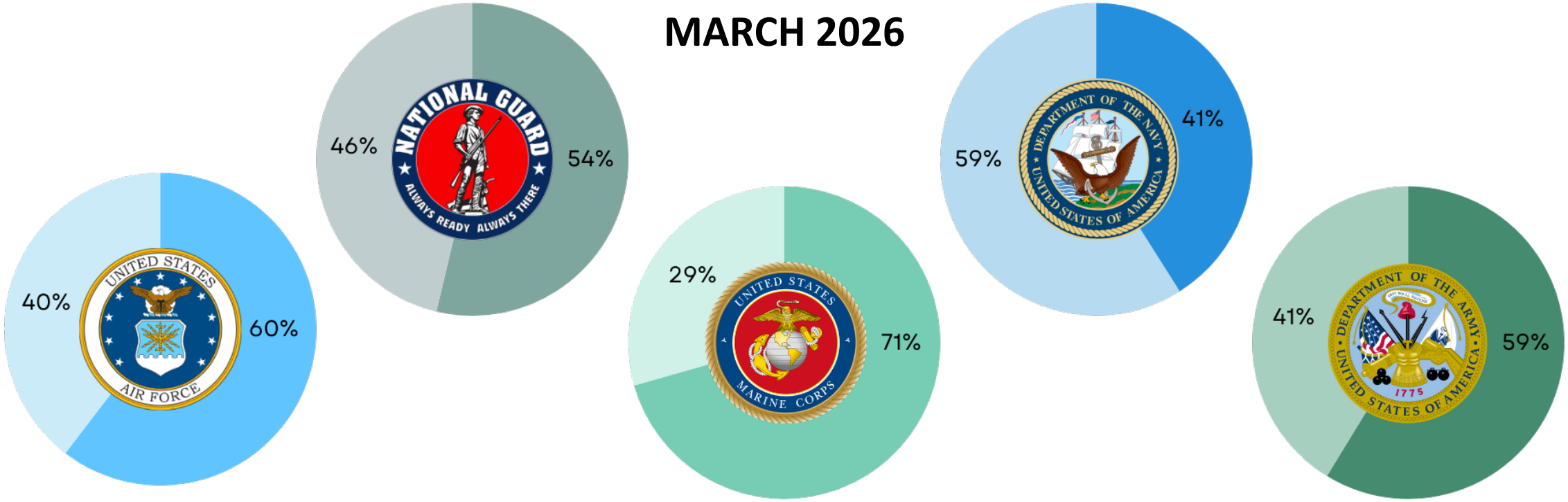
- Secure database to input/upload, curate, and manage DoW field data
- Empowers historical data
- Assess status of birds on/near installations
- Monitor trends at multiple scales
- Data sharing and integration with partners
- Advanced data analysis and visualization tools
- Access to data that contributes to more technically and scientifically sound INRMPs, NEPA environmental reviews, and ESA Section 7 Consultation
- Contributes directly to proactive conservation, monitoring and management of priority bird species

Enabling the Mission, Defending the Resources

MILITARY SERVICE PROGRESS

Installations with Active Projects by Service Branch

MARCH 2026



Total Number of Installations: **63** Army, **78** Navy, **96** Air Force, **17** Marine Corps, **54** National Guard states/territories

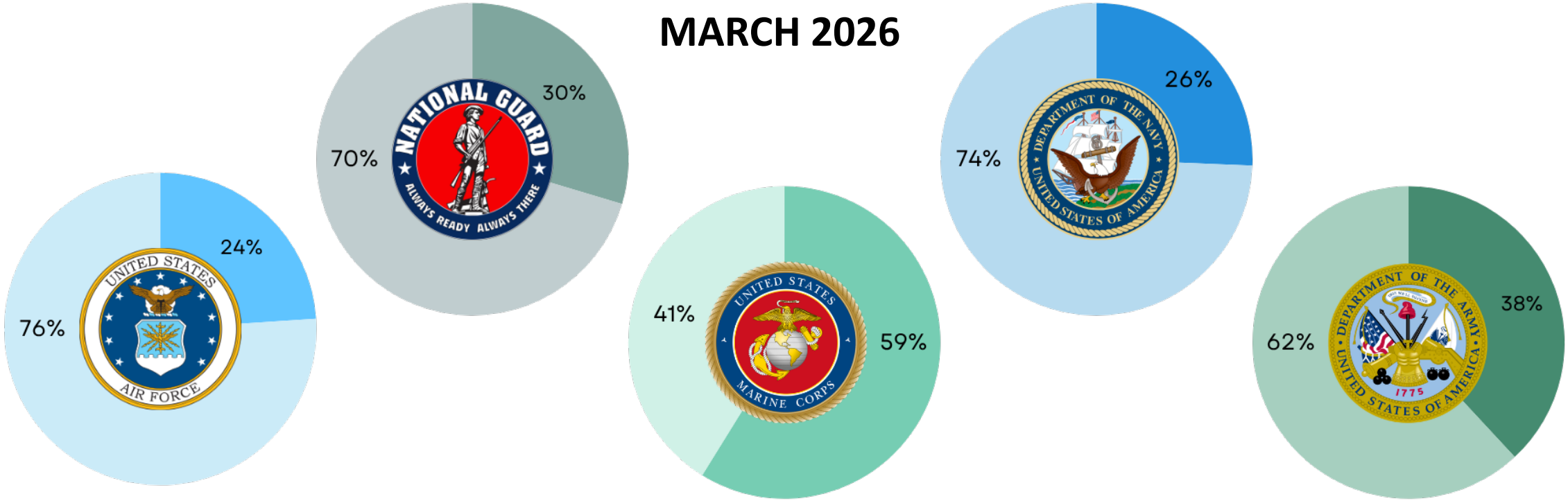
Dark colors - Installations with Active Projects

Light colors - Installations without Active Projects

MILITARY SERVICE PROGRESS

Installations with Contemporary Data by Service Branch

MARCH 2026



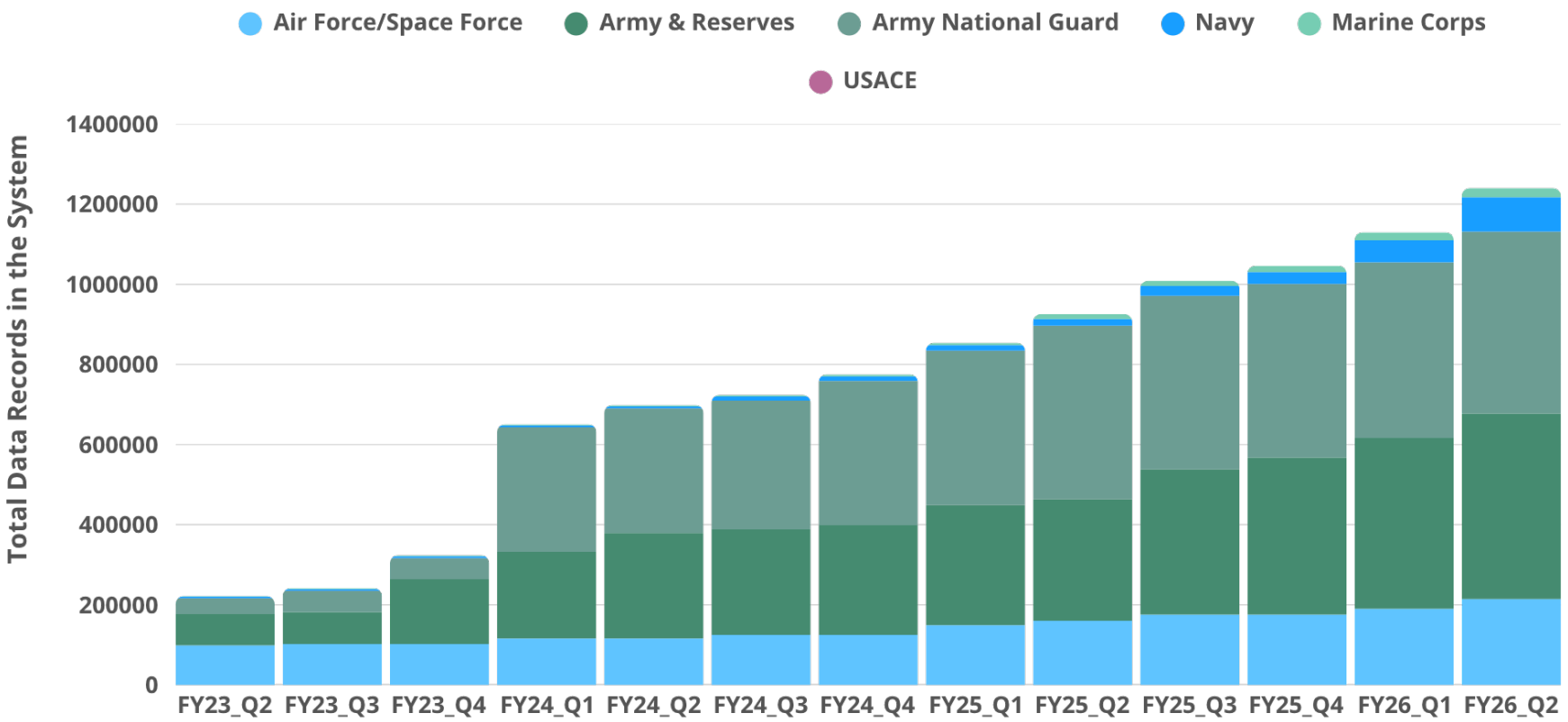
Total Number of Installations: **63** Army, **78** Navy, **96** Air Force, **17** Marine Corps, **54** National Guard states/territories

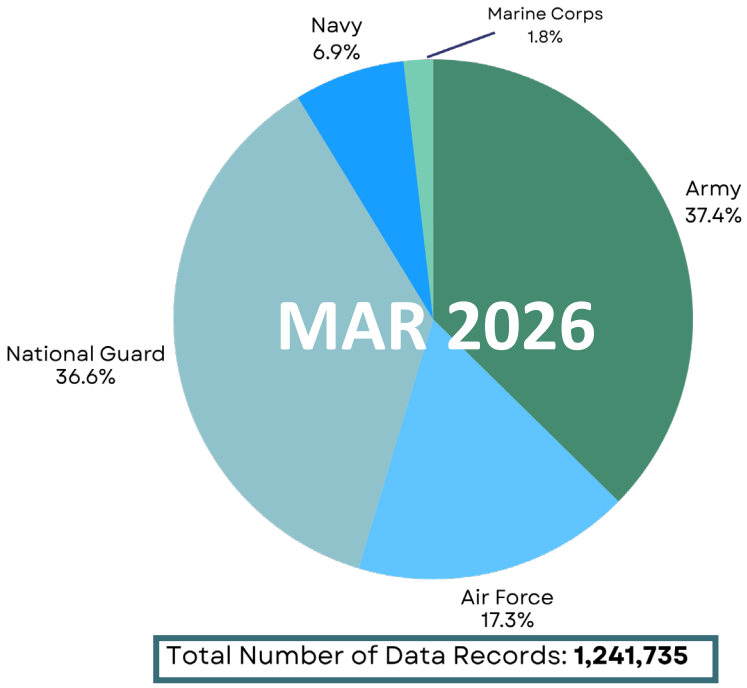
Dark colors - Installations with Active Projects

Light colors - Installations without Active Projects

MILITARY SERVICE PROGRESS

DoW Data Records in AKN by Military Service



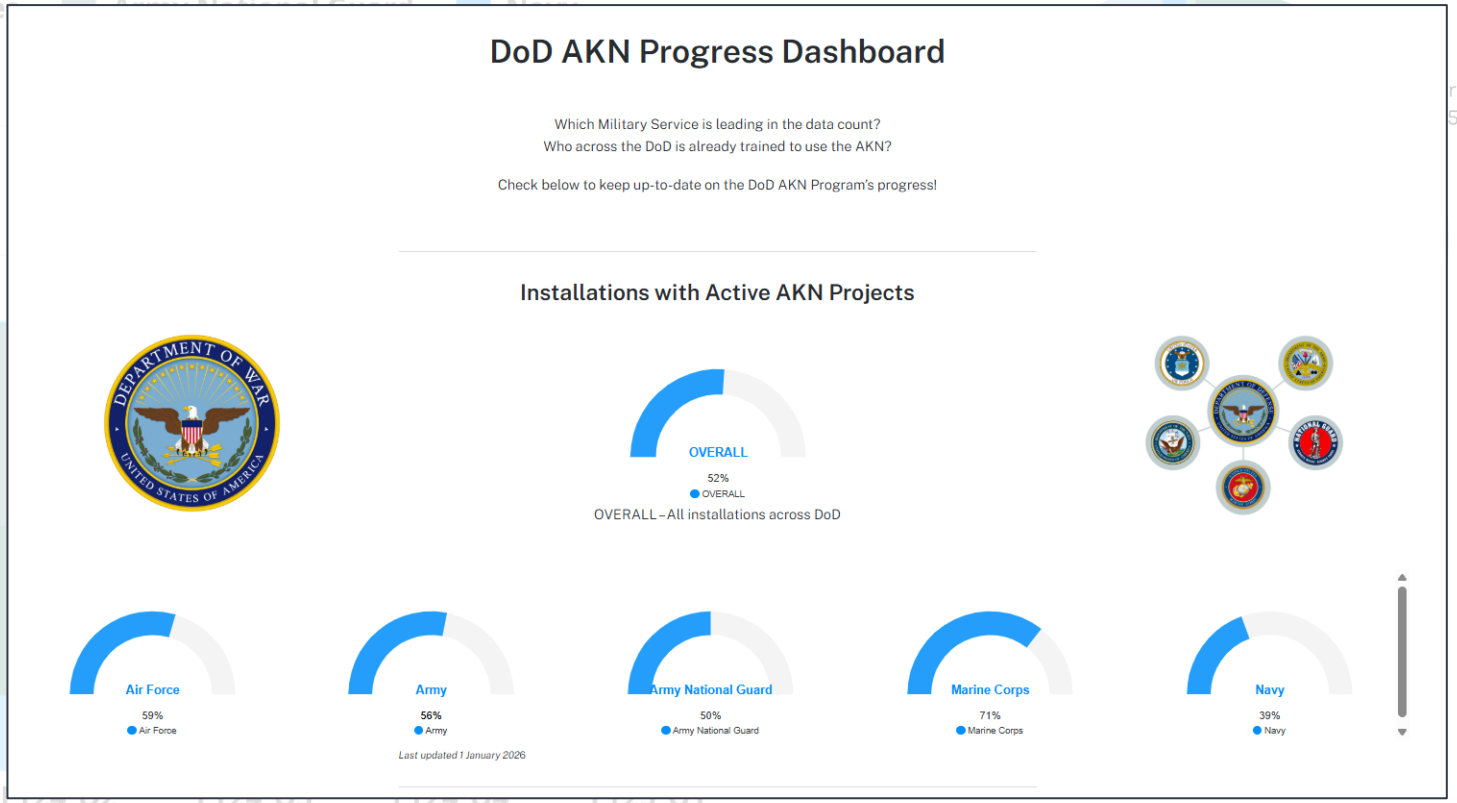


Total Number of Data Records: **1,241,735**

MILITARY SERVICE PROGRESS

DoW Data Records in AKN by Military Service

Check out the latest DoW AKN Program Progress on our new Progress Dashboard



https://www.dodakn.org/dod-akn-progress-dashboard/

DOW TOOLS

Standardized Sampling Methods

- Survey DoW personnel to identify the most common bird monitoring questions
- Promote standardized data collection methods across DoW
- Provide appropriate protocol selection based on management or research needs

AKN RESOURCES

Standardized Sampling Methods

SPECIES CHECKLIST

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.).

CHRISTMAS BIRD COUNT

The Christmas Bird Count (CBC) is a citizen science project that involves counting birds in the Western Hemisphere. Click here to learn how to incorporate CBC data collected on your installation into your AKN Project here.

EBIRD CHECKLISTS

eBird is a powerful community science tool run by Cornell Lab of Ornithology that collects observational data from birders. Click here to learn how to incorporate eBird checklist data collected on your installation in your AKN Project.

POINT COUNT METHODS

Click here to learn about Point Count methodologies including their assumptions, typical use cases, and examples of commonly used methodologies and their AKN Protocols.

AREA SEARCH METHODS

Click here to learn about Area Search methodologies including their assumptions, typical use cases, and examples of commonly used methodologies and their AKN Protocols.

DOW MISSION-SENSITIVE SPECIES (CONUS)


Northern Bobwhite


Greater Sage-grouse


Mountain Plover


Greater Prairie Chicken


Burrowing Owl


Least Tern (Atlantic Coast)


Cerulean Warbler


Golden-winged Warbler


Pinyon Jay


Southeastern American Kestrel


Henslow's Sparrow

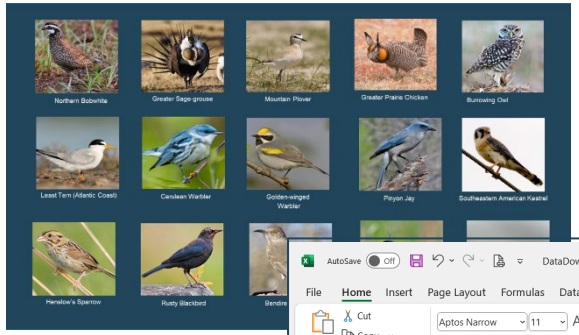

Rusty Blackbird

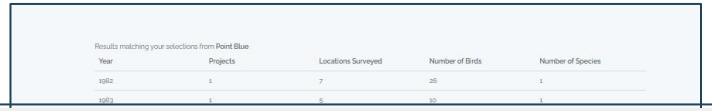

Bendire's Thrasher

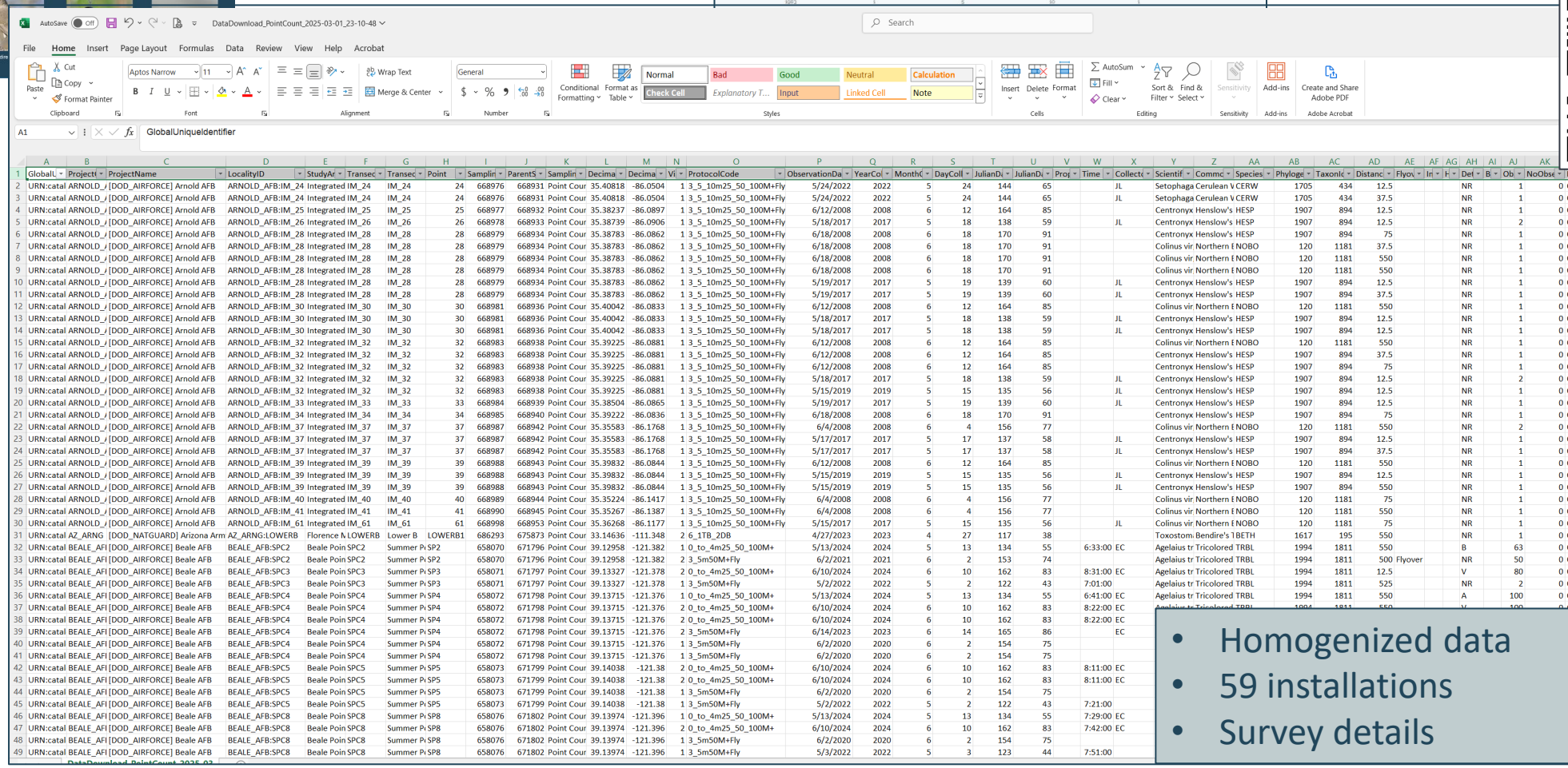

Tricolored Blackbird


Bachman's Sparrow

DOW MSS – FILTERS







GlobalU	Project	ProjectName	LocalityID	StudyAr	Transec	Transec	Point	Samplin	ParentS	Samplin	Decima	Decima	Vi	ProtocolCode	ObservationDa	YearCo	Month	DayColl	JulianD	JulianDi	Proj	Time	Collecte	Scientif	Comme	Species	Phyloge	Taxonic	Distanc	Flyov	Ir	H	Del	B	Ob	NoObse	Recordi	mi
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_24	Integrated	IM_24	IM_24	24	668976	668931	Point Cour	35.40818	-86.0504	1	3_5_10m25_50_100M+Fly	5/24/2022	2022	5	24	144	65			JL	Setophaga	Cerulean V	CERW	1705	434	12.5				NR		1	0	CLEAN	
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_24	Integrated	IM_24	IM_24	24	668976	668931	Point Cour	35.40818	-86.0504	1	3_5_10m25_50_100M+Fly	5/24/2022	2022	5	24	144	65			JL	Setophaga	Cerulean V	CERW	1705	434	37.5				NR		1	0	CLEAN	
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URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_28	Integrated	IM_28	IM_28	28	668979	668934	Point Cour	35.38783	-86.0862	1	3_5_10m25_50_100M+Fly	6/18/2008	2008	6	18	170	91				Colinus vir	Northern E	NOBO	120	1181	37.5				NR		1	0	CLEAN	
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_28	Integrated	IM_28	IM_28	28	668979	668934	Point Cour	35.38783	-86.0862	1	3_5_10m25_50_100M+Fly	6/18/2008	2008	6	18	170	91				Colinus vir	Northern E	NOBO	120	1181	550				NR		1	0	CLEAN	
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_28	Integrated	IM_28	IM_28	28	668979	668934	Point Cour	35.38783	-86.0862	1	3_5_10m25_50_100M+Fly	6/18/2008	2008	6	18	170	91				Colinus vir	Northern E	NOBO	120	1181	550				NR		1	0	CLEAN	
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_28	Integrated	IM_28	IM_28	28	668979	668934	Point Cour	35.38783	-86.0862	1	3_5_10m25_50_100M+Fly	5/19/2017	2017	5	19	139	60			JL	Centronyx	Henslow's	HESP	1907	894	12.5				NR		1	0	CLEAN	
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_28	Integrated	IM_28	IM_28	28	668979	668934	Point Cour	35.38783	-86.0862	1	3_5_10m25_50_100M+Fly	5/19/2017	2017	5	19	139	60			JL	Centronyx	Henslow's	HESP	1907	894	37.5				NR		1	0	CLEAN	
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_30	Integrated	IM_30	IM_30	30	668981	668936	Point Cour	35.40042	-86.0833	1	3_5_10m25_50_100M+Fly	6/12/2008	2008	6	12	164	85				Colinus vir	Northern E	NOBO	120	1181	550				NR		1	0	CLEAN	
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_30	Integrated	IM_30	IM_30	30	668981	668936	Point Cour	35.40042	-86.0833	1	3_5_10m25_50_100M+Fly	5/18/2017	2017	5	18	138	59			JL	Centronyx	Henslow's	HESP	1907	894	12.5				NR		1	0	CLEAN	
URN:catal	ARNOLD_	[DOD_AIRFORCE] Arnold AFB	ARNOLD_AFB:IM_30	Integrated	IM_30	IM_30	30	668981	668936	Point Cour	35.40042	-86.0833	1	3_5_10m25_50_100M+Fly	5/18/2017	2017	5	18	138	59			JL	Centronyx	Henslow's	HESP	1907	894	12.5				NR		1	0	CLEAN	
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URN:catal	BEALE_AFI	[DOD_AIRFORCE] Beale AFB	BEALE_AFB:SPC3	Beale Poin	SPC3	Summer P	SP3	658071	671797	Point Cour	39.13327	-121.378	1	3_5m50M+Fly	5/2/2022	2022	5	2	122	43		7:01:00		Agelaius t	Tricolored	TRBL	1994	1811	525				NR		2	0	CLEAN	
URN:catal	BEALE_AFI	[DOD_AIRFORCE] Beale AFB	BEALE_AFB:SPC4	Beale Poin	SPC4	Summer P	SP4	658072	671798	Point Cour	39.13715	-121.376	1	0_to_4m25_50_100M+	5/13/2024	2024	5	13	134	55		6:41:00	EC	Agelaius t	Tricolored	TRBL	1994	1811	550				A		100	0	CLEAN	
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URN:catal	BEALE_AFI	[DOD_AIRFORCE] Beale AFB	BEALE_AFB:SPC4	Beale Poin	SPC4	Summer P	SP4	658072	671798	Point Cour	39.13715	-121.376	1	3_5m50M+Fly	6/2/2020	2020	6	2	154	75																		
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URN:catal	BEALE_AFI	[DOD_AIRFORCE] Beale AFB	BEALE_AFB:SPC5	Beale Poin	SPC5	Summer P	SP5	658073	671799	Point Cour	39.14038	-121.38	1	3_5m50M+Fly	6/2/2020	2020	6	2	154	75																		
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Portal Announcement

- Homogenized data
- 59 installations
- Survey details

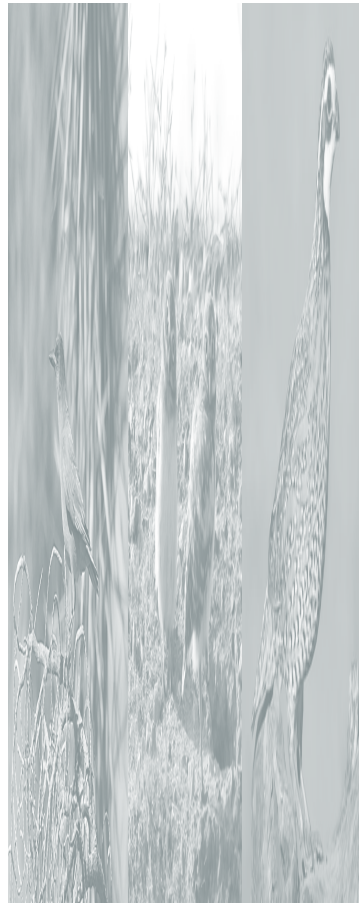
DOW MISSION-SENSITIVE SPECIES (CONUS)

Species	# of Installations
Greater Sage-Grouse	6
Greater Prairie-Chicken	3
Northern Bobwhite	70
Southeastern American Kestrel	14
~~Black Rail**~~	~~5~~
Mountain Plover	16
Burrowing Owl	50
Least Tern (Atlantic Coast Pop)	18
Pinyon Jay	7
Bendire's Thrasher	4
Golden-winged Warbler	24
Cerulean Warbler	30
Bachman's Sparrow	24
Henslow's Sparrow	25
Tricolored Blackbird	15
Rusty Blackbird	30

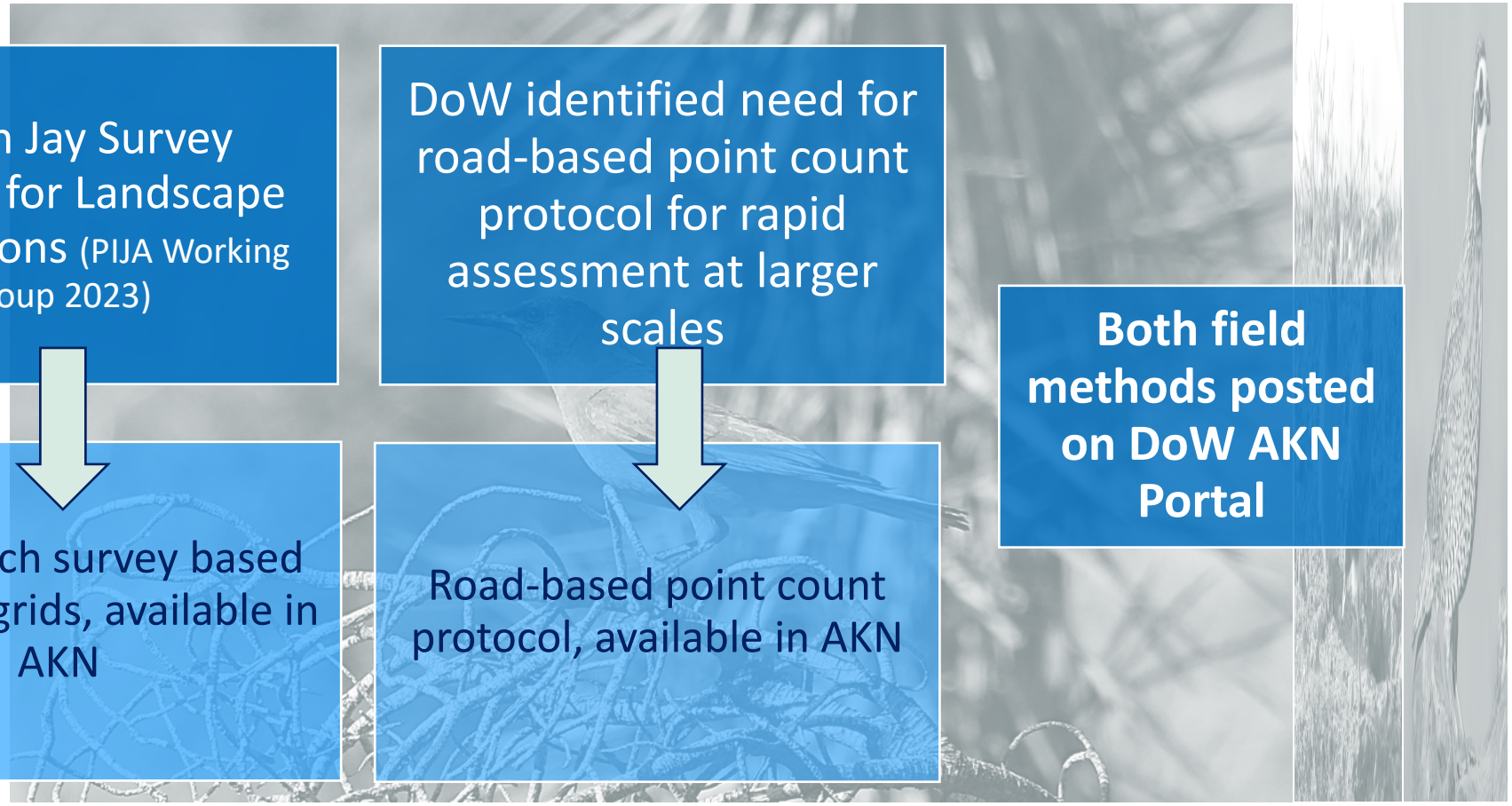
DOW AKN MSS 4-PRONGED APPROACH

- ✓FOCUS GROUP
- ✓AKN PROTOCOLS
- ✓DATA
- ~~✓MSS QUERY TOOL IN AKN~~

DOW MISSION-SENSITIVE SPECIES



DOW MISSION-SENSITIVE SPECIES



Pinyon Jay Survey Protocol for Landscape Applications (PIJA Working Group 2023)

Area Search survey based on 2.5km grids, available in AKN

DoW identified need for road-based point count protocol for rapid assessment at larger scales

Road-based point count protocol, available in AKN

Both field methods posted on DoW AKN Portal

https://www.dodakn.org/resources/mss/#MSS_PIJA

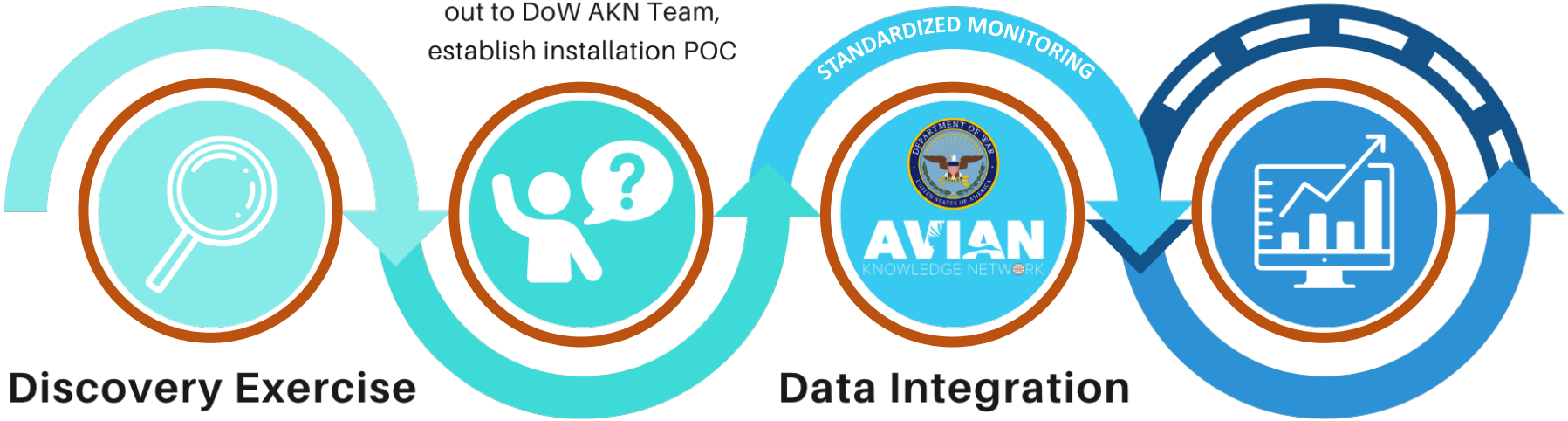
PINYON JAY SSA – DOW APPROACH

Tasker

Feb/Mar 2026 - OSW and the Military Services released tasker asking NRMs to reach out to DoW AKN Team, establish installation POC

Aggregation and Delivery

DoW AKN Team will summarize PIJA-range survey data and deliver* to USFWS for SSA analyses



Discovery Exercise

Combination of existing DoW AKN data, DoW PIF self-report surveys, GIS overlap with Tack et. al. 2023

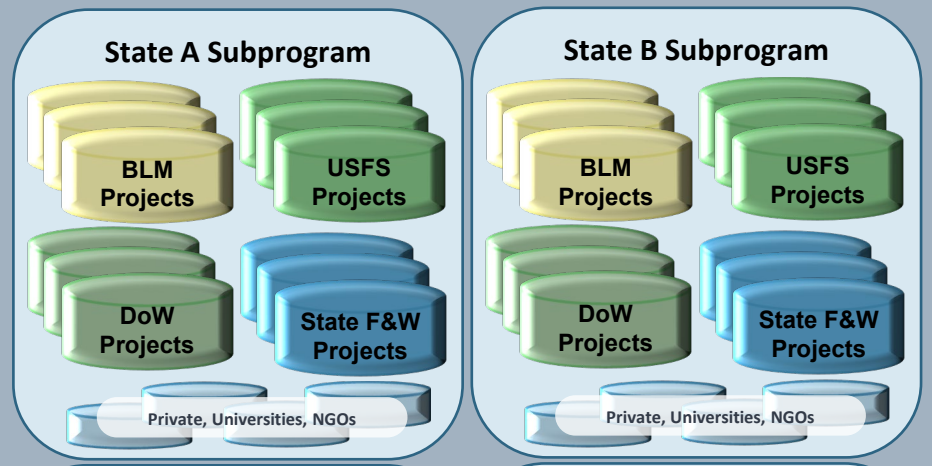
Data Integration

Installations actively work with DoD AKN Team to format and upload data into their AKN Project.

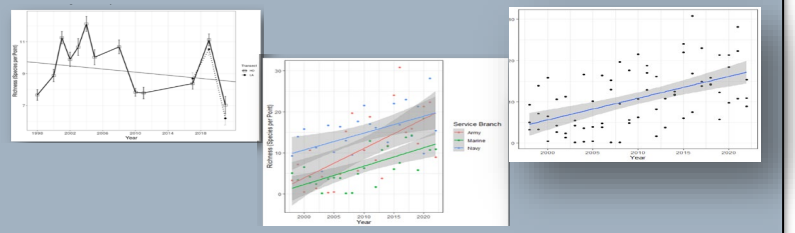
*Share at level of detail identified by installations

Leveraging Partner Data

Pinyon Jay Program Structure



Program-based multi-scaled data access, analysis, download & outputs

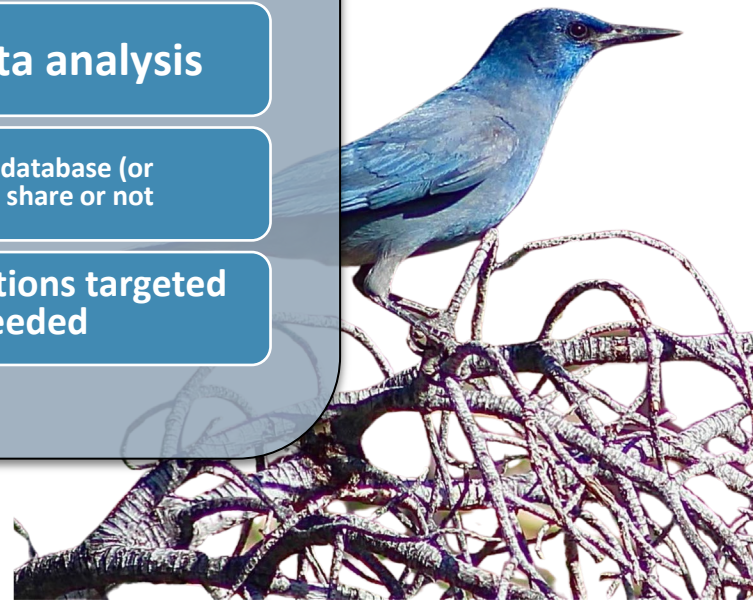


Standardized sampling methodologies, standardized data format, outputs

Flexibility with data analysis

Sharing controlled at the Project database (or observation) level, can choose to share or not

Scaled conservation actions targeted where most needed



DOW MISSION-SENSITIVE SPECIES

Standardized Monitoring Strategies for Burrowing Owls on DoD Installations (Garcia et al 2008)

Guidelines and Recommendations for Burrowing Owl Surveys and Mitigation (California Burrowing Owl Consortium 1993)

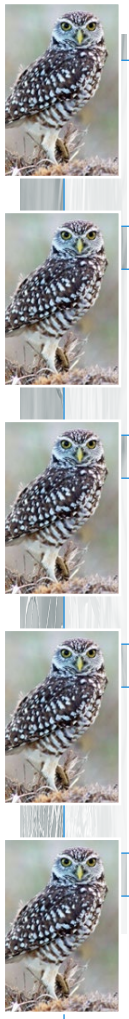
Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012)

Comparison of Detection Probability Associated with Burrowing Owl Survey Methods (Conway and Simon, 2003)

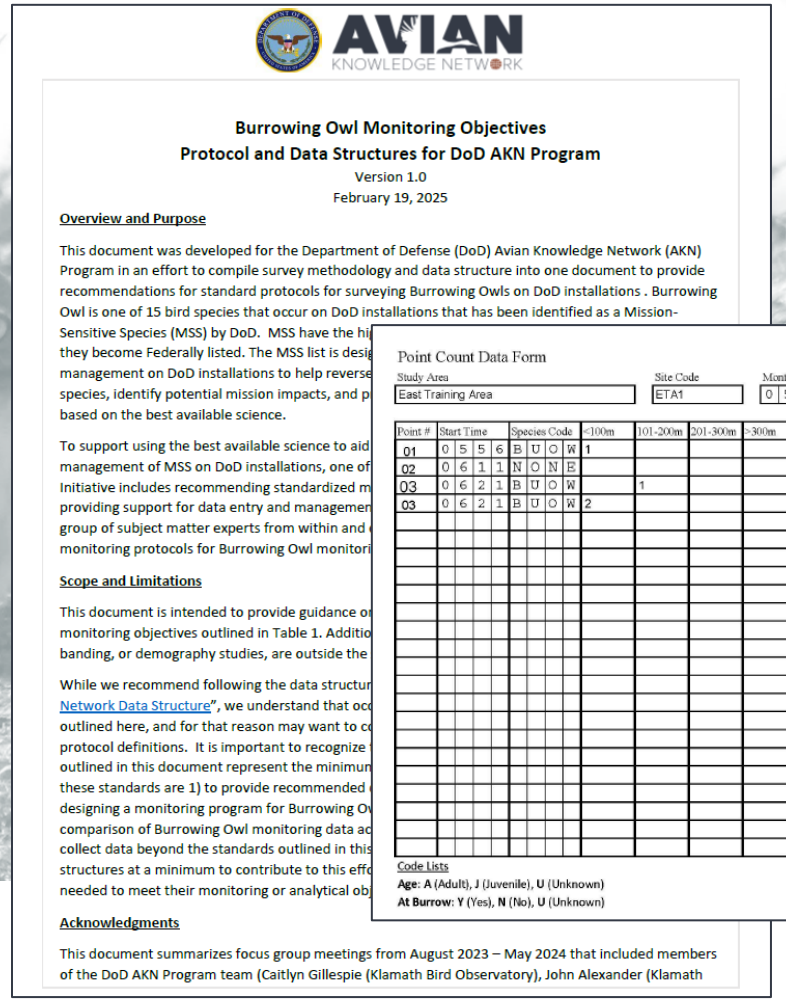
Focus Group SMEs:

Courtney Conway, *USGS ID Cooperative Fish and Wildlife Research Unit*
Sandra Menzel, *Talon Ecological Research Group*
David H. Johnson, *Global Owl Project*
Kevin Warner, *Idaho Army National Guard*
Colin Leingang, *JBLM Yakima Training Center*
Russ Lawrence, *Hill AFB and Utah Test and Training Range*

DOW MISSION-SENSITIVE SPECIES



- Determine monitoring objectives
- Identify data needs based on questions
- Methods and study design considerations
- Sampling effort based on monitoring objectives
- Field methods and AKN data structure



AVIAN KNOWLEDGE NETWORK

Burrowing Owl Monitoring Objectives
Protocol and Data Structures for DoD AKN Program
Version 1.0
February 19, 2025

Overview and Purpose

This document was developed for the Department of Defense (DoD) Avian Knowledge Network (AKN) Program in an effort to compile survey methodology and data structure into one document to provide recommendations for standard protocols for surveying Burrowing Owls on DoD installations . Burrowing Owl is one of 15 bird species that occur on DoD installations that has been identified as a Mission-Sensitive Species (MSS) by DoD. MSS have the hi
they become Federally listed. The MSS list is desig
management on DoD installations to help reverse
species, identify potential mission impacts, and p
based on the best available science.

To support using the best available science to aid
management of MSS on DoD installations, one of
Initiative includes recommending standardized m
providing support for data entry and managemen
group of subject matter experts from within and
monitoring protocols for Burrowing Owl monitori

Scope and Limitations

This document is intended to provide guidance o
monitoring objectives outlined in Table 1. Additio
banding, or demography studies, are outside the

While we recommend following the data structur
Network Data Structure", we understand that occ
outlined here, and for that reason may want to c
protocol definitions. It is important to recognize
outlined in this document represent the minimun
these standards are 1) to provide recommended
designing a monitoring program for Burrowing O
comparison of Burrowing Owl monitoring data ac
collect data beyond the standards outlined in this
structures at a minimum to contribute to this effo
needed to meet their monitoring or analytical ob

Acknowledgments

This document summarizes focus group meetings from August 2023 – May 2024 that included members of the DoD AKN Program team (Caitlyn Gillespie (Klamath Bird Observatory), John Alexander (Klamath

Point Count Data Form

Page 1 of 1

Study Area	Site Code	Month	Day	Year	Visit	Observer
East Training Area	ETA1	05	24	2024	1	CRG

Point #	Start Time	Species Code	<100m	101-200m	201-300m	>300m	Age	At Burrow?	Notes
01	0556	BUOW	1				A	Y	
02	0611	NONE							
03	0621	BUOW		1			U	U	
03	0621	BUOW	2				A	U	

Code Lists
Age: **A** (Adult), **J** (Juvenile), **U** (Unknown)
At Burrow: **Y** (Yes), **N** (No), **U** (Unknown)

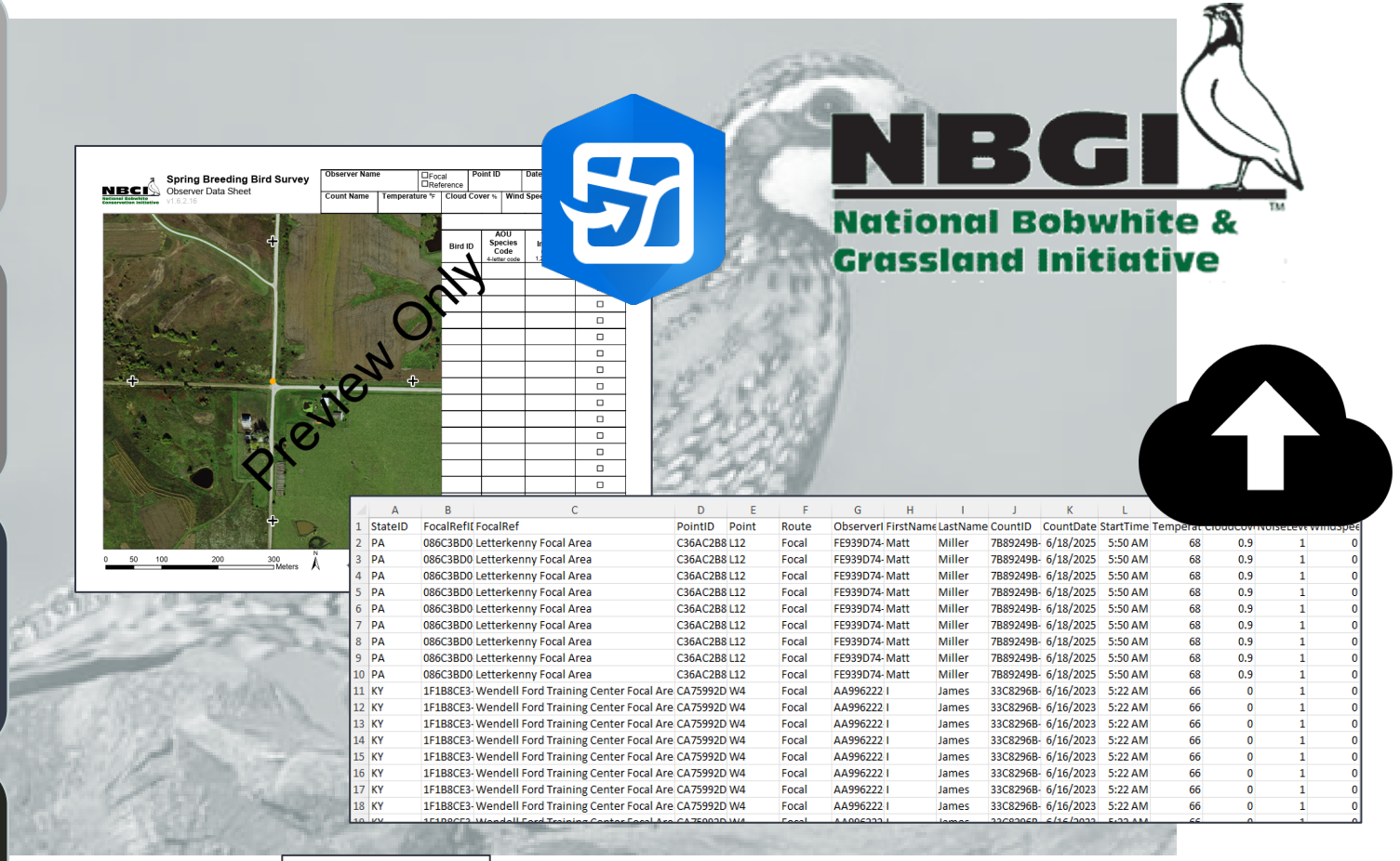
DOW MISSION-SENSITIVE SPECIES

Standard protocol and study design developed by the National Bobwhite and Grassland Initiative

NBGI mobile data collection app and database

Fall covey counts and spring breeding bird surveys

(NEW!!) Crosswalk data flow from NBGI database housed at Clemson to AKN; Portal Page

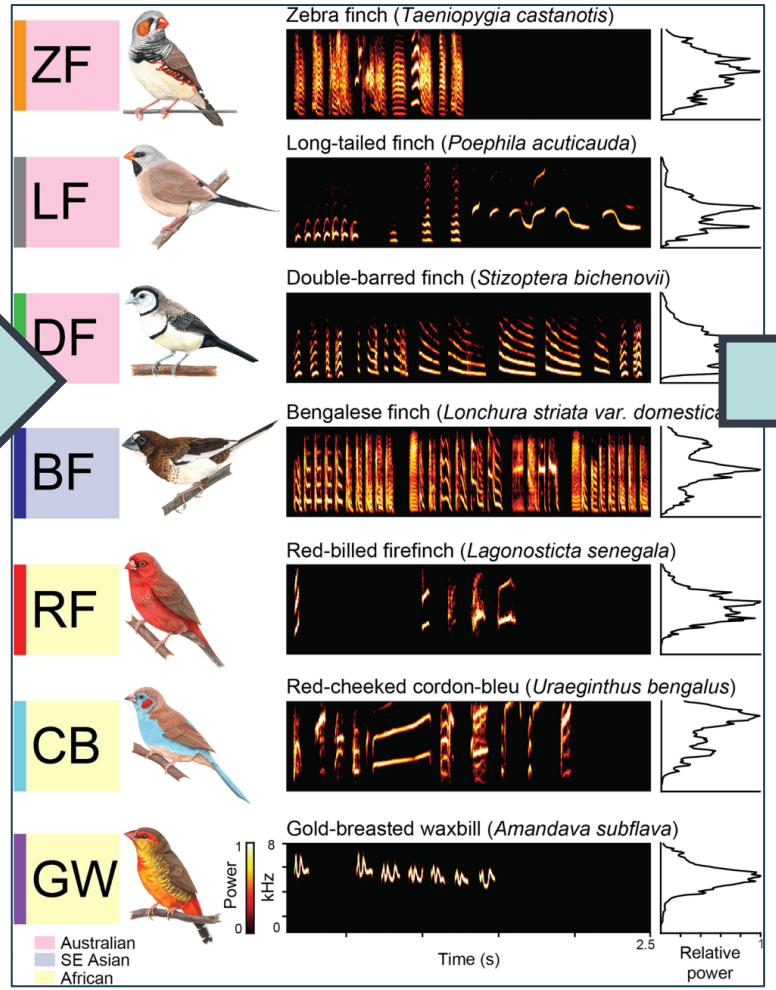


DoW DATA NEEDS

- Sensor and machine-collected data (ARUs)
- BASH Data, specifically data collected by USDA-WS
- Nest data
- Banding data, including MAPS
- Spot-mapping
- Survey 123 cross-walk directly into AKN
- Foreign OCONUS data

NEW DATA TYPES: ARU DATA

Machine-collected raw audio data



Species ID via machine-learning

vationDa	YearCo	Month	DayColl	JulianDa	JulianDa	Proj	Time	Collect	Scientif	Commo	Species
5/24/2022	2022	5	24	144	65			JL	Setophaga	Cerulean V	CERW
5/24/2022	2022	5	24	144	65			JL	Setophaga	Cerulean V	CERW
6/12/2008	2008	6	12	164	85				Centronyx	Henslow's	HESP
5/18/2017	2017	5	18	138	59			JL	Centronyx	Henslow's	HESP
6/18/2008	2008	6	18	170	91				Centronyx	Henslow's	HESP
6/18/2008	2008	6	18	170	91				Colinus vir	Northern I	NOBO
6/18/2008	2008	6	18	170	91				Colinus vir	Northern I	NOBO
6/18/2008	2008	6	18	170	91				Colinus vir	Northern I	NOBO
5/19/2017	2017	5	19	139	60			JL	Centronyx	Henslow's	HESP
5/19/2017	2017	5	19	139	60			JL	Centronyx	Henslow's	HESP
6/12/2008	2008	6	12	164	85				Colinus vir	Northern I	NOBO
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5/18/2017	2017	5	18	138	59			JL	Centronyx	Henslow's	HESP
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/2008	2008	6	12	164	85				Centronyx	Henslow's	HESP
017	2017	5	18	138	59			JL	Centronyx	Henslow's	HESP
0	2019	5	15	135	56			JL	Centronyx	Henslow's	HESP
017	2017	5	19	139	60			JL	Centronyx	Henslow's	HESP
/2008	2008	6	18	170	91				Centronyx	Henslow's	HESP
6/4/2008	2008	6	4	156	77				Colinus vir	Northern I	NOBO
5/17/2017	2017	5	17	137	58			JL	Centronyx	Henslow's	HESP
5/17/2017	2017	5	17	137	58			JL	Centronyx	Henslow's	HESP
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5/15/2019	2019	5	15	135	56			JL	Centronyx	Henslow's	HESP
5/15/2019	2019	5	15	135	56			JL	Centronyx	Henslow's	HESP
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5/15/2017	2017	5	15	135	56			JL	Colinus vir	Northern I	NOBO
4/27/2023	2023	4	27	117	38				Toxostom	Bendire's T	BETH
5/13/2024	2024	5	13	134	55		6:33:00	EC	Agelaius tr	Tricolored	TRBL
6/2/2021	2021	6	2	153	74				Agelaius tr	Tricolored	TRBL
6/10/2024	2024	6	10	162	83		8:31:00	EC	Agelaius tr	Tricolored	TRBL
5/2/2022	2022	5	2	122	43		7:01:00		Agelaius tr	Tricolored	TRBL
5/13/2024	2024	5	13	134	55		6:41:00	EC	Agelaius tr	Tricolored	TRBL
6/10/2024	2024	6	10	162	83		8:22:00	EC	Agelaius tr	Tricolored	TRBL
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6/2/2020	2020	6	2	154	75				Agelaius tr	Tricolored	TRBL
				162	83		8:11:00	EC	Agelaius tr	Tricolored	TRBL
				123	44		7:51:00		Agelaius tr	Tricolored	TRBL

Bulk Uploader Application

Tabularized observation data

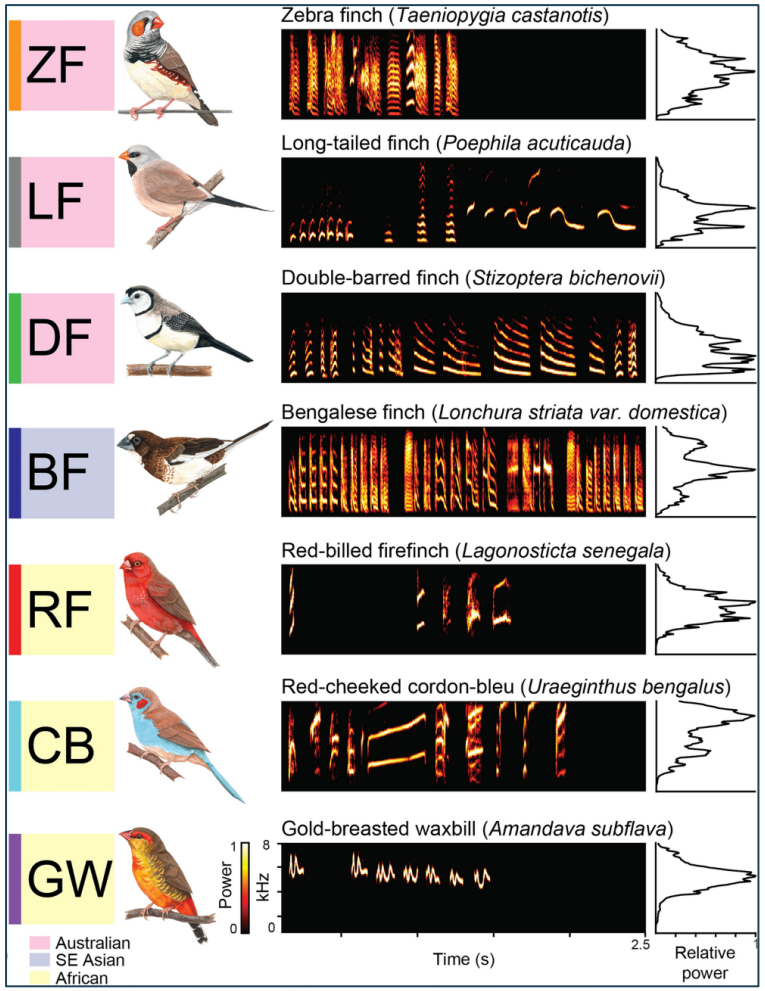
NEW DATA TYPES: ARU DATA

Machine-collected raw audio data

Metadata Considerations

- Hardware - sensor make, model
- Microphone type
- Sensor settings
  - Gain (Microphone Sensitivity)
  - Sample Rate (kHz)
  - Pre-filtering
- Study design
  - Recording schedule
  - Sampling Units

NEW DATA TYPES: ARU DATA



Species ID via machine-learning

Metadata Considerations

- Post-processing method – manual vs. machine-learning software
- Software name
- Confidence score threshold
- Degree of overlap
- Sensitivity

NEW DATA TYPES: ARU DATA

Machine-collected raw audio data

Species ID via machine-learning

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2017	2017	5	18	138	59			JL	Centronyx	Henslow's	HESP
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6/2/2020	2020	6	2	154	75				Agelaius tr	Tricolored	TRBL
6/2/2020	2020	6	2	154	75				Agelaius tr	Tricolored	TRBL
				162	83		8:11:00	EC	Agelaius tr	Tricolored	TRBL
				123	44		7:51:00		Agelaius tr	Tricolored	TRBL

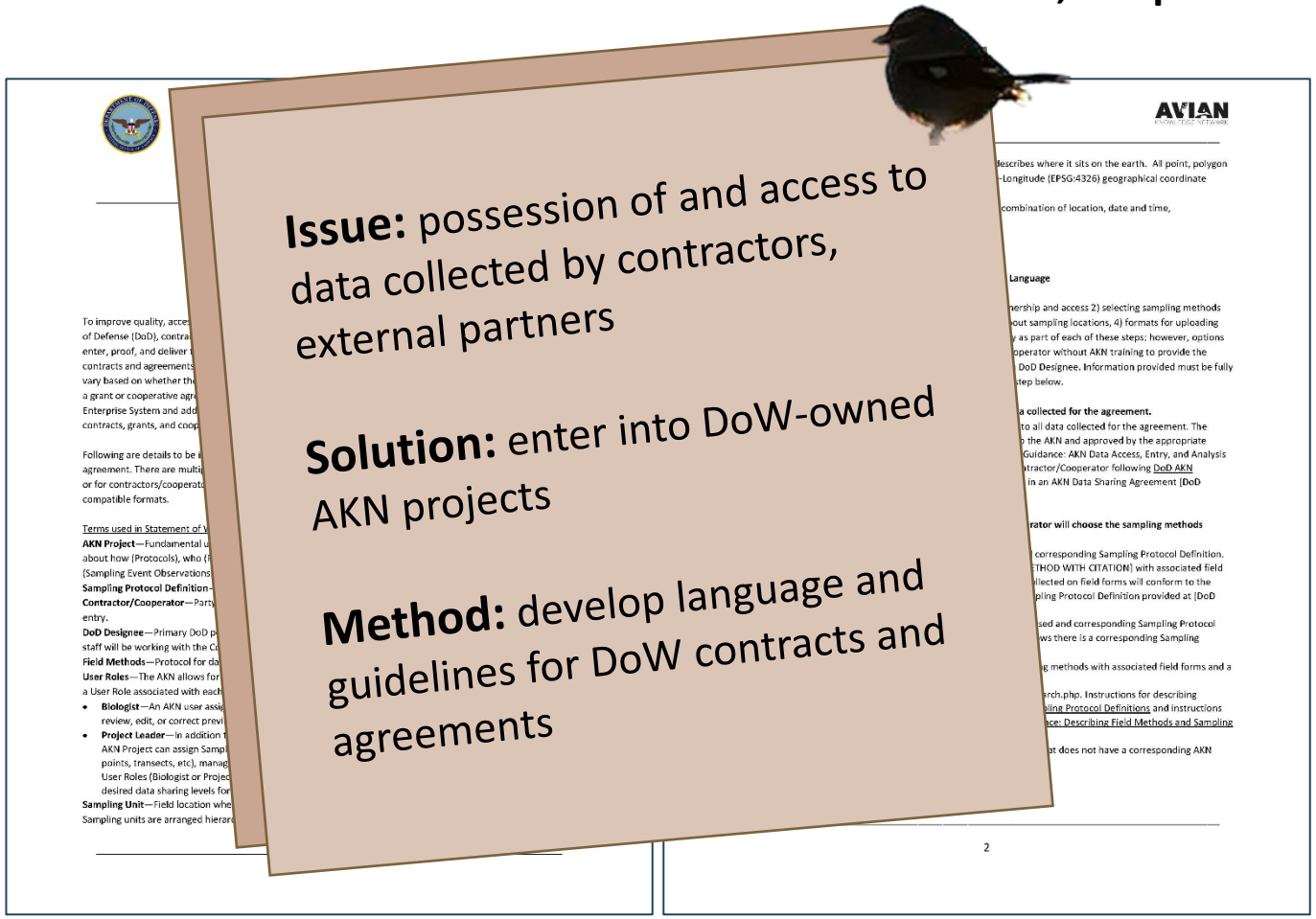
Bulk Uploader Application

AVIAN KNOWLEDGE NETWORK

Tabularized observation data

SCOPE OF WORK LANGUAGE

for Contracts, Cooperative Agreements and Interagency Agreements



DoW AKN Guidance:

1. Avian Knowledge Network Data Sharing Guidelines
2. Describing Sampling Protocol Definition for AKN Compatible Projects
3. Sampling Protocol Definition Template
4. Describing Field Methods and Sampling Design
5. Creating AKN Compatible Sampling Units
6. Sampling Unit Bulk Upload Templates
7. AKN Data Access, Entry, and Analysis
8. Preparing Data to Submit for Bulk Uploading for AKN Compatible Projects

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

SCOPE OF WORK LANGUAGE

for Contracts, Cooperative Agreements and Interagency Agreements

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

Statement of Work Language for Department of Defense Service Contracts, Grants, and Cooperative Agreements
DRAFT – February 2023

Introduction

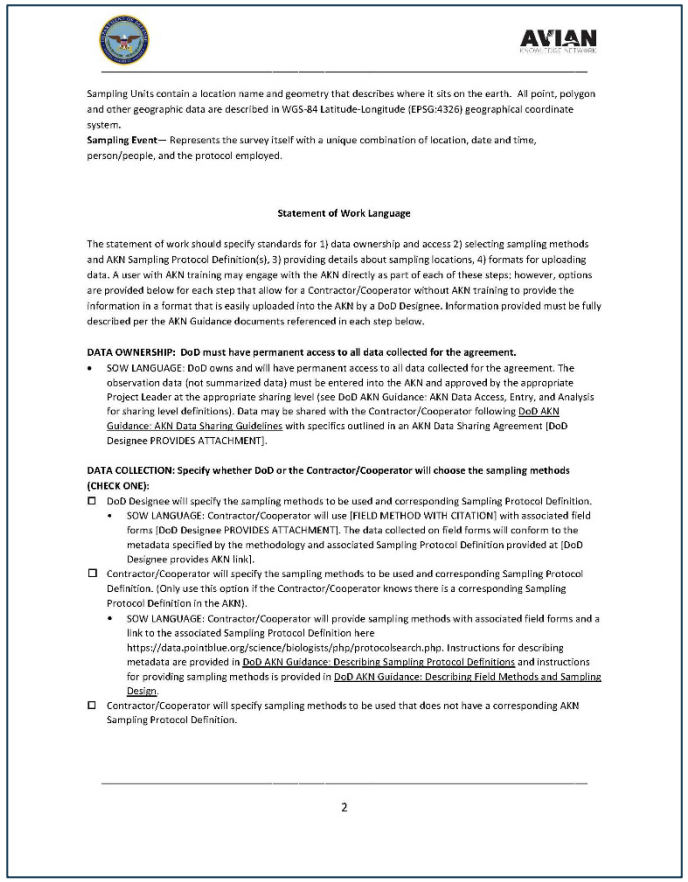
To improve quality, access, and usability of avian survey, monitoring, and research data collected for Department of Defense (DoD), contractors and cooperators collecting such data use the Avian Knowledge Network (AKN) to enter, proof, and deliver their data. Here we provide guidance for developing statement of work language for contracts and agreements to specify such 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.

Following are details to be included in the "Statement of Work" section of a service contract, grant, or cooperator 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 an 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.

Sampling Unit—Field location where research or a survey is conducted and samples (observations) are collected. Sampling units are arranged hierarchically within AKN Projects (e.g. point count points nested within a transect).



Sampling Units contain a location name and geometry that describes where it sits on the earth. All point, polygon and other geographic data are described in WGS-84 Latitude-Longitude (EPSG:4326) geographical coordinate system.
Sampling Event— Represents the survey itself with a unique combination of location, date and time, person/people, and the protocol employed.

Statement of Work Language

The statement of work should specify standards for 1) data ownership and access 2) selecting sampling methods and AKN Sampling Protocol Definition(s), 3) providing details about sampling locations, 4) formats for uploading data. A user with AKN training may engage with the AKN directly as part of each of these steps; however, options are provided below for each step that allow for a Contractor/Cooperator without AKN training to provide the information in a format that is easily uploaded into the AKN by a DoD Designee. Information provided must be fully described per the AKN Guidance documents referenced in each step below.

DATA OWNERSHIP: DoD must have permanent access to all data collected for the agreement.

- SOW LANGUAGE: DoD owns and will have permanent access to all data collected for the agreement. The observation data (not summarized data) must be entered into the AKN and approved by the appropriate Project Leader at the appropriate sharing level (see DoD AKN Guidance: AKN Data Access, Entry, and Analysis for sharing level definitions). Data may be shared with the Contractor/Cooperator following DoD AKN Guidance: AKN Data Sharing Guidelines with specifics outlined in an AKN Data Sharing Agreement [DoD Designee PROVIDES ATTACHMENT].

DATA COLLECTION: Specify whether DoD or the Contractor/Cooperator will choose the sampling methods (CHECK ONE):

☐ DoD Designee will specify the sampling methods to be used and corresponding Sampling Protocol Definition.
- SOW LANGUAGE: Contractor/Cooperator will use [FIELD METHOD WITH CITATION] with associated field forms [DoD Designee PROVIDES ATTACHMENT]. The data collected on field forms will conform to the metadata specified by the methodology and associated Sampling Protocol Definition provided at [DoD Designee provides AKN link].

☐ Contractor/Cooperator will specify the sampling methods to be used and corresponding Sampling Protocol Definition. (Only use this option if the Contractor/Cooperator knows there is a corresponding Sampling Protocol Definition in the AKN).
- SOW LANGUAGE: Contractor/Cooperator will provide sampling methods with associated field forms and a link to the associated Sampling Protocol Definition here https://data.pointblue.org/science/biologists/php/protocolsearch.php. Instructions for describing metadata are provided in DoD AKN Guidance: Describing Sampling Protocol Definitions and instructions for providing sampling methods is provided in DoD AKN Guidance: Describing Field Methods and Sampling Design.

☐ Contractor/Cooperator will specify sampling methods to be used that does not have a corresponding AKN Sampling Protocol Definition.

2

DoW AKN Guidance:

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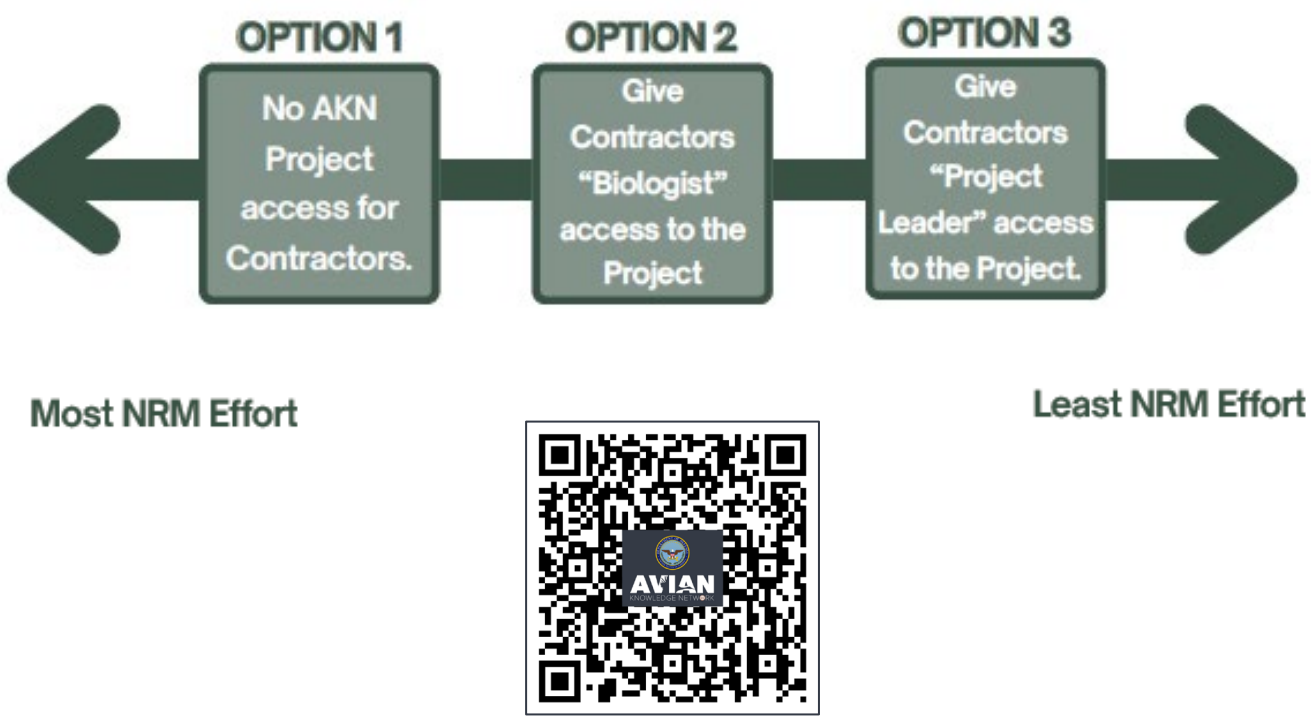
https://www.dodakn.org/resources/contract-language/

GUIDANCE TO HELP PROJECT MANAGERS DETERMINE ROLES FOR THEIR CONTRACTORS

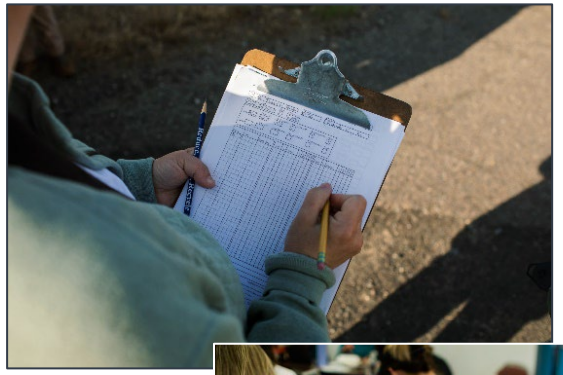


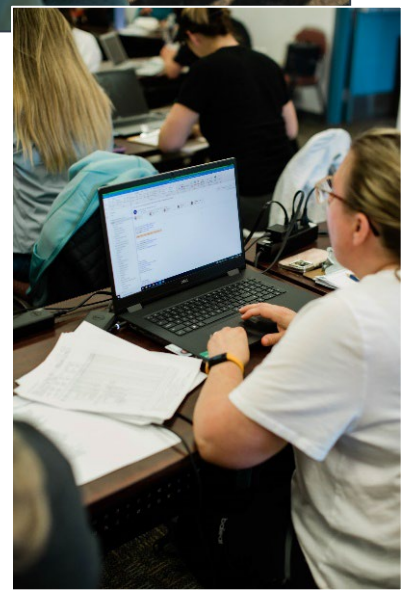
AKN Guidance:

- Guidance for NRMs working with **contractors**
- Describes all available **User Role choices**
- Assist NRMs in deciding **what level of AKN Project access** to grant contractors
  - Takes into account NRM effort/involvement, contractor access, etc.

DOW AKN USER GUIDE

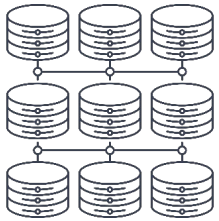
Detailed Step-by-step Instructions for AKN Use; Supplements Training





- Getting Started
- Managing Project
- Getting Data In
- Getting Data Out
- Exploring Data
- DoW Glossary

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



AKN TOOLS

Enterprise Support for Programs

Need: Data curation, management, and analysis at multiple scales (e.g., field office, regional office, entire agency)

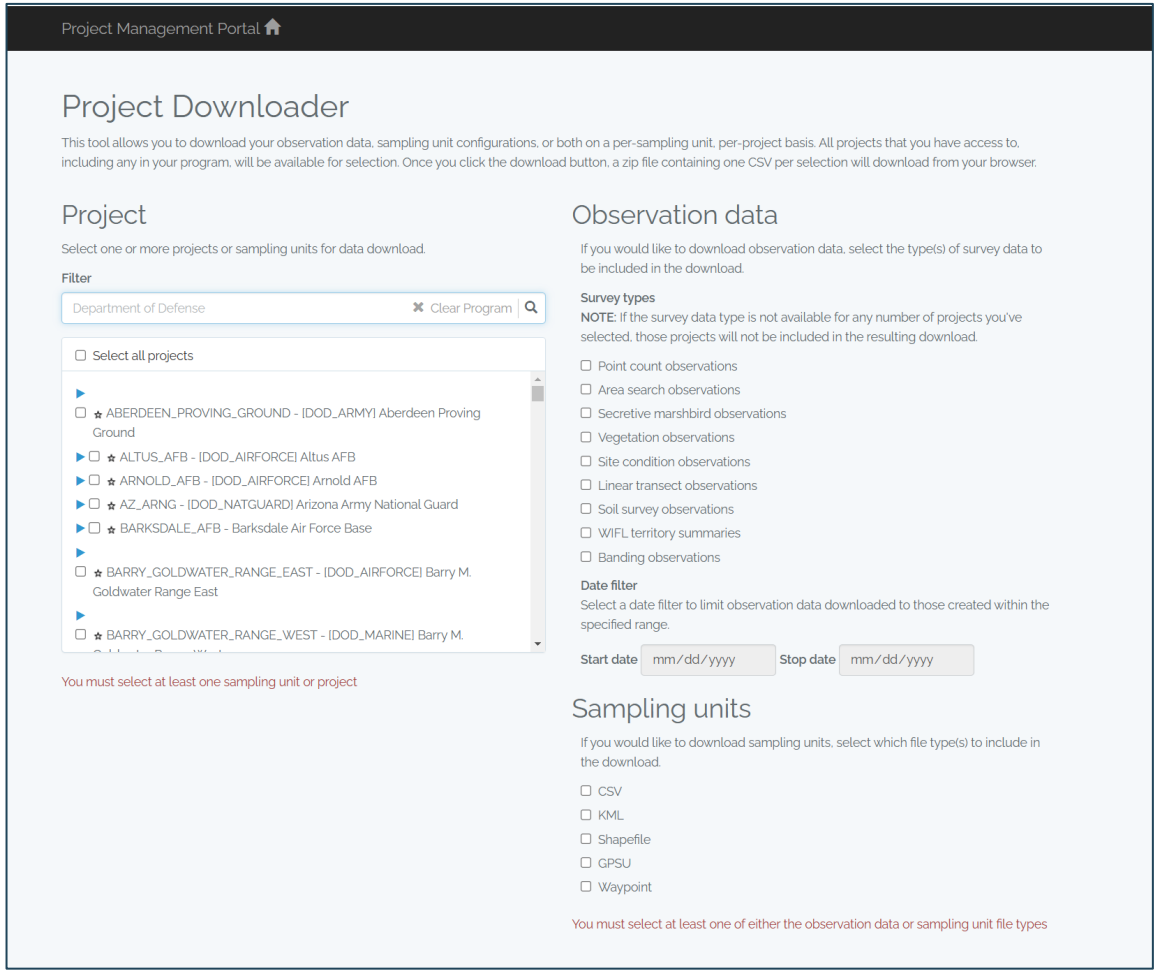
Solution: AKN-wide structure allowing multiple Project grouping via Programs.

Plan: Build new technology, to create/manage Programs, especially for query and download of project data

Status: In prototype phase

I. Beta test of Program download tool

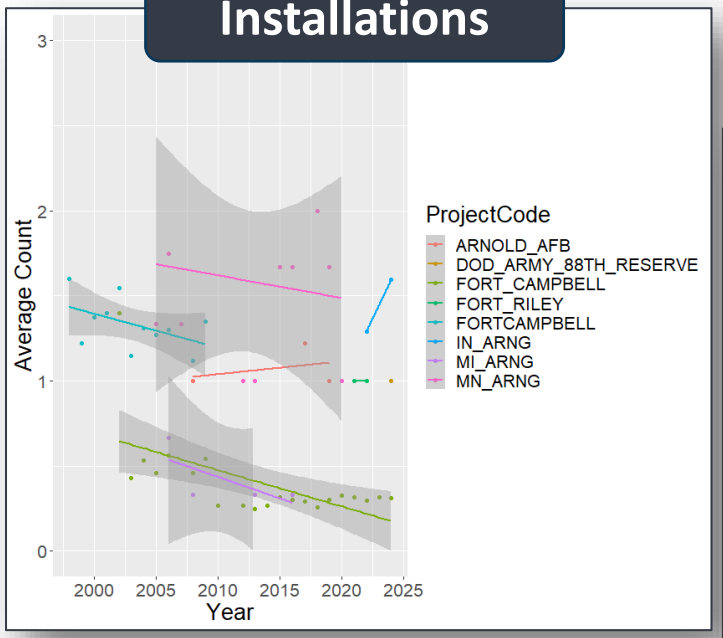
II. Prototype of Program warehouse



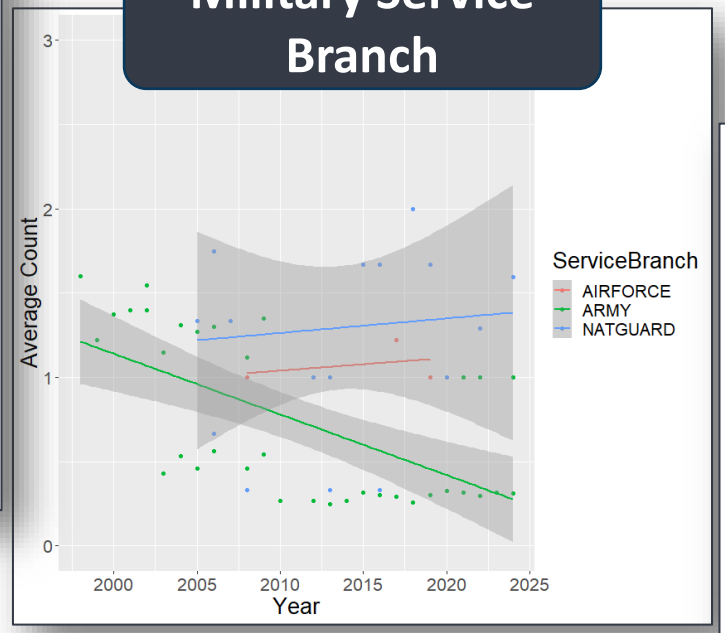
AKN TOOLS

Henslow's Sparrow Trends Across Enterprise Scales

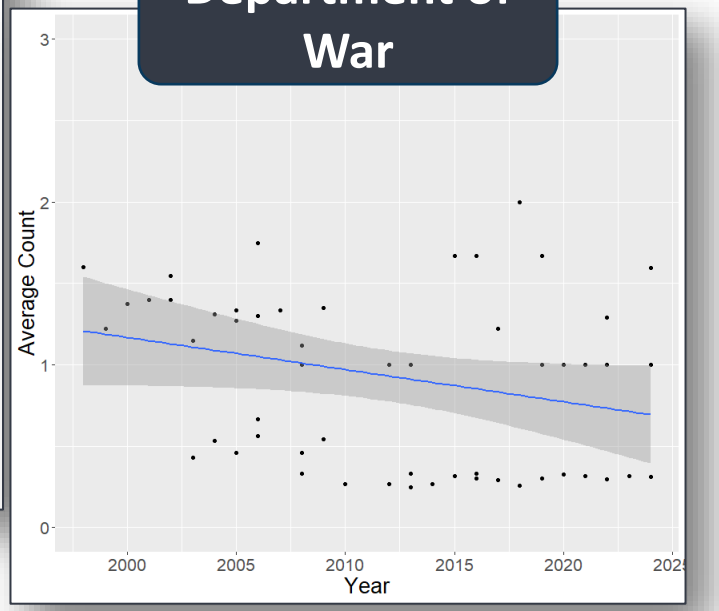
Installations



Military Service Branch



Department of War



CASE STUDY:

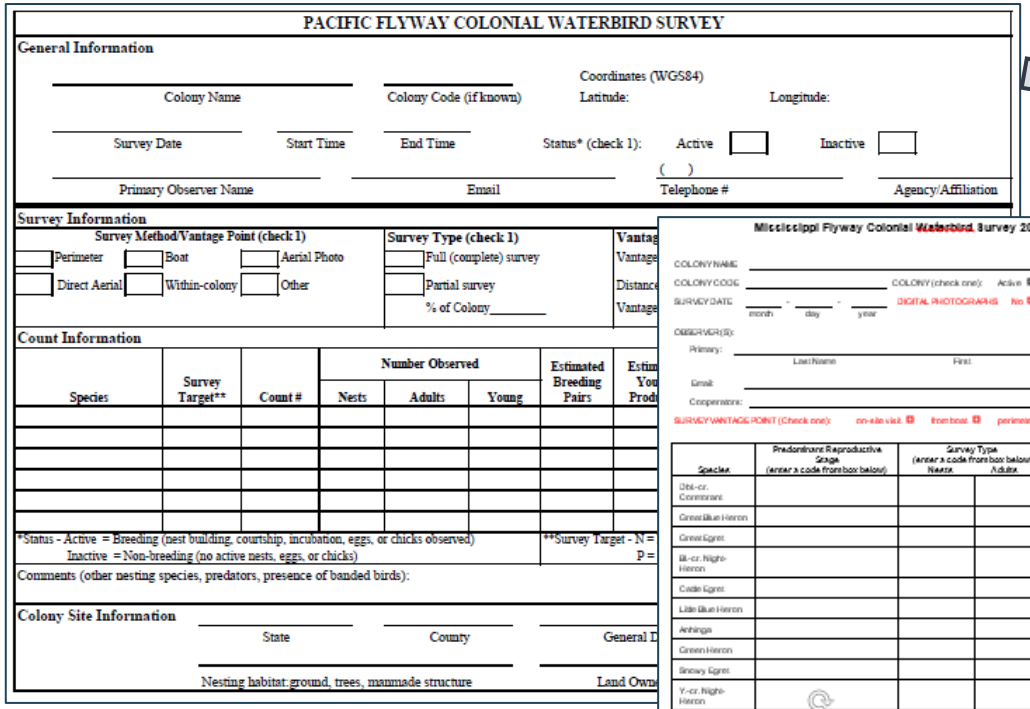
PROGRAM ENTERPRISE – COLONIAL WATERBIRDS

- CWB data collected across **several states and provinces**
- Survey **methods vary** (e.g., some count pairs, some nests), stored in many **different formats**
- **Lack of visibility** on species data and numbers state-wide, range-wide

Great Egret (rookery); Fort Stewart; Photo credit: Paul Block

CASE STUDY:

PROGRAM ENTERPRISE – COLONIAL WATERBIRDS



PACIFIC FLYWAY COLONIAL WATERBIRD SURVEY

General Information

Colony Name | Colony Code (if known) | Coordinates (WGS84) Latitude: | Longitude:

Survey Date | Start Time | End Time | Status* (check 1): Active ☐ Inactive ☐

Primary Observer Name | Email | Telephone # | Agency/Affiliation

Survey Information

Survey Method/Vantage Point (check 1): ☐ Perimeter ☐ Boat ☐ Aerial Photo ☐ Direct Aerial ☐ Within-colony ☐ Other

Survey Type (check 1): ☐ Full (complete) survey ☐ Partial survey % of Colony_____

Count Information

Species	Survey Target**	Count #	Number Observed: Nests	Adults	Young	Estimated Breeding Pairs

*Status - Active = Breeding (nest building, courtship, incubation, eggs, or chicks observed)
Inactive = Non-breeding (no active nests, eggs, or chicks)

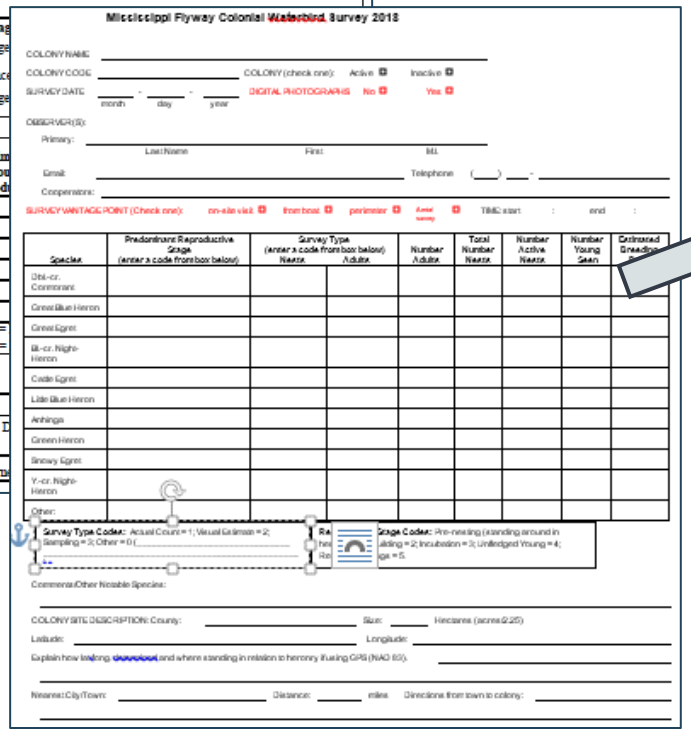
**Survey Target - N = P =

Comments (other nesting species, predators, presence of banded birds):

Colony Site Information

State | County | General

Nesting habitat: ground, trees, manmade structure | Land Own



Mississippi Flyway Colonial Waterbird Survey 2018

COLONY NAME | COLONY CODE | COLONY (check one): Active Inactive | SURVEY DATE (month - day - year) | DIGITAL PHOTOGRAPHS: No Yes

OBSERVER(S): Primary: (Last Name, First, MI) | Email | Telephone | Cooperators:

SURVEY VANTAGE POINT (Check one): on-site visit from boat perimeter aerial survey | TIME: start: end:

Species	Predominant Reproductive Stage (enter a code from box below)	Survey Type (enter a code from box below): Nests	Adults	Number Adults	Total Number Nests	Number Active Nests	Number Young Seen	Estimated Breeding Pairs
Dbl-cr. Cormorant								
Great Blue Heron								
Great Egret								
Bl.-cr. Night-Heron								
Cattle Egret								
Little Blue Heron								
Anhinga								
Green Heron								
Snowy Egret								
Y.-cr. Night-Heron								
Other:								

Survey Type Codes: Actual Count = 1; Visual Estimate = 2; Sampling = 3; Other = 0 (_____)

Stage Codes: Pre-nesting (standing around in pairs) = 1; Building Nest = 2; Incubation = 3; Unfledged Young = 4; Fledged = 5

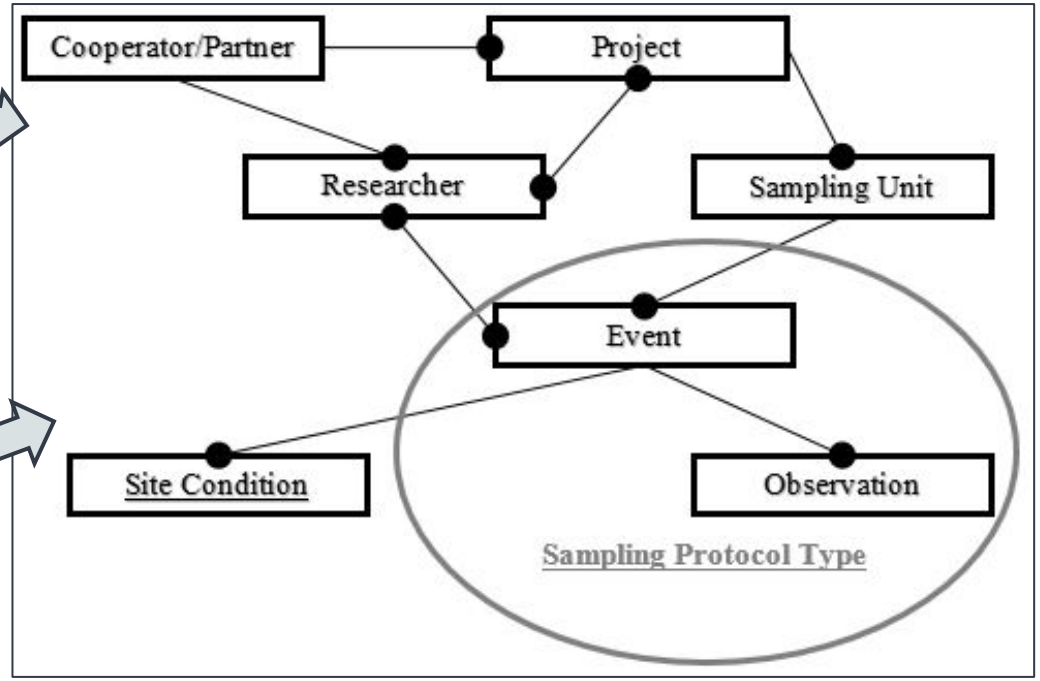
Comments/Other Notable Species:

COLONY SITE DESCRIPTION: County: | Size: | Hectares (acres @ 2.25)

Latitude: | Longitude:

Explain how [redacted] and where standing in relation to herony. If using GPS (NAD 83):

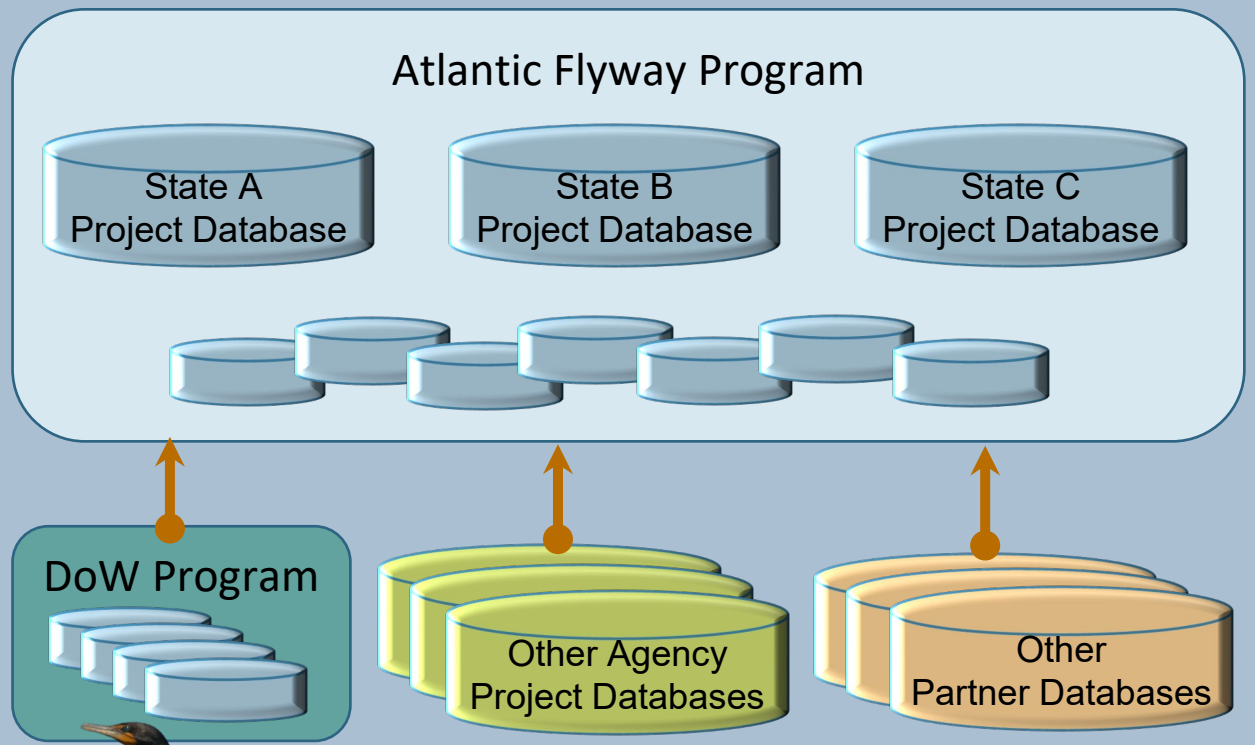
Nearest City/Town: | Distance: miles | Direction from town to colony:



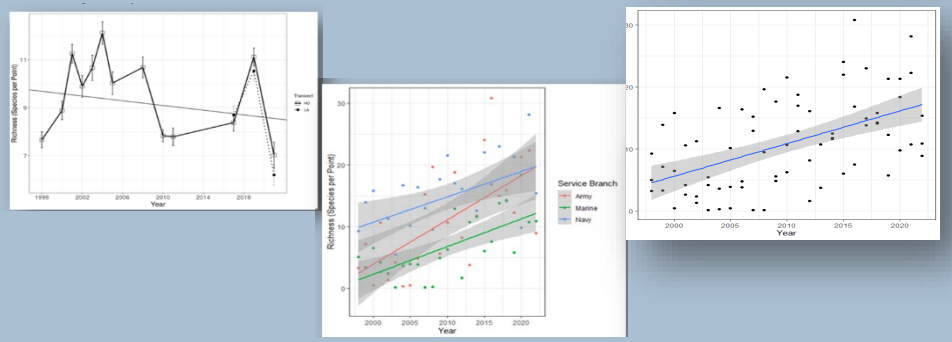
Sampling Protocol Definition(s)

- CWB_ATLANTIC_FLYWAY
- CWB_ATLANTIC_FLYWAY_CONDITION

Colonial Waterbird Program Structure



Program-based multi-scaled data access, analysis, download & outputs



Flexibility with data analysis

Sharing controlled at the Project database (or observation) level, can choose to share or not

Scaled conservation actions targeted where most needed

DoW Program Structure

Air Force Subprogram — Installation Project Databases

Army Subprogram — Installation Project Databases

Navy Subprogram — Installation Project Databases

Marine Subprogram — Installation Project Databases

National Guard Subprogram — Installation Project Databases

DoW Program

Other Agency Project Databases

Other Partner Databases

Other Projects & Programs

Flexibility with data analysis

Sharing controlled at the Project database (or observation) level, can choose to share or not

Scaled conservation actions targeted where most needed

AKN TOOLS

More Flexible User Roles

Need: Roles in the system that meet requirements for data entry and/or analysis for portions of AKN projects

Solution: Creation of two new user roles that meet identified needs

Plan: Create two new roles

I. **Contractor Role** - support a contractor requiring access (data entry, data download, data analysis) to a portion of Project

II. **Analyst Role** - allow full access to a Project or Program for data download and analysis, w/o ability to manage metadata or user access.

Status: Needs and roles identified, Will begin upon completion of the Enterprise Support for Programs

Driving Avian Data Questions

1. What species have confirmed occurrence on my installation?
2. What species have the potential to occur on my installation?
3. What species may occur/persist on my installation in the future?
4. How are species "doing" (population metrics) on my installation? (AKA "is my INRMP effective?") How are species doing across the military? (AKA "Is the DoW conservation program effective?")
5. What factors are driving population trends on my installation? Are there conservation measures/actions within my INRMP that are working more than others to reach identified conservation objectives?
6. What is the relative conservation responsibility of avian species on military installations?

FY26 PRIORITY TASKS

Base Support
Program Coordination
Installation Consulting (Office Hours)
Back-end Technical Support
Customer Data Support
Reporting: Annual, Qtrly & Factsheets
Annual Support Costs (Science Cloud)

Training
Regional Training (4x/year)
Service-specific Trainings (Army)
Manager Training Modules
Expanded Methodology Training
Training Videos

AKN Tools (Partner Initiatives)
Database-to-database API
Creation of Contractor Role
Creation of Analyst Role
New Analyst Tool

Data Initiatives
MSS Protocols & Data
ARU-collected Data Model
BASH Data in Science Cloud
Banding Data in Science Cloud
Decision-support Tools & Publications

DoW-Specific Tools
Conservation Responsibility
Management Program Update
Standardizing DoW Bird Monitoring
Mission-sensitive Species Tools
Operations Sustainment Tool

Military Services & Installation Support
Historical/Contemporary Data Support
Custom Data Outputs
Direct Data Initiatives
Case Study Development

WHAT UPDATES, INITIATIVES, TOOLS DO YOU WANT TO SEE?

Point Blue Conservation Science

ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

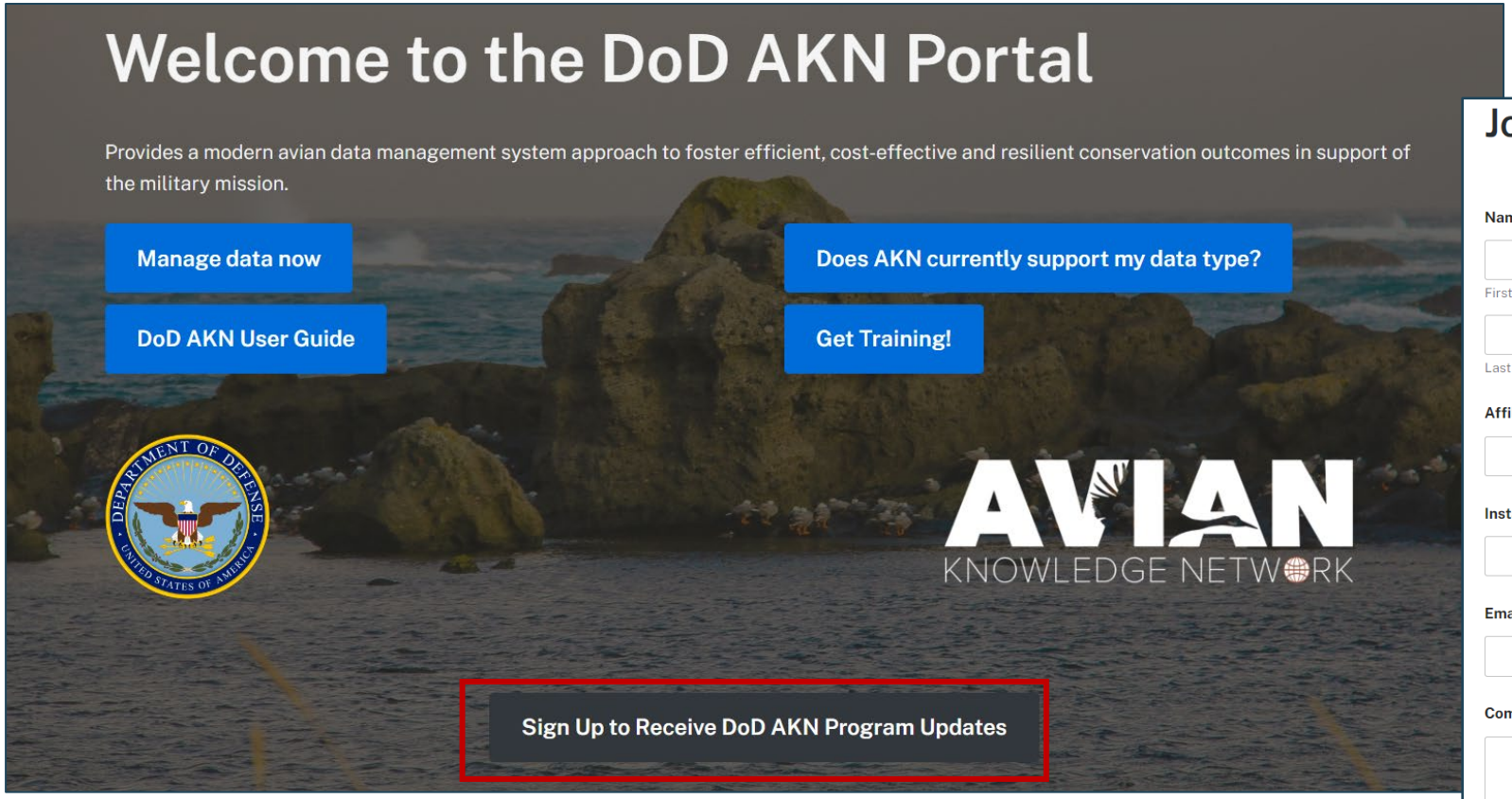
NEXT STEPS FOR YOU

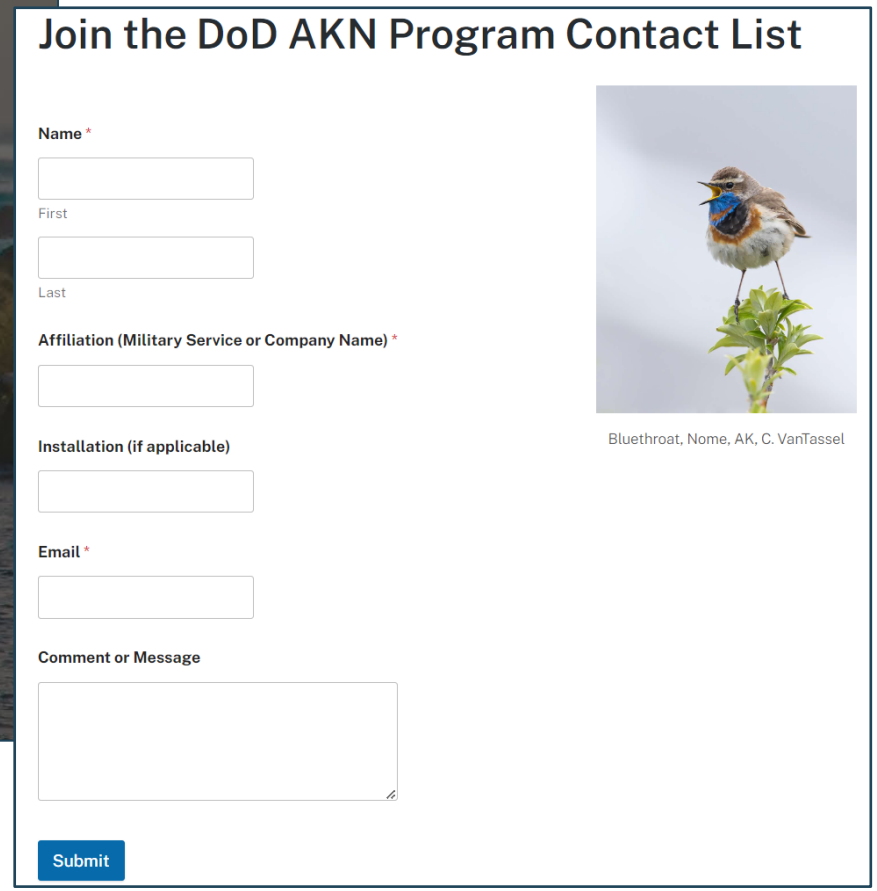
Point Blue Conservation Science

ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

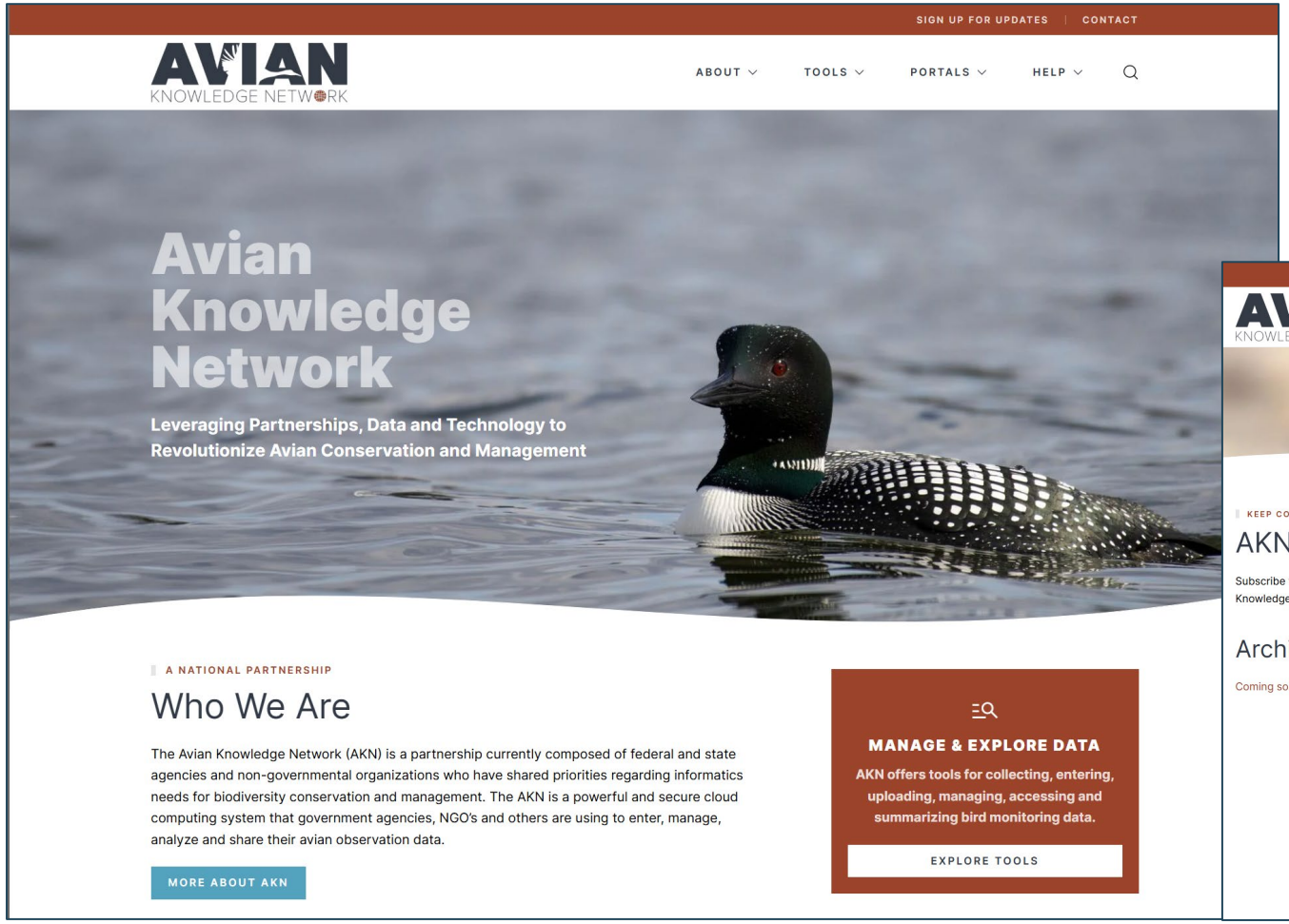
SIGN UP FOR DOW AKN UPDATES

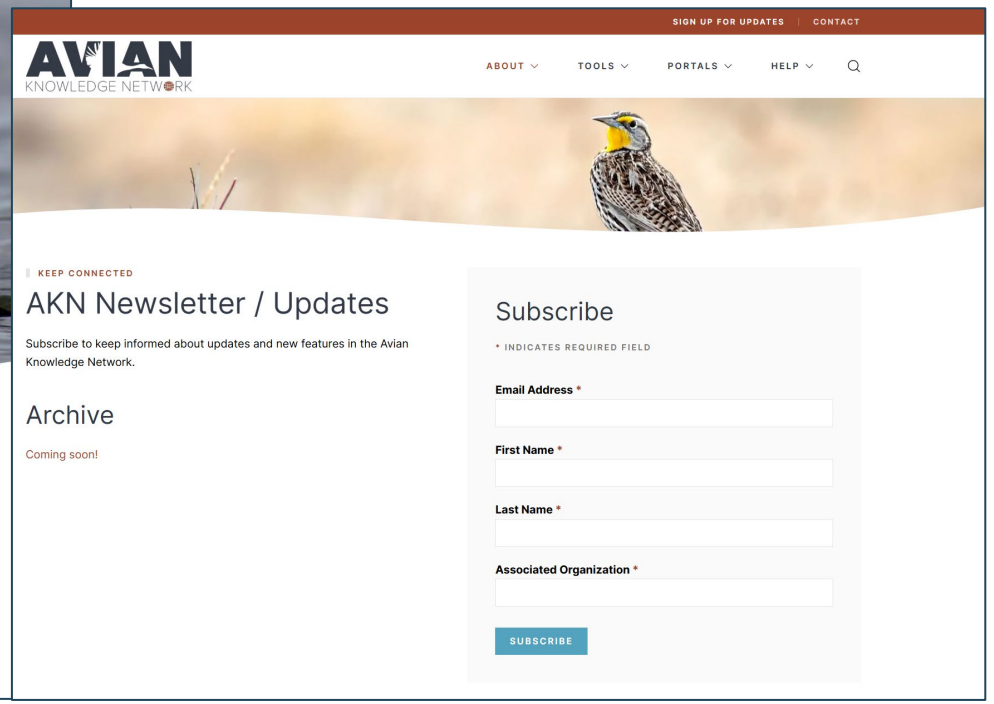




https://www.dodakn.org/resources/join-the-dod-akn-program-contact-list/

SIGN UP FOR AKN UPDATES





ONGOING SUPPORT

- ***Monthly Virtual Office Hours***
  - Monthly "Office Hours"
  - Calendar and signups **here**

- ***Other Opportunities***
  - Training videos on AKN YouTube Channel (https://www.youtube.com/channel/UCi9in_tC9uTZa9Bo3HgnY1Q/featured)

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

Training Course Site	Select the link below to access the Training Course Site which gives you access to the current and archived course agendas and materials including training slides and course exercises. **Current**: https://pointblue.github.io/dod_workshop/ **Archive**: https://pointblue.github.io/dod_workshop/archive.html

Questions, thoughts, suggestions in the future?

Contact our team!

DoDAKN@erdc.dren.mil

AVIAN KNOWLEDGE NETWORK

PLANN SURVEYS

- Start with yo tions:
  - Presence/ab cipated budget,
  - Occupancy tc.)
  - Abundance lity
  - Trend ecies phenology
  - s and population
- How do thes
  Space/habit
  managemen

Office Hours: Project Set Up in the AKN

New Project Questionnaire

Name:

Installation:

Email Address:

1) Please provide a short summary of the scope of your project. What are the objectives/questions for your project?

2) What survey type do you conduct? (e.g., Point Count, Area Search, Line Transect, etc.)

3) **Sampling Units**: How are your surveys organized? How do you select your sampling locations? Briefly describe your study design.

   a. If point counts, are they grouped into transects, or are all points independent? Y or N

4) **Observation Protocol**: Describe your field methods. Do you have a written protocol or data dictionary? Y or N
   a. Species
   b. Length of survey
   c. Time Bins
   d. Distance—exact or binned?
   e. Detection cues—do you record this? Y or N
      - If so, what detection cues do you use (e.g., call, song, visual, wing, etc.)?
      - If so, all types or just first detected?

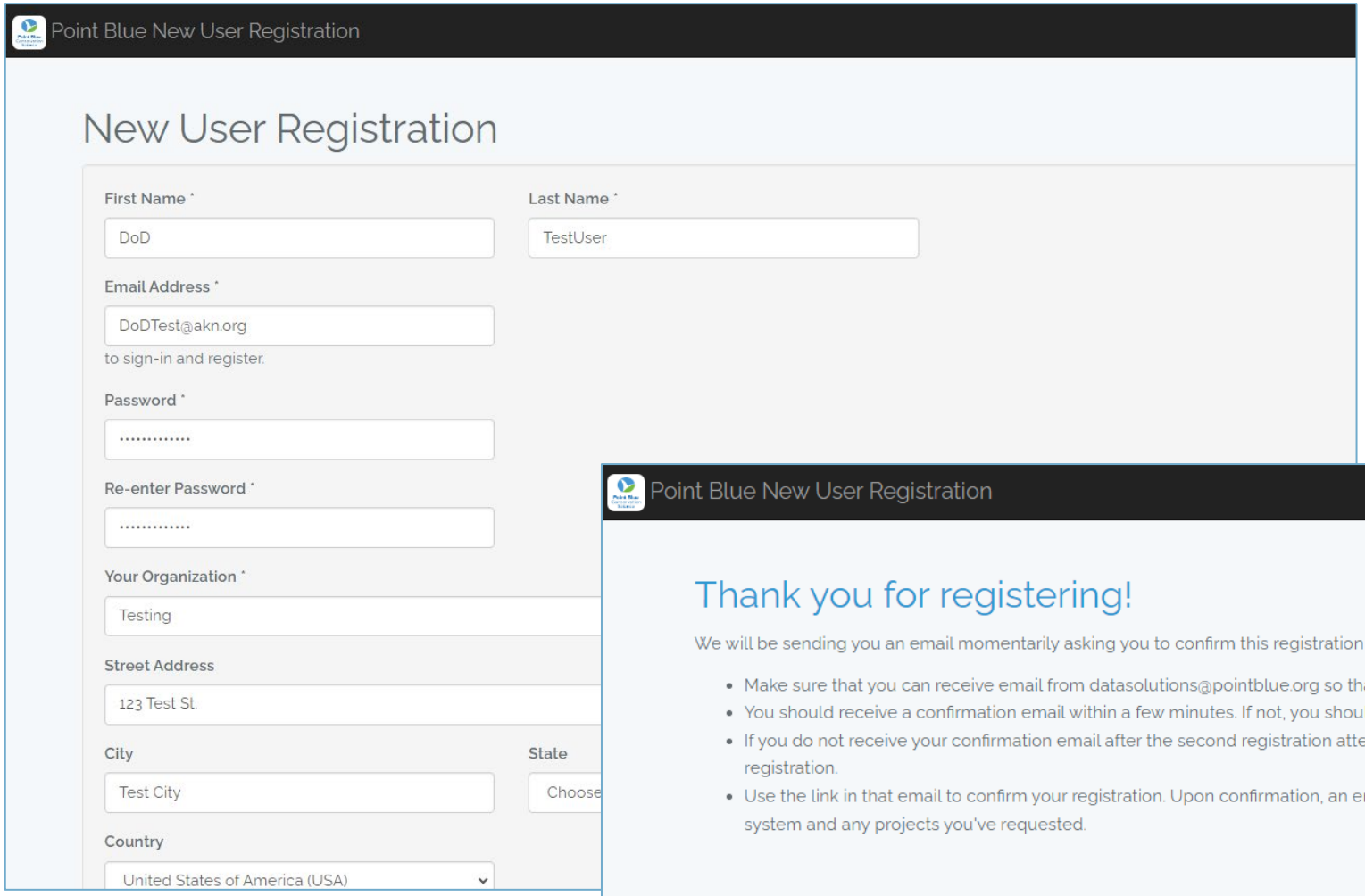
AVIAN KNOWLEDGE NETWORK

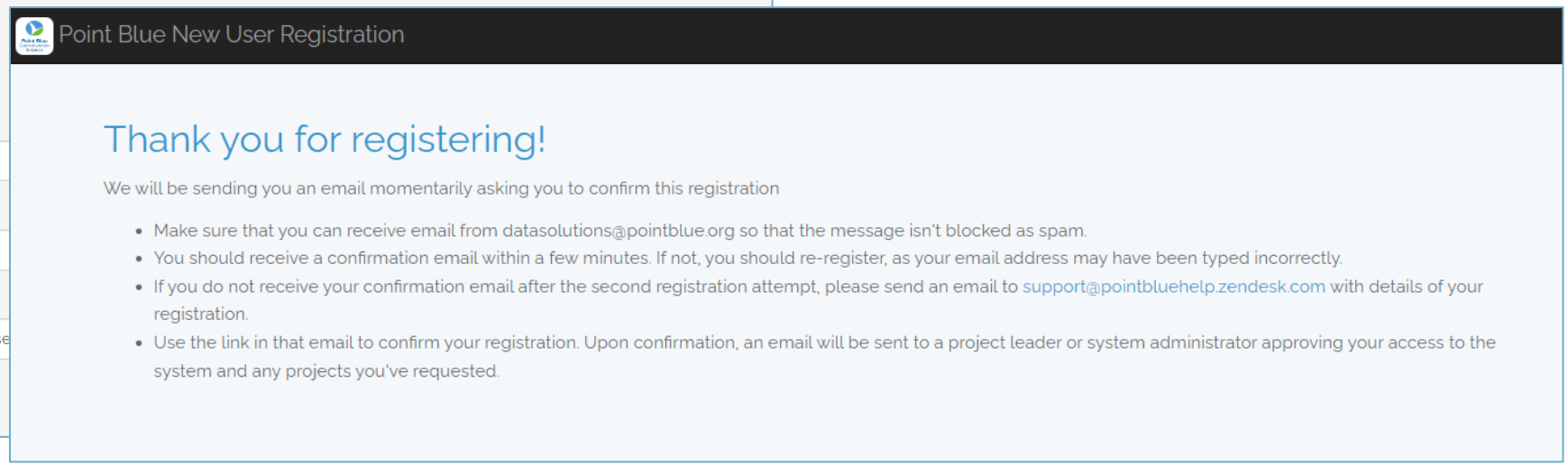
END-TO-END PROCESS TO REGISTER A NEW USER

DEMONSTRATION

Red-cockaded Woodpecker, Camp Lejeuene; Photo Credit: Kevin Rose

STEP 1: NEW USER REQUESTS AN ACCOUNT





STEP 2: VERIFY ACCOUNT

datasolutions@pointblue.org

13-03-202

Subject: Please confirm your registration with DOD_DEMO

Confirm Your Registration with DOD_DEMO

DOD_DEMO User Name: DoDTest@akn.org

Thank you for registering your account with DOD_DEMO

Before you are able to use your new account, you must click the link belowto validate your e-mail address and complete your registration:

https://data.pointblue.org/apps/public/deju.php?p=NewuserConfirm&tt=__tmpr65f1ee1b28d6d&hs=YjQ0WnowTmNMVGZ3adc&deju_nextPage=nu-confirm

If you have any problems or questions, please contact us at support@pointt

Point Blue Science Cloud

Email confirmation

Please use the button below to complete your email confirmation.

Confirm my email

Point Blue Science Cloud

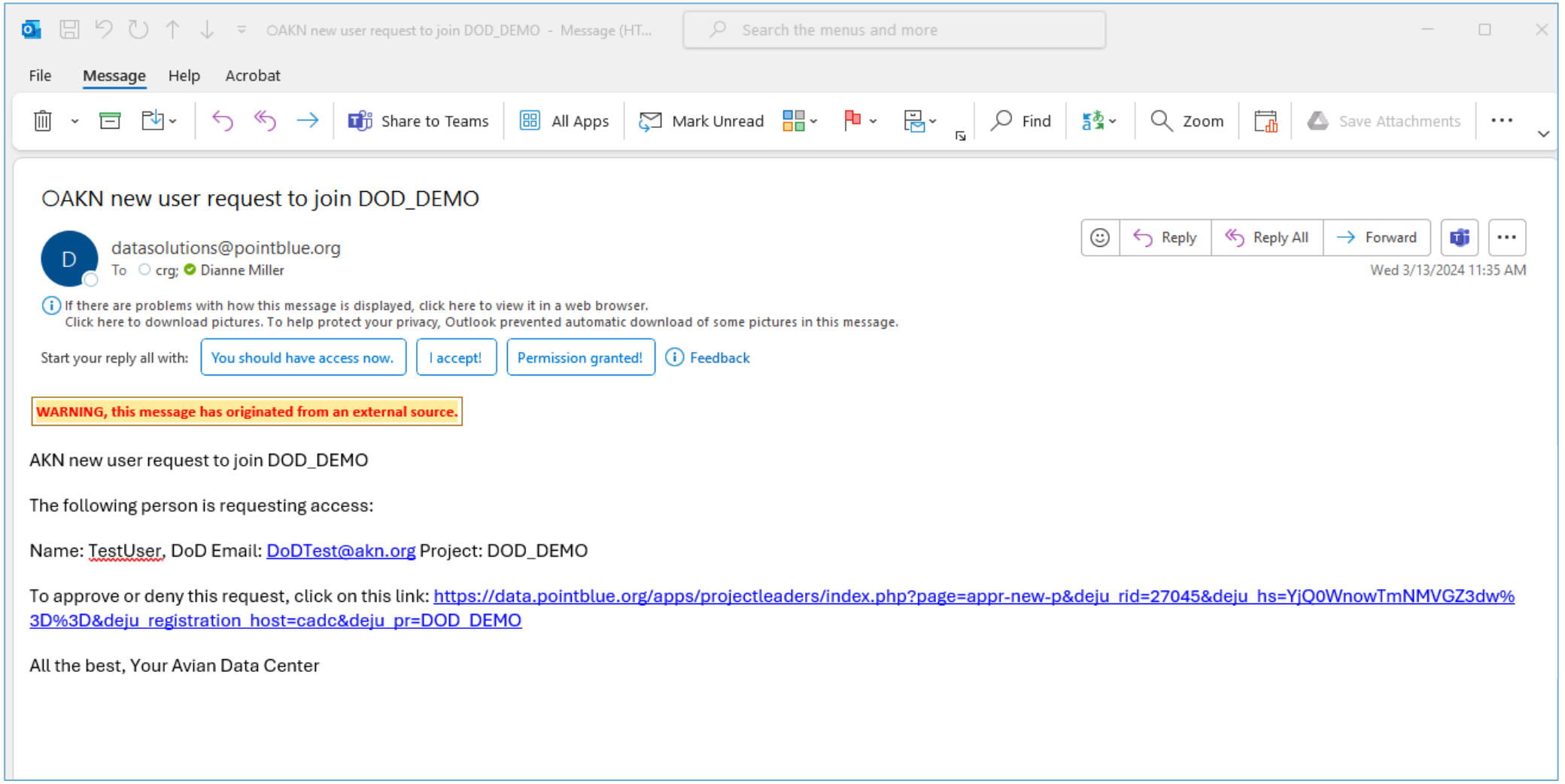
Email successfully confirmed

Thank you for successfully confirming your email address.

An email was sent to the project leader(s) of your requested project for approval.

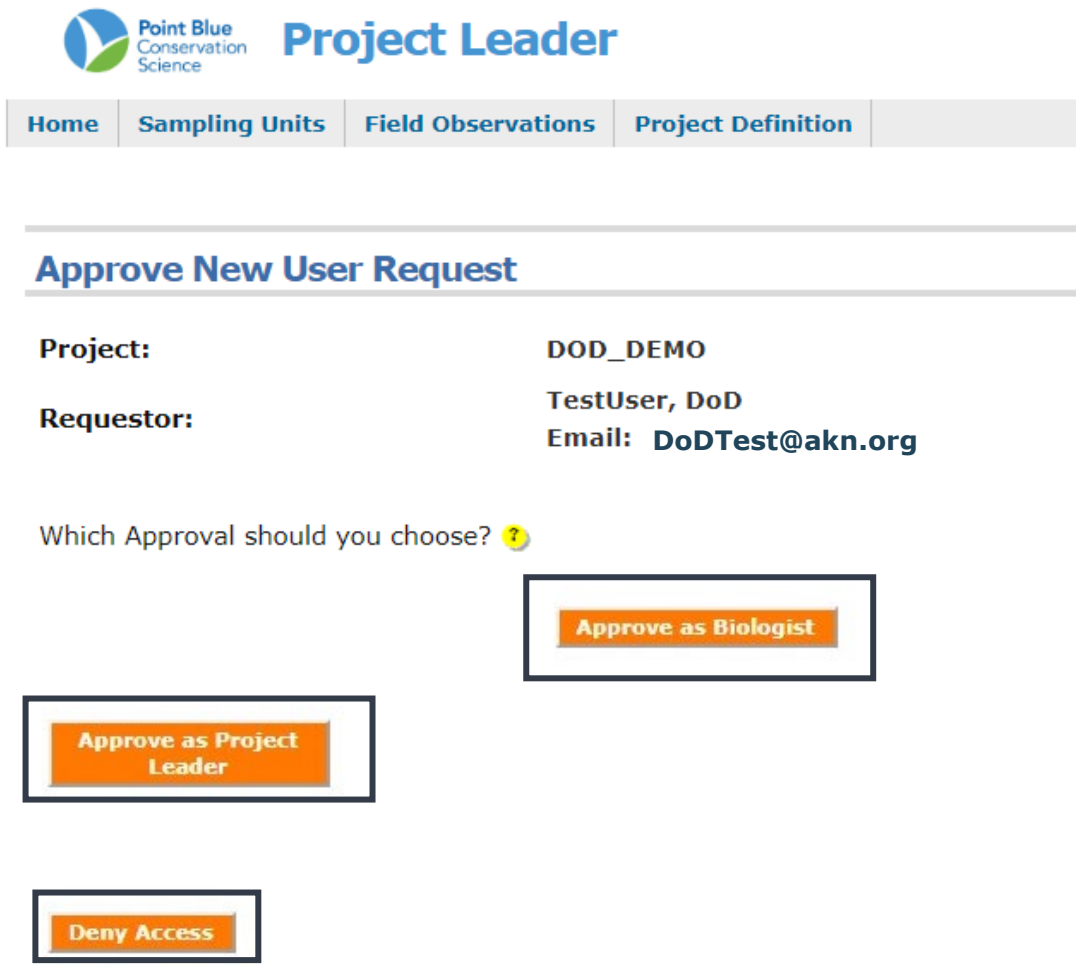
Once your project access has been approved you will receive an email with information about how to log into the system.

STEP 3: PROJECT LEADER APPROVAL

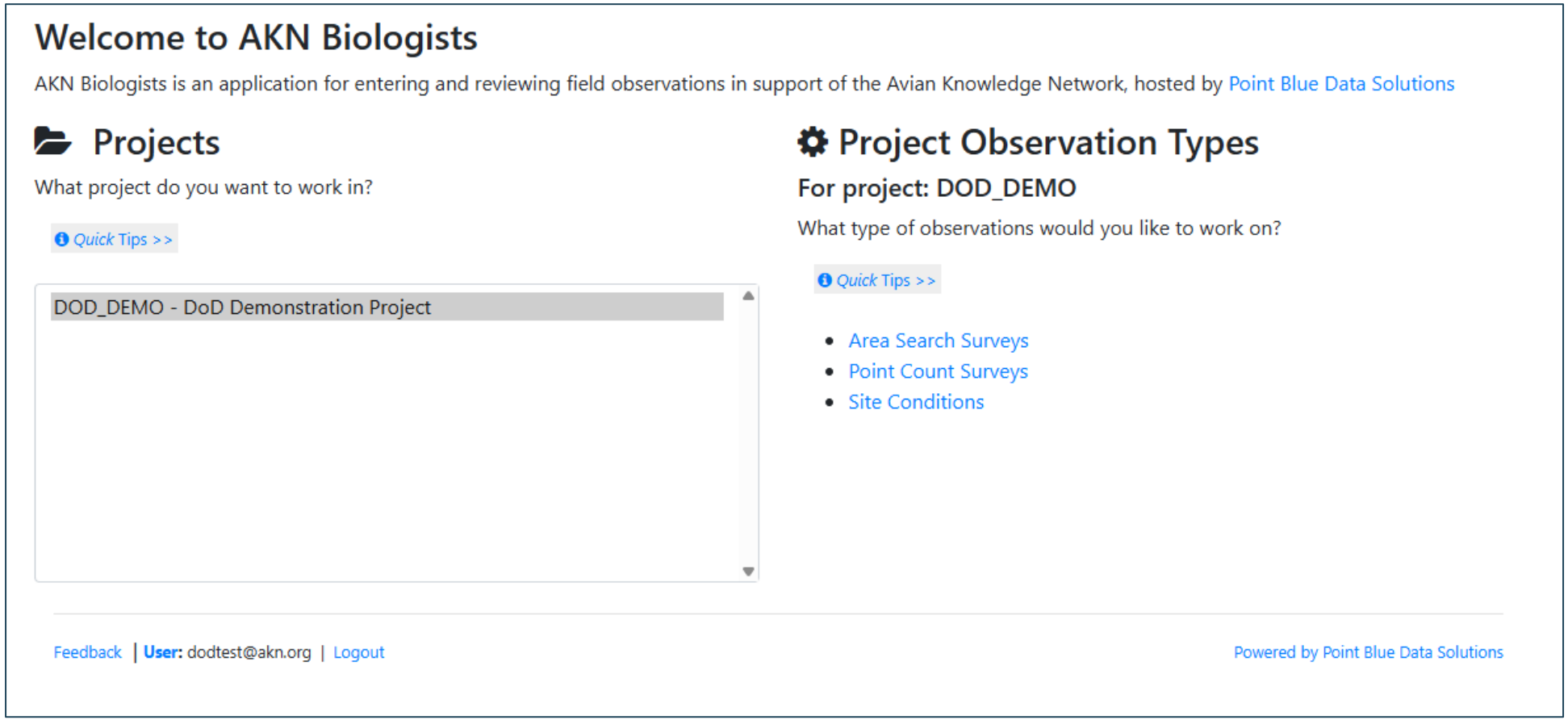


STEP 3: PROJECT LEADER APPROVAL

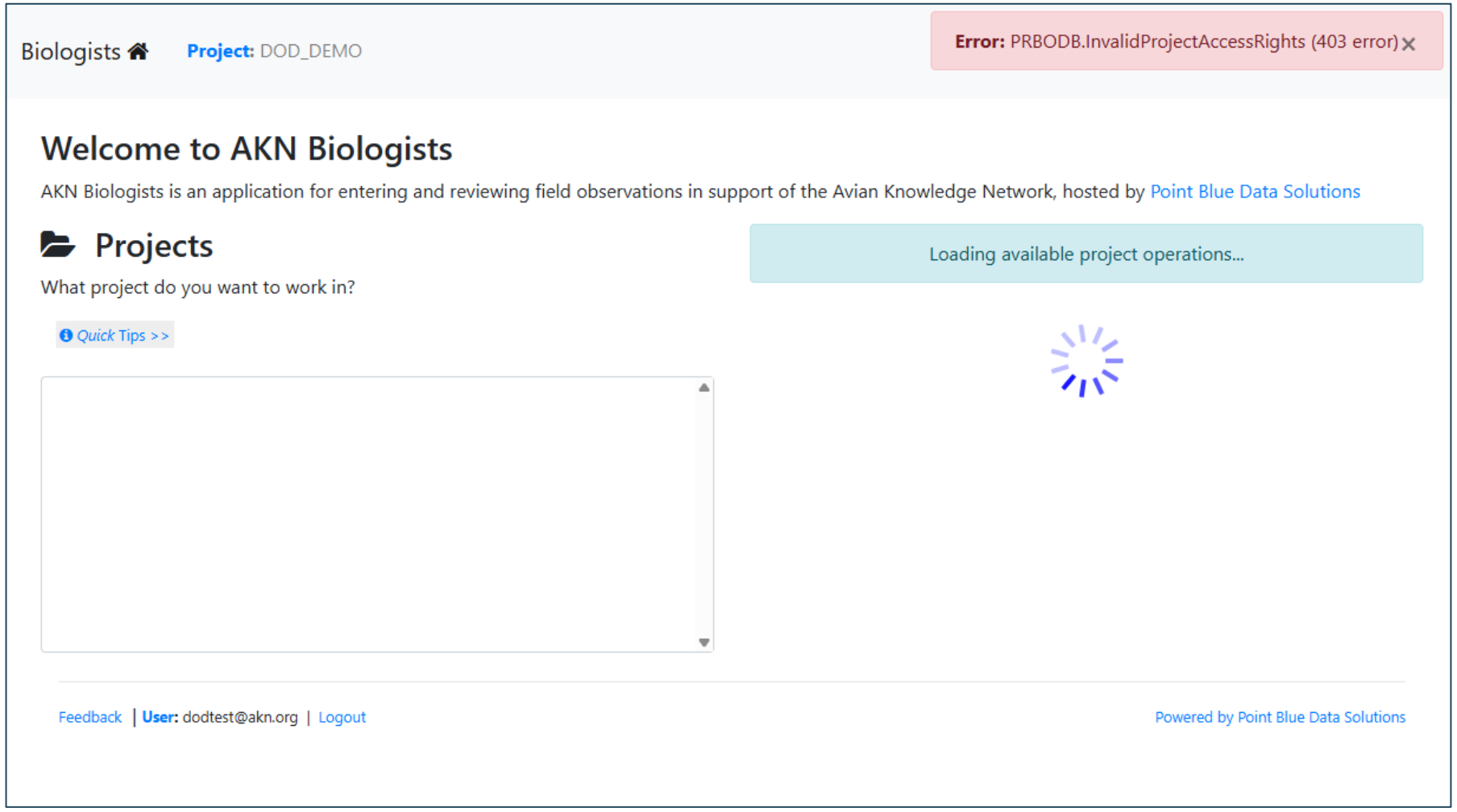
THIS IS WHERE <u>YOU</u> COME IN



BIOLOGISTS VIEW



INACTIVE ACCOUNT



OPEN FORUM

Point Blue Conservation Science

ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

PLUSES AND DELTAS

WORKSHOP WRAP-UP

Point Blue Conservation Science

ERDC ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

DoW and the AKN: Who, What, Where, When, Why, and How

DoW AKN NMFWA Training
30 March 2026

Sam Veloz
Dianne Miller

Elizabeth Neipert
Zoe Duran

John Alexander
Caitlyn Gillespie
Nora Honkomp

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ENGINEER RESEARCH & DEVELOPMENT CENTER

Klamath Bird Observatory

AVIAN KNOWLEDGE NETWORK

pointblue.github.io/dod_workshop

Northern Cardinal, Williamsburg, VA; Credit: Paul Block