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

DoD Regional Training, May 2-4, 2023

Sam Veloz, Dianne Miller, Point Blue Conservation Science
John Alexander, Klamath Bird Observatory
Elizabeth Neipert, US Army ERDC

pointblue.github.io/dod_workshop

Welcome, Introductions, and Logistics

Introductions

Who are we?

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

Name, Installation, Position

What type of avian data you collect?

How would you like to use AKN?

A few logistics

The Agenda with links (bookmark this)
pointblue.github.io/dod_workshop

- Session: interactive & casual
- Office hours: 8 hours monthly sign up here

https://outlook.office365.com/owa/calendar/DoDAKNOfficeHours@pointblue.onmicrosoft.com/bookings/

- Bring lunch tomorrow
- Parking lot items

DoD 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.GO ODWIN.IV.1163856 081

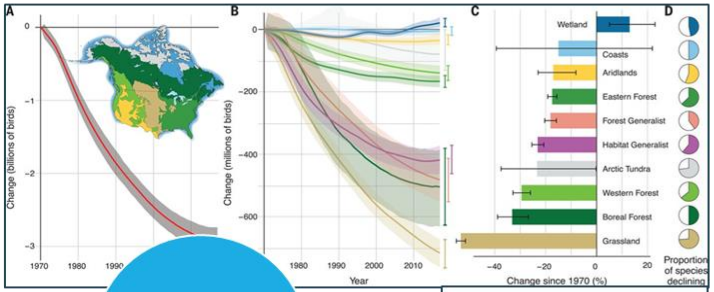
Richard G. Kidd IV
Deputy Assistant Secretary of Defense
(Environment and Energy Resilience)

FULL AVIAN DATA LIFE CYCLE

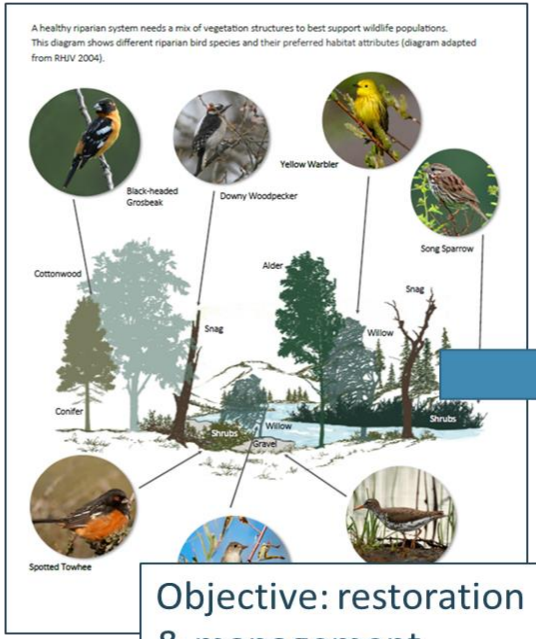
AVIAN
KNOWLEDGE NETWORK

FULL AVIAN DATA LIFE CYCLE

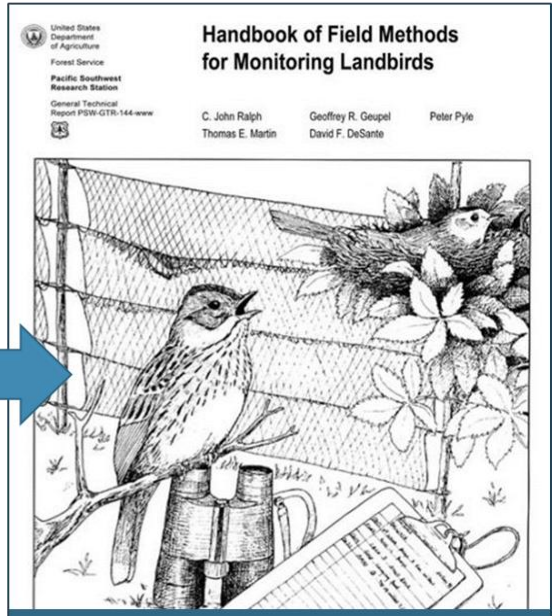
FULL AVIAN DATA LIFE CYCLE



Objective: population trends



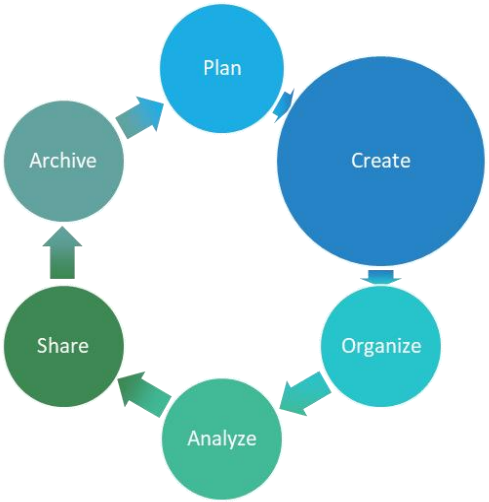
Objective: restoration & management

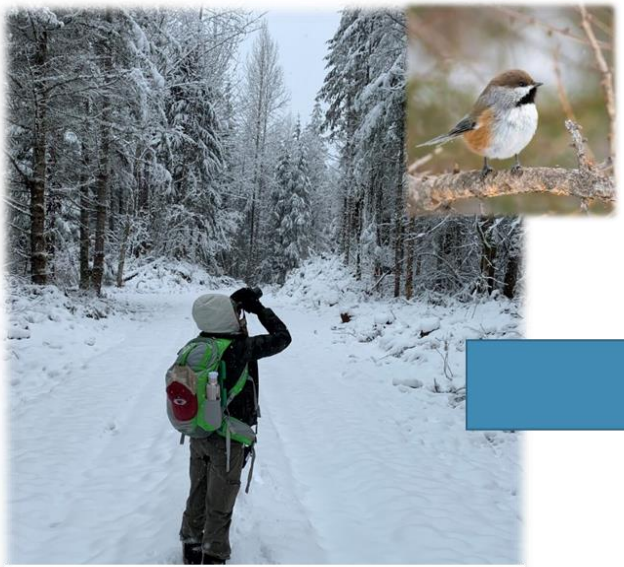


SURVEY OBJECTIVES

APPROPRIATE METHODOLOGIES

FULL AVIAN DATA LIFE CYCLE

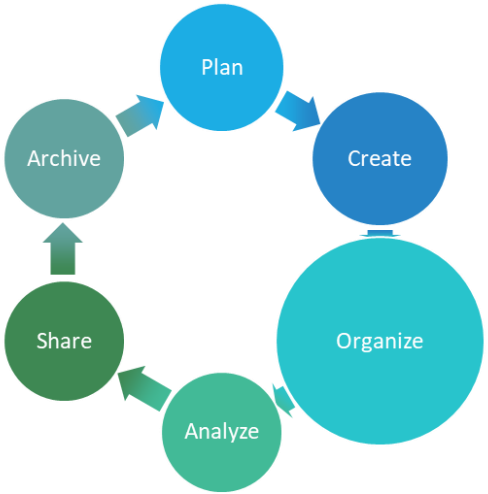




FIELD SAMPLING-OBSERVATIONS

FIELD FORM-DATA

FULL AVIAN DATA LIFE CYCLE



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

DATA ENTRY
QA/QC

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			

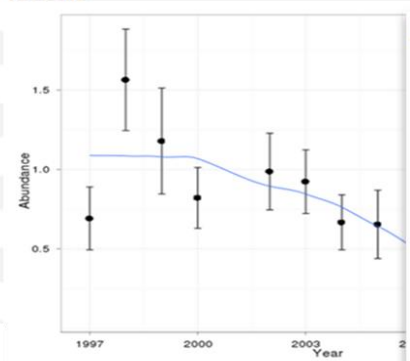
FULL AVIAN DATA LIFE CYCLE

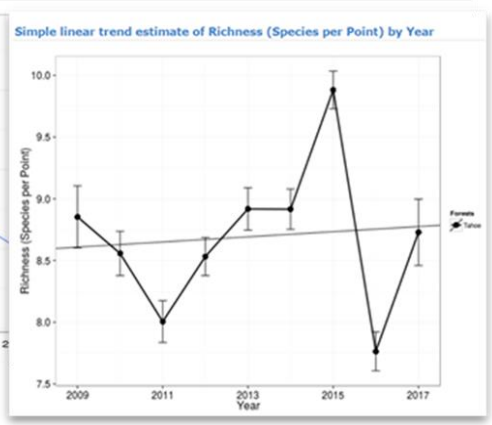
ANALYSIS

Total Number of Observations of each Species by Year

copy table to: CSV HTML DOC PDF

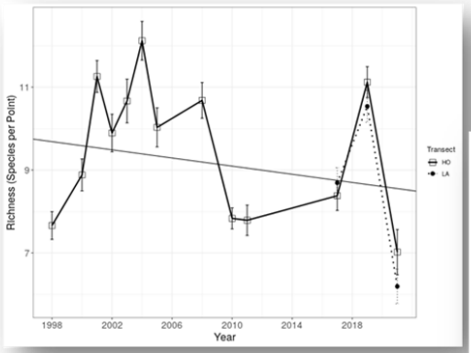
Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
American Crow	0	7	2	0	5	25	11	5	1	11	0
American Dipper	1	5	7	2	5	1	1	3	3	3	6
American Goldfinch	0	33	0	17	28	15	38	8	21	8	36
American Kestrel	0										
American Pipit	5										
American Redstart	0										
American Robin	44					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



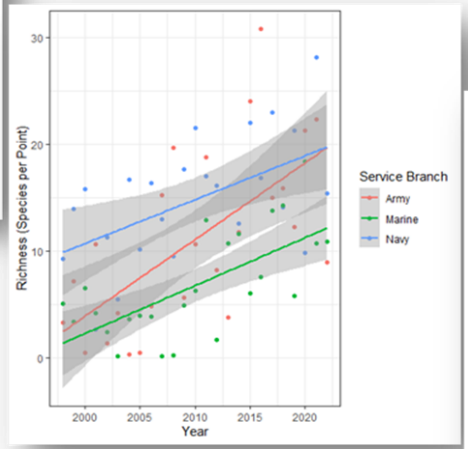


FULL AVIAN DATA LIFE CYCLE

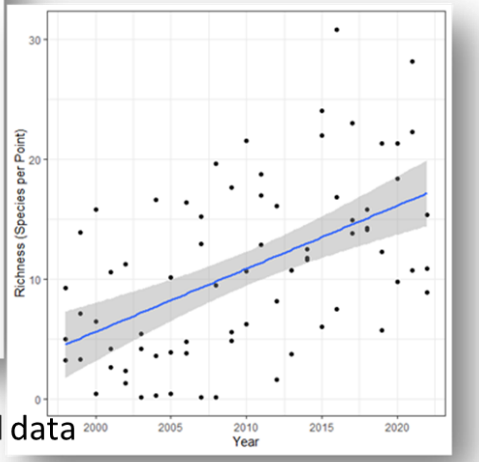
Vandenberg Space Force Base
Project Riparian Richness



Service Branch Program
Riparian Bird Richness



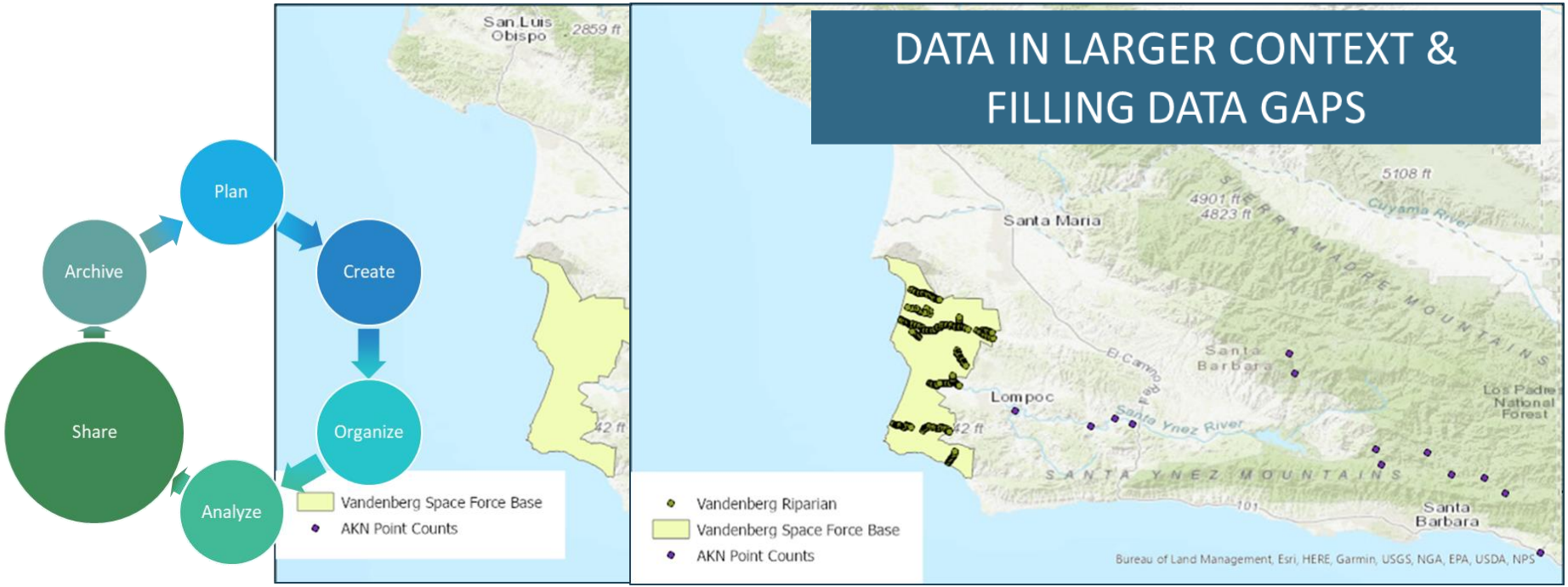
DoD Program
Riparian Bird Richness



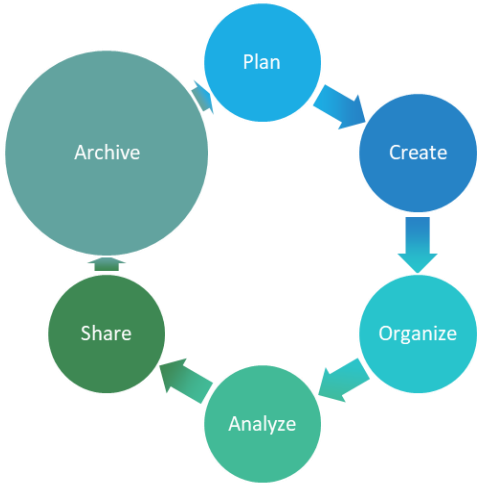
ANALYSIS AT MULTIPLE SCALES

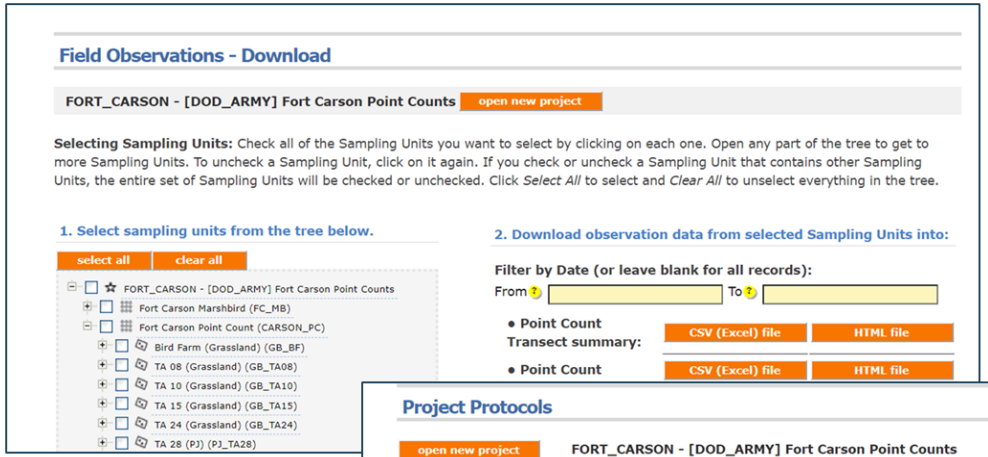
*Simulated data

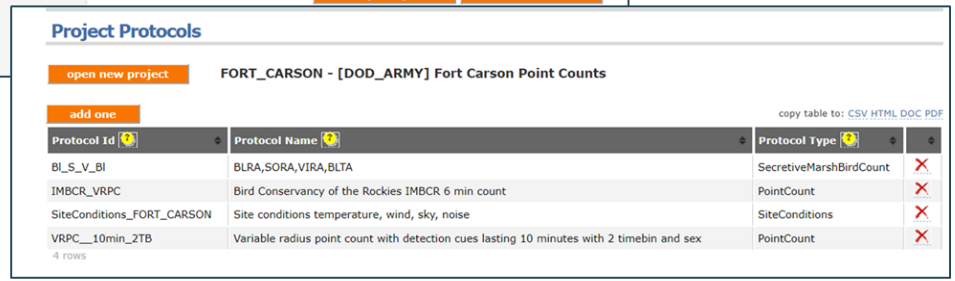
FULL AVIAN DATA LIFE CYCLE



FULL AVIAN DATA LIFE CYCLE





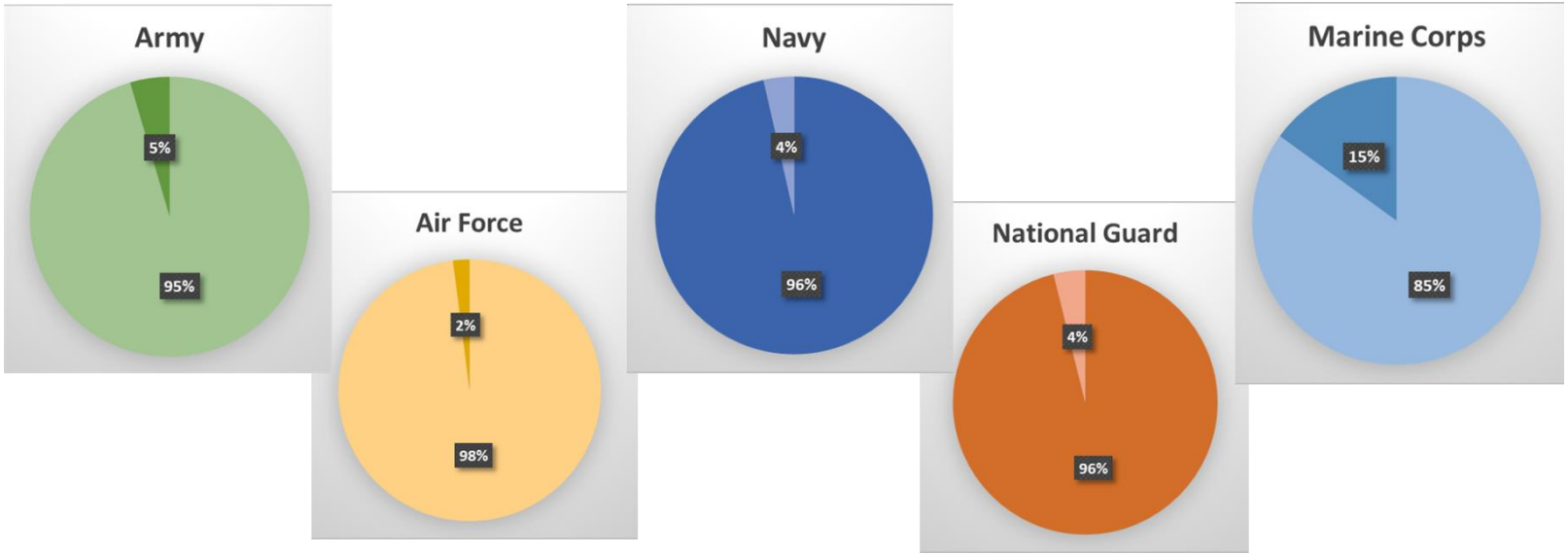


PERMANENT STORAGE & ACCESS

Military Service Progress

341 installations that require Integrated Natural Resources Management Plans

146 Army, 82 Navy, 96 Air Force, 17 Marine Corps installations plus 54 National Guard states/territories



Can you log in?

Biologists:
data.pointblue.org/science/biologists

Problems logging in?
Best to find a buddy or
have one of us help.

Limitations and caveats

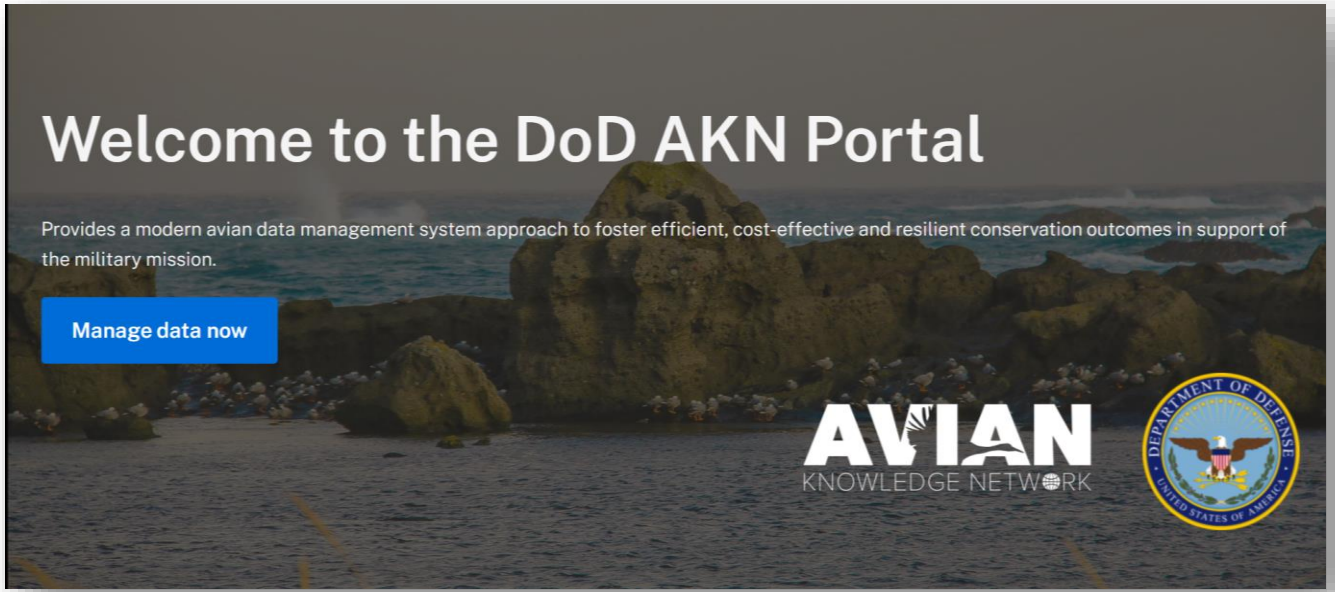
Focus today: Point Count data

Office hours are where we can dig deeply into your installation’s specific issues.

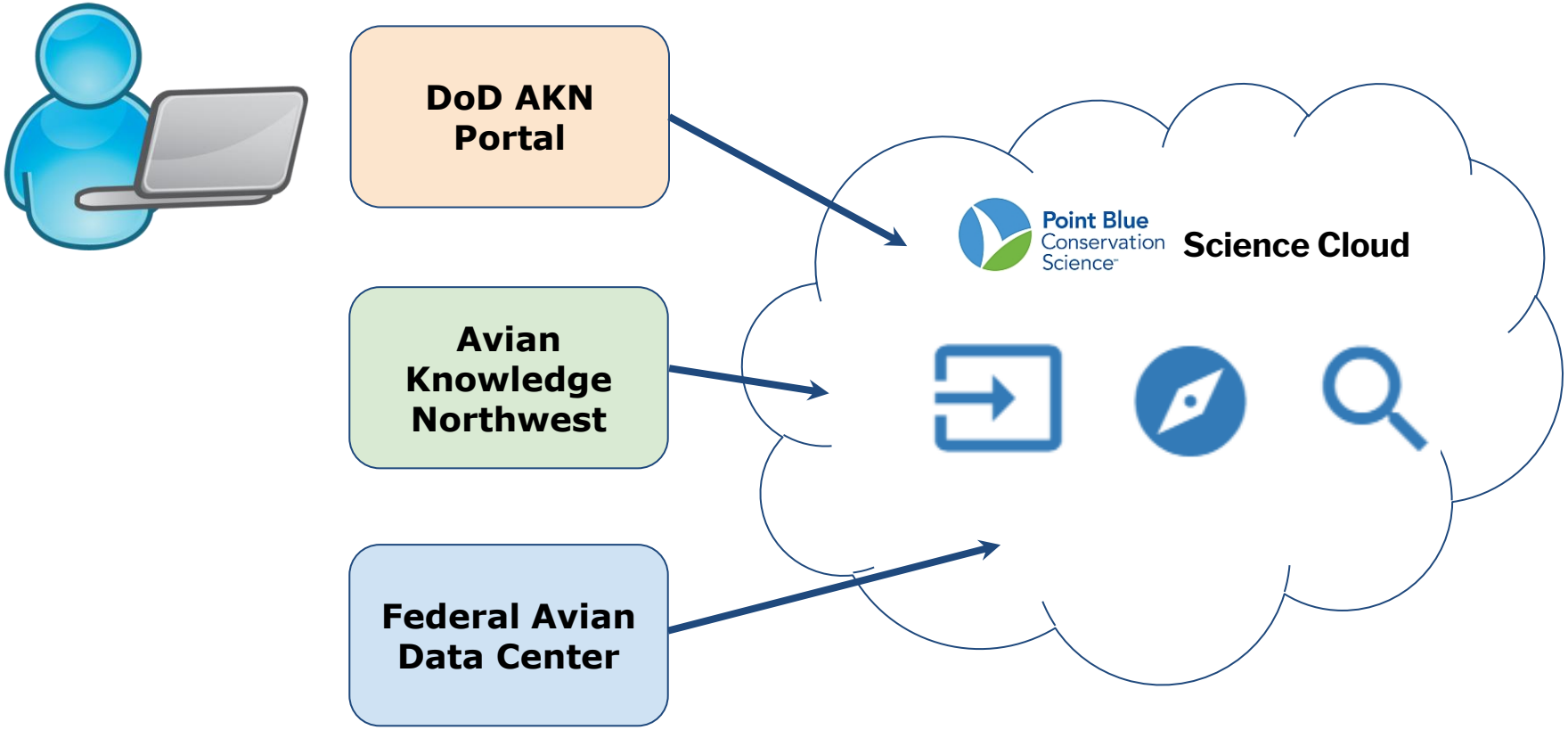
AKN Project Data 101

DoD AKN Portal

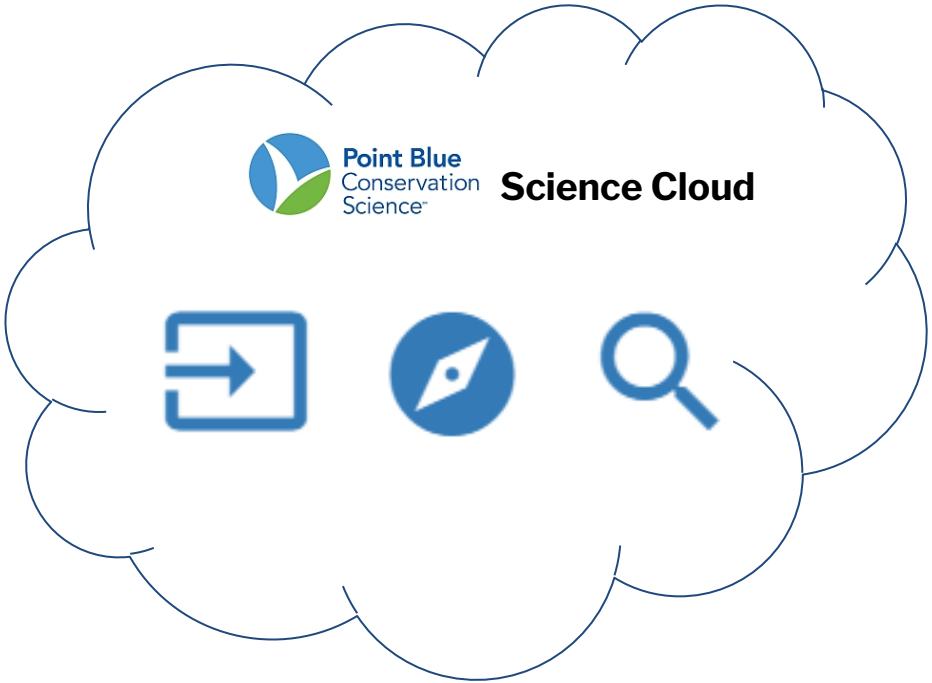
https://www.dodakn.org/



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

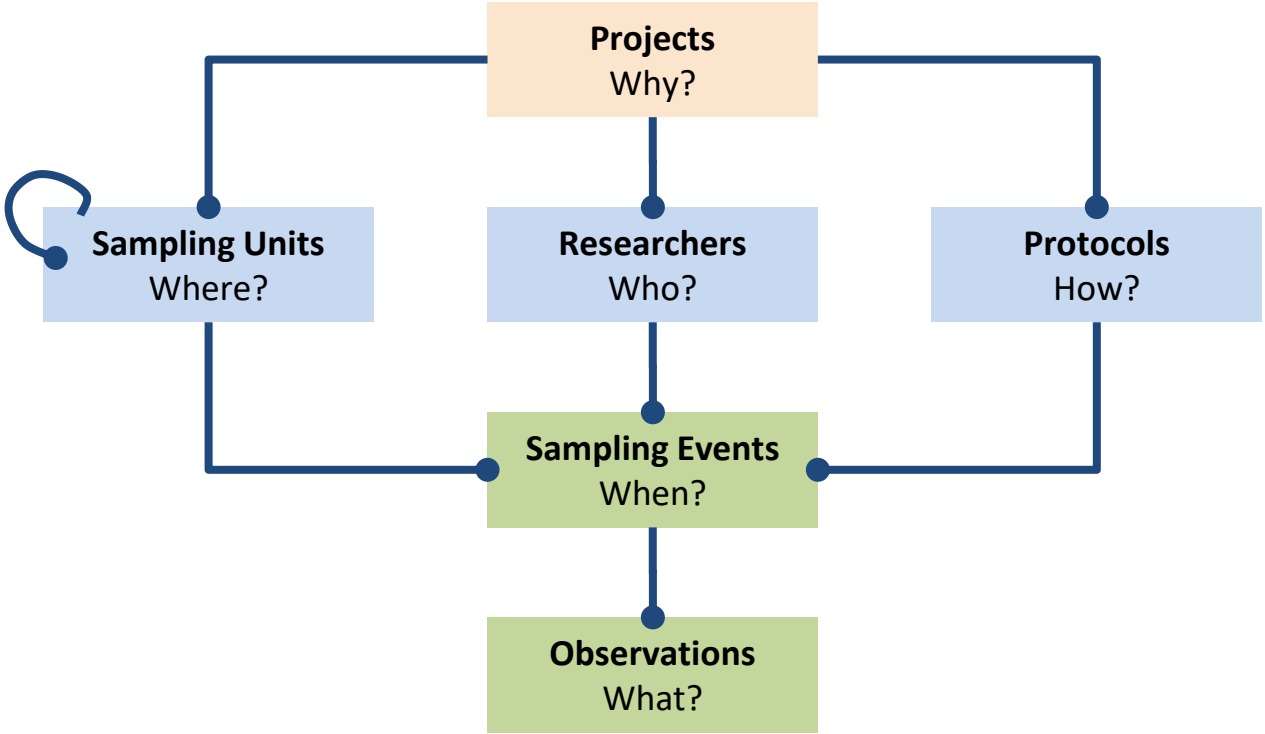
- Biologist leaving position one week after training
- Had 20+ years of data
- Working through data, realized inconsistencies in data entry
- Standardized protocol in system, showing required fields to be utilized in all future surveys
- Successfully uploaded 35,000 records prior to leaving DoD
- Data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

AKN Project Data 101

1. The parts of a Project Database

2. The workflow for creating a Project

The Project Database



Project

Container for Event and Observation data

Many ways to organize

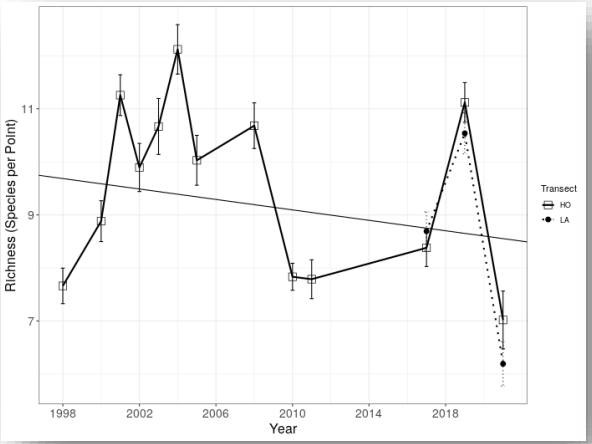
For DoD: Project = Installation

Projects
Why?

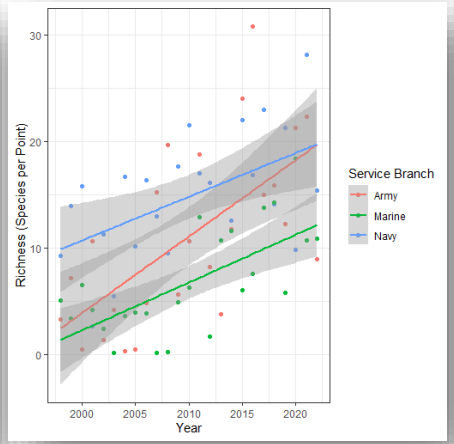
DoD Program Structure

- 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

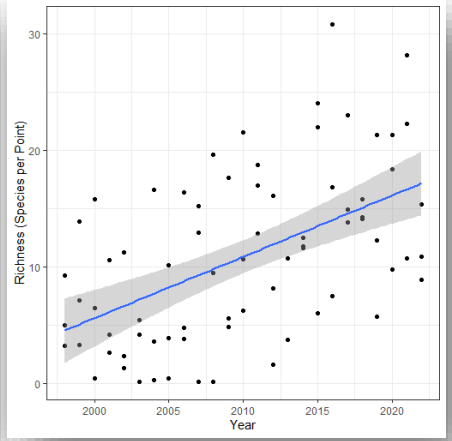
Vandenberg Space Force Base Project Riparian Richness



Service Branch Program Riparian Bird Richness



DoD Program Riparian Bird Richness

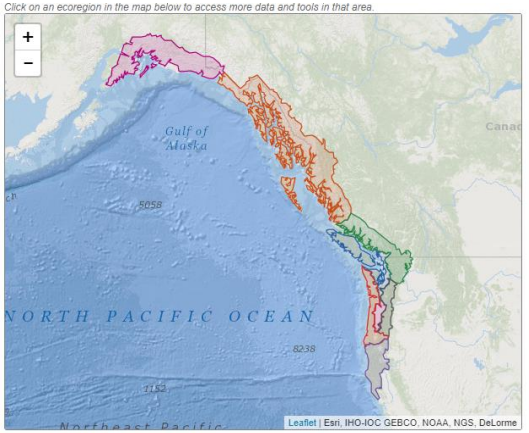


Science to support landscape level conservation

AVIAN KNOWLEDGE NETWORK

- Data integration for landscape-scale conservation analysis.
- Understanding climate change effects on species and ecosystems.
- Identify projected future biodiversity hotspots
- Provide interfaces to, geospatial and baseline data fundamental to understanding climate change effects

NORTH PACIFIC LANDSCAPE CONSERVATION COOPERATIVE



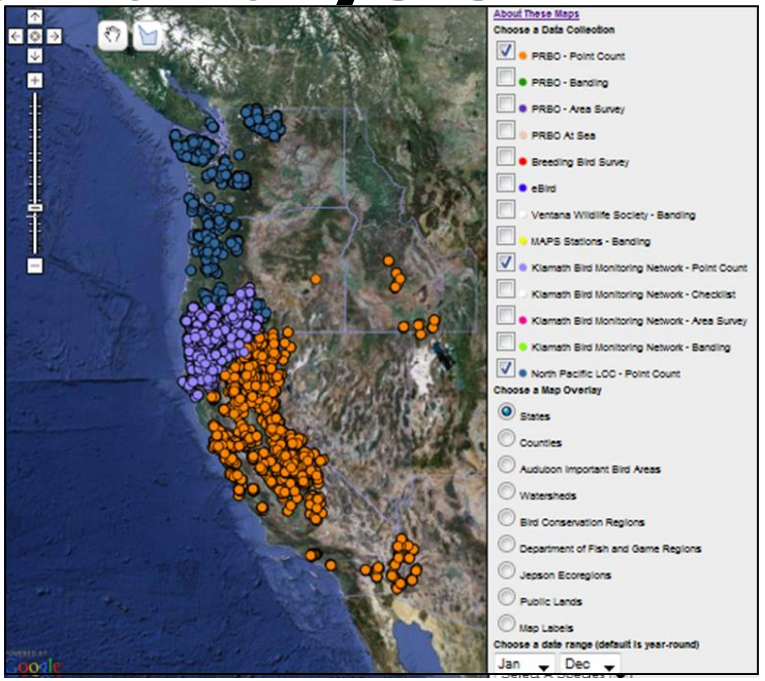
Data integration for landscape level conservation analysis

AVIAN KNOWLEDGE NETWORK

17 Data contributors:

23 datasets

Over 900,000 new records



Point Blue Conservation Science

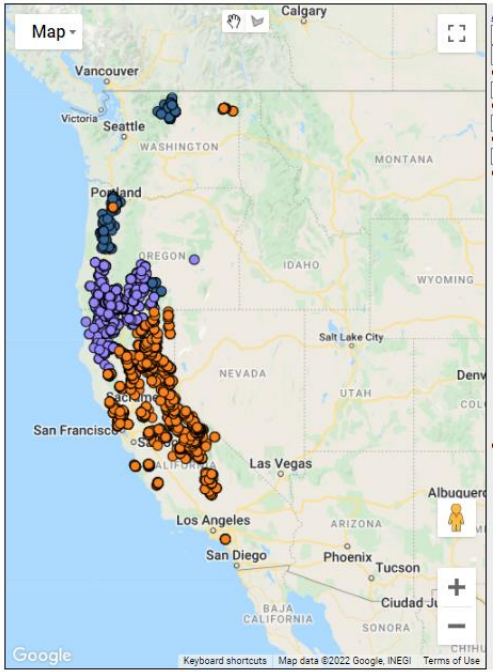
Klamath Bird Observatory

AMERICAN BIRD CONSERVANCY

Understanding climate change effects on species

AVIAN KNOWLEDGE NETWORK

White-breasted Nuthatch



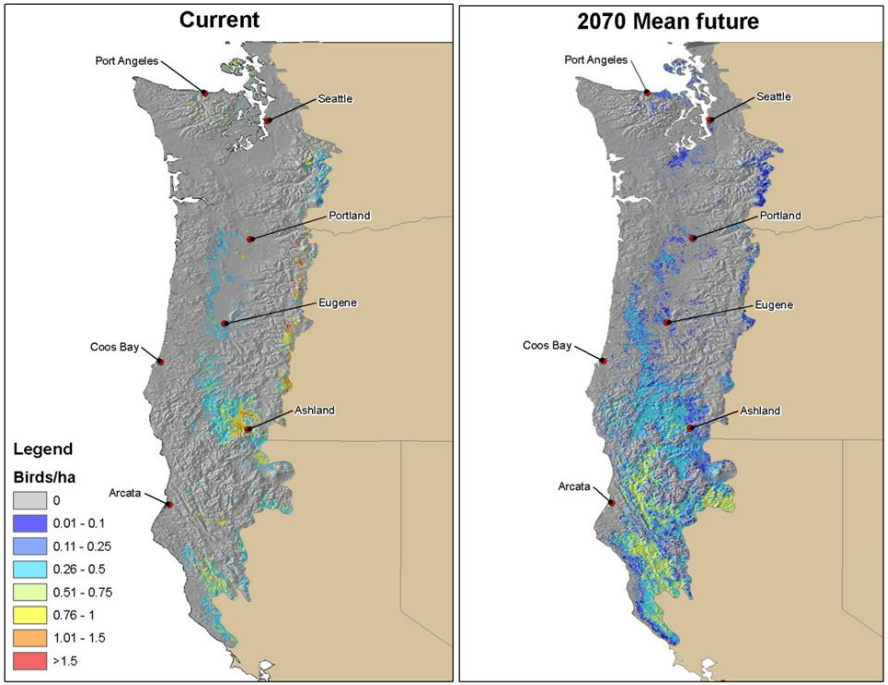


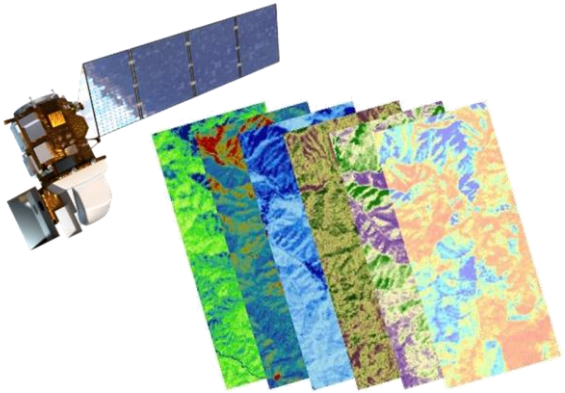
Photo (c)
Peter LaTourrette

USFS Region 8
Multi-partner Case Study

- 30-year dataset at-risk -- 13,664 sampling locations
- 1,121,654 point count observation records saved
- 364,574 site condition records archive
- Innovated -- XML scripts to capture all data field
- Data has been uploaded and a data entry system has been created

Klamath Bird Observatory
Point Blue Conservation Science
AVIAN KNOWLEDGE NETWORK

Species-centered Habitat Modeling



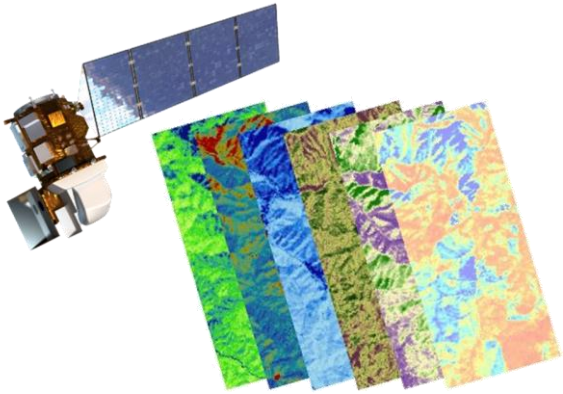
Klamath Bird Observatory

OSU Oregon State

AVIAN KNOWLEDGE NETWORK

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

Species-centered Habitat Modeling



Klamath Bird Observatory

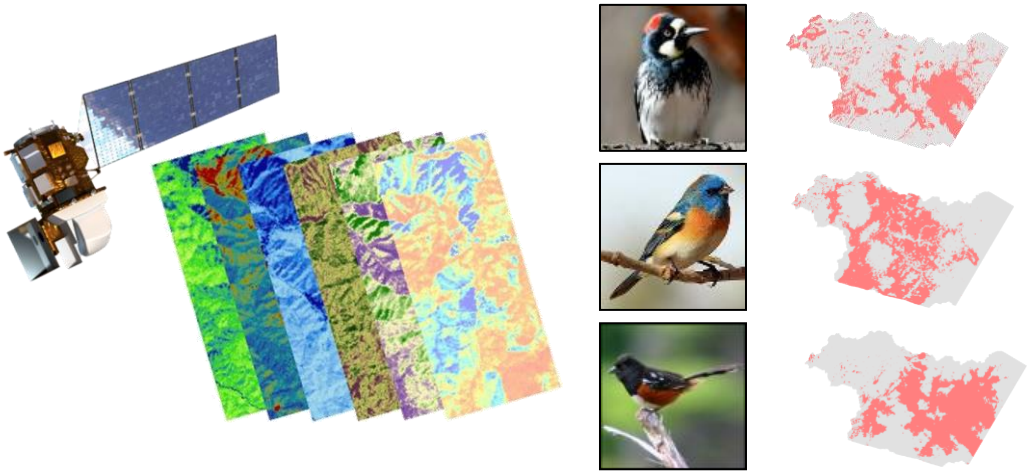
OSU Oregon State

AVIAN KNOWLEDGE NETWORK

PARTNERS IN FLIGHT

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

Species-centered Habitat Modeling



Klamath Bird Observatory

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AVIAN KNOWLEDGE NETWORK

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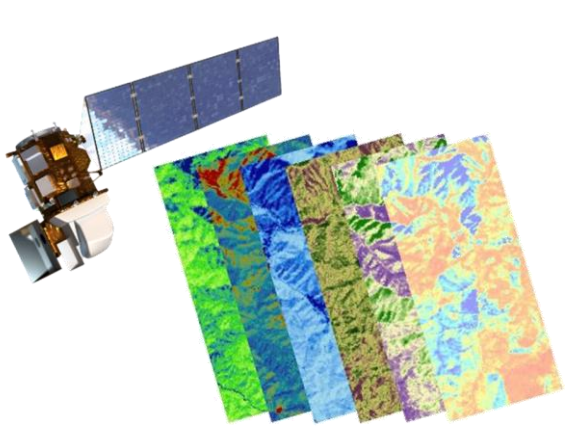
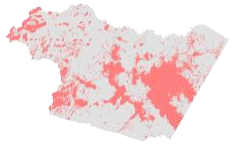
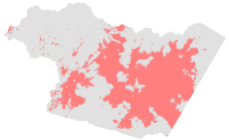
Species-centered Habitat Modeling







Compared to Land Cover Derived Models:

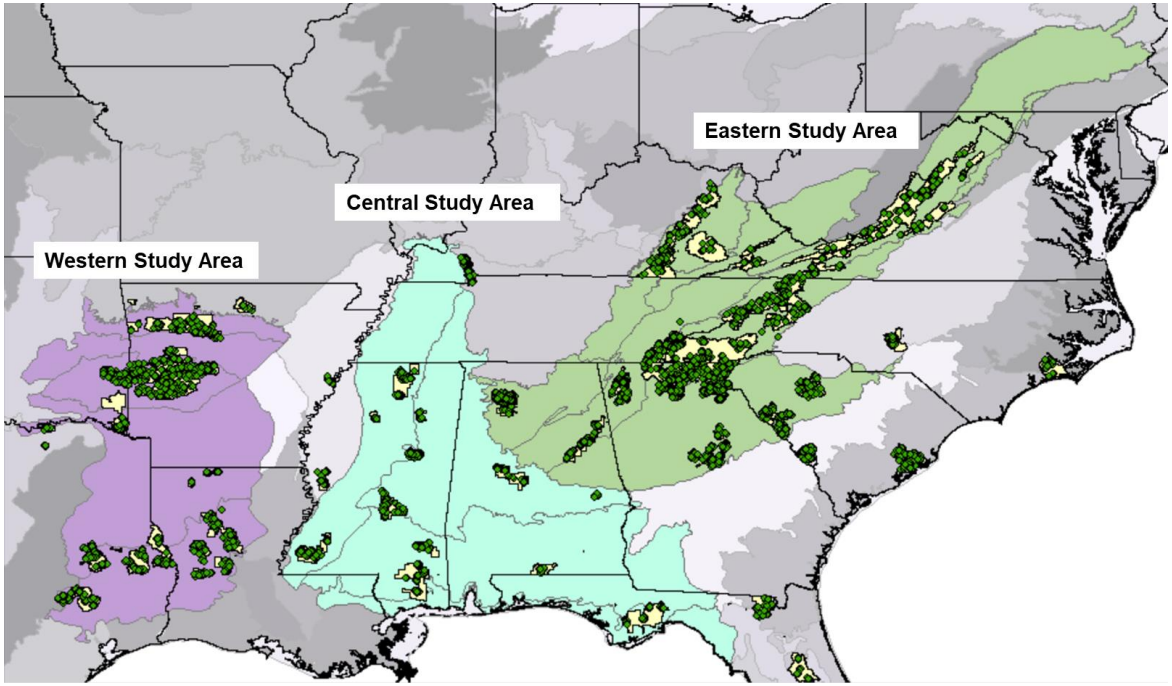
- **High prediction ability**
- **Wider temporal range**
- **Avoid uncertainty:**
  - **misclassification of habitats**
  - **omission of fine-scale features**
  - **subtle changes in vegetation**

Klamath Bird Observatory

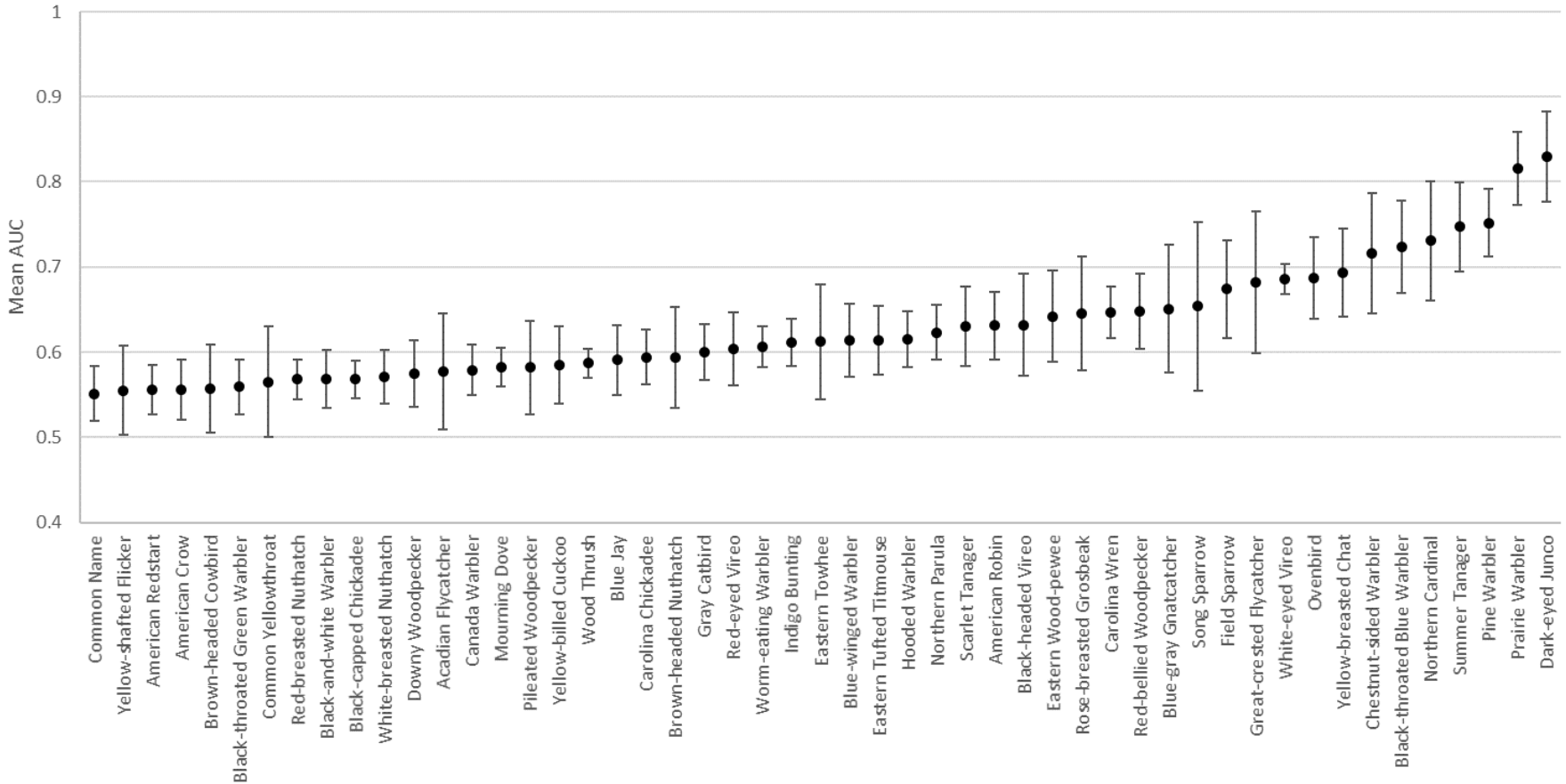
OSU Oregon State

AVIAN KNOWLEDGE NETWORK

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

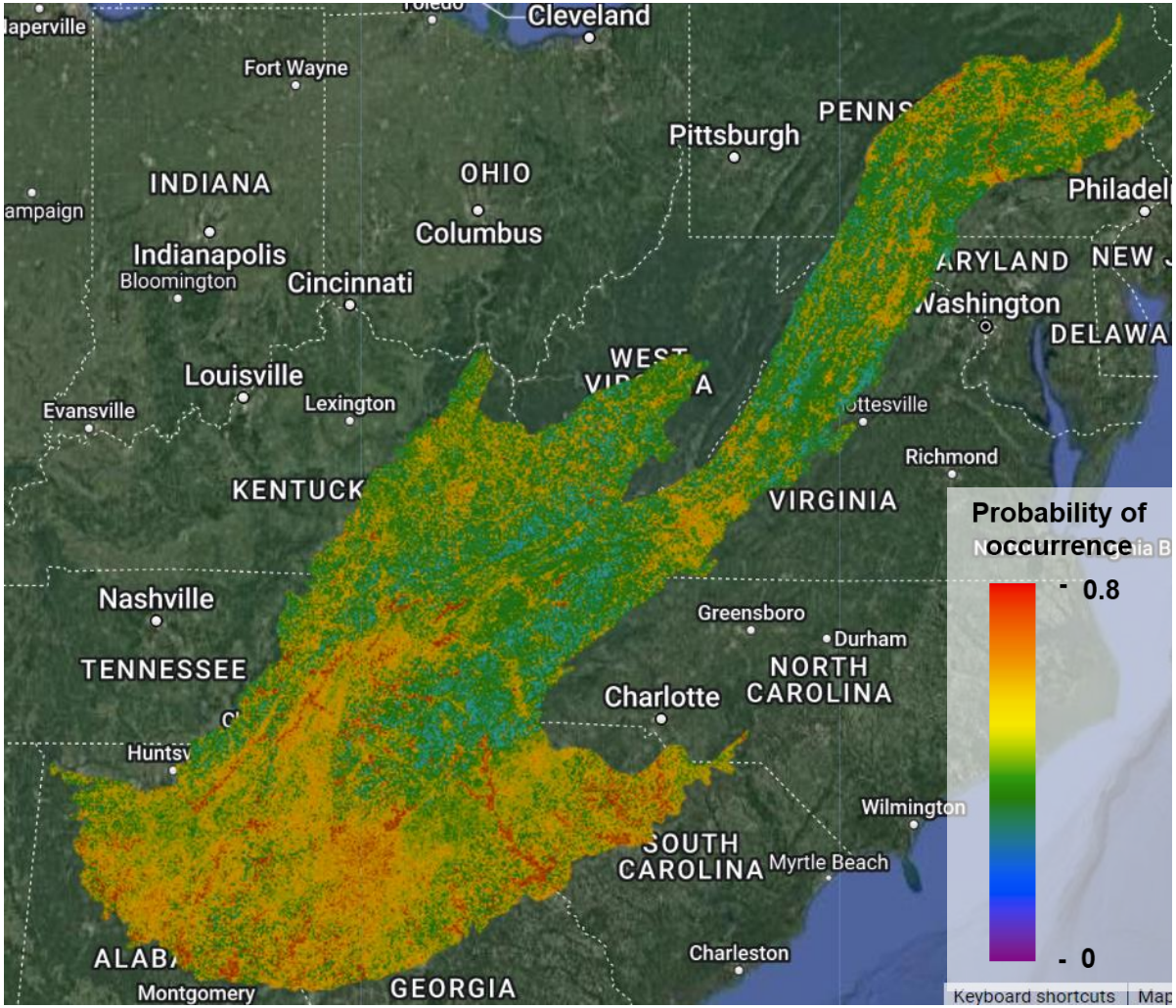


	Western Study Area	Central Study Area	Eastern Study Area
Number of final survey points	963	1068	3181
Number of species modeled	48	52	66
Number of species >= AUC 0.55	35	36	51
Mean AUC for final models	0.628	0.630	0.628
St. dev. AUC for final models	0.054	0.073	0.067



Mean AUC (area under the receiver operator curve) and standard deviation from SDMs Eastern Study Area -- Mean AUC = 0.628.

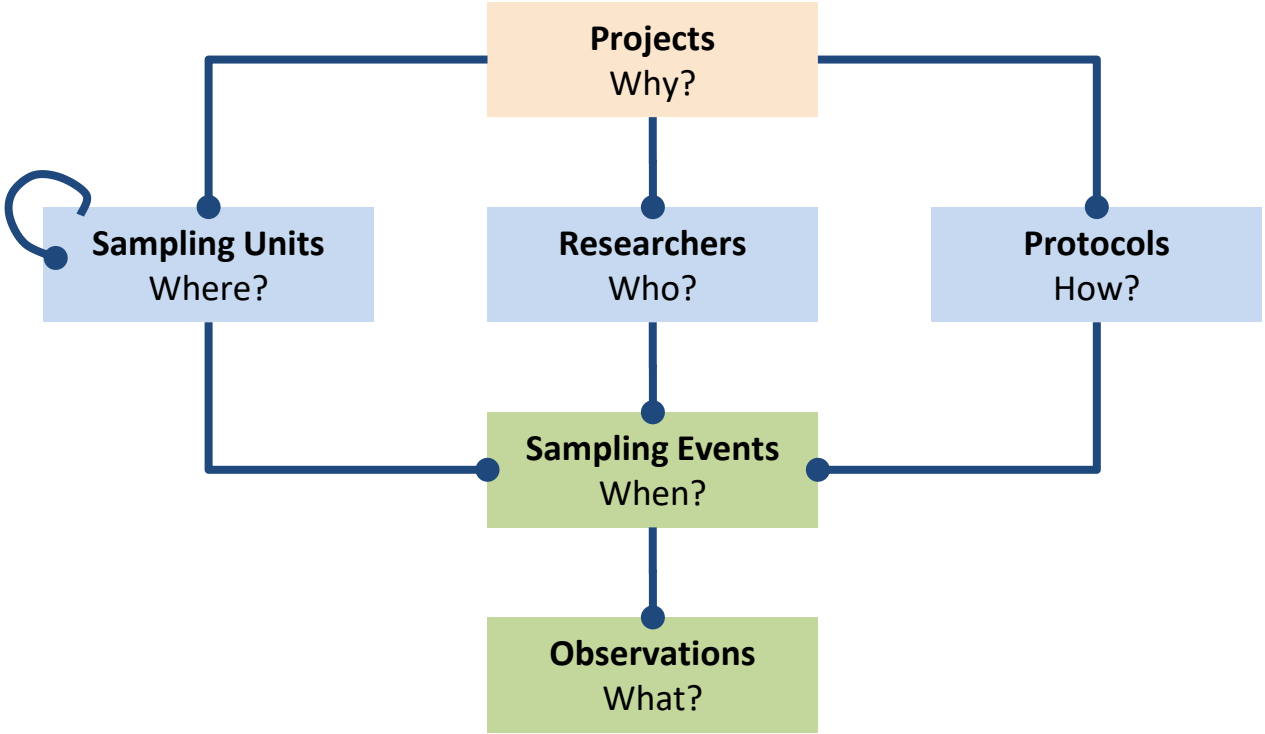
Pine Warbler Habitat Distribution -- 2019



Barry M. Goldwater Range (BMGR), AZ

- Participating in Desert Thrasher Working Group
- Existing protocol in the AKN system
- Critical to add data to DoD-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 DoD data for this species

The Project Database



Protocols

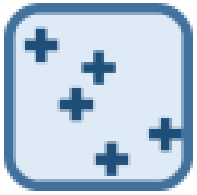
The *metadata* describing the methods and mechanics of how observations were collected

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

Protocols
How?

Primary Protocol Types

Area Search



Point Count

Linear Transect

Secretive Marshbird

Site Conditions

Protocols
How?

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**

Point Count Protocol Examples

Compare how 3 field methodologies represented

Knutson (USFWS) protocol

Point Blue protocol

KBO protocol

Protocols
How?

How to achieve conflicting conservation objectives?

Challenge with assessing Rail response to management

Multi-partner Effort

Coastal Conservancy

Avocet Research Associates

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

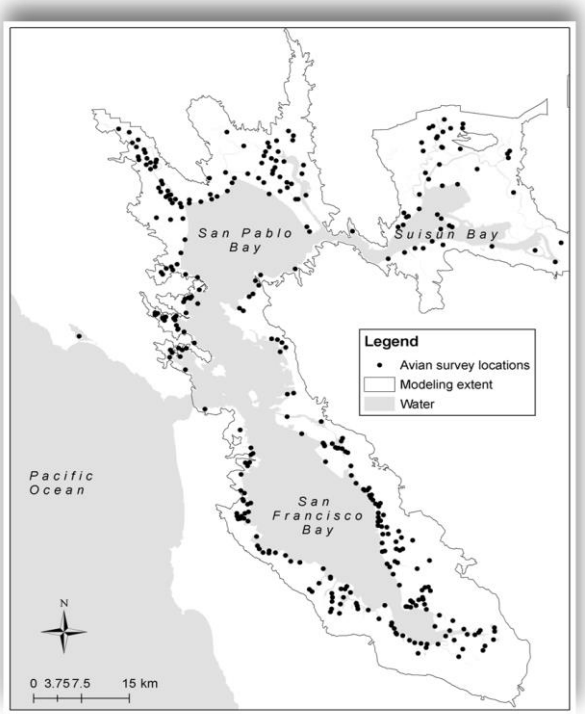
CALIFORNIA DEPARTMENT OF FISH&GAME

SAN FRANCISCO ESTUARY INVASIVE SPARTINA PROJECT

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



Point Blue

Sampling Units

The locations where observations are collected

Organized into a tree (hierarchy)

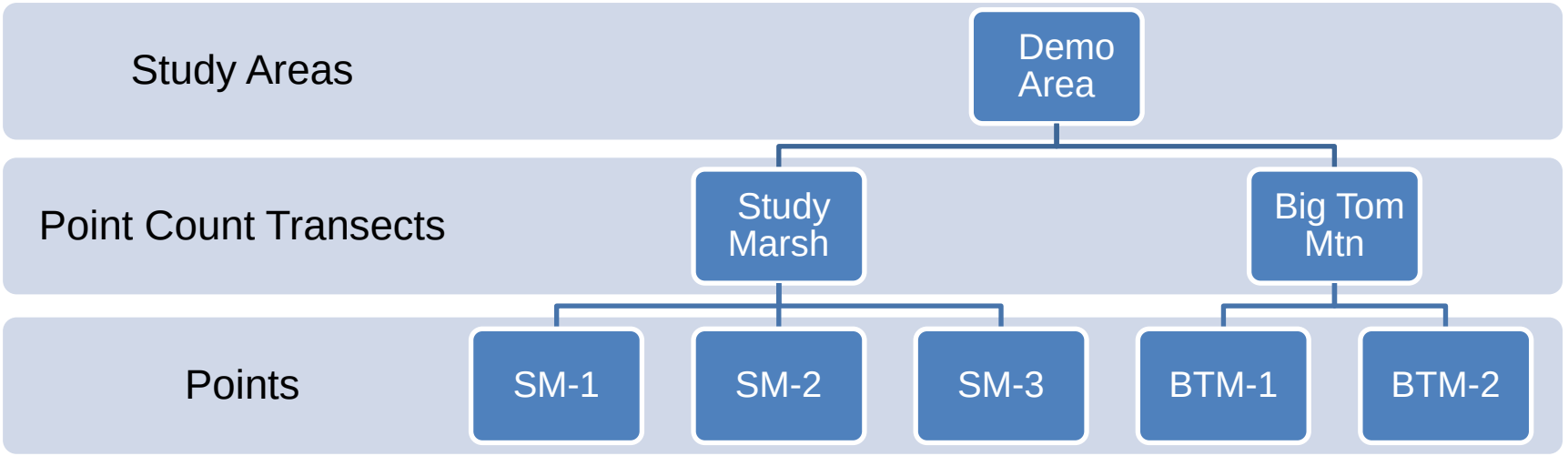
Uniquely named with Project

Can have Point/Line/Polygon

Sampling Units
Where?

Sampling Unit Types for Point Counts

Project: DOD_DEMO

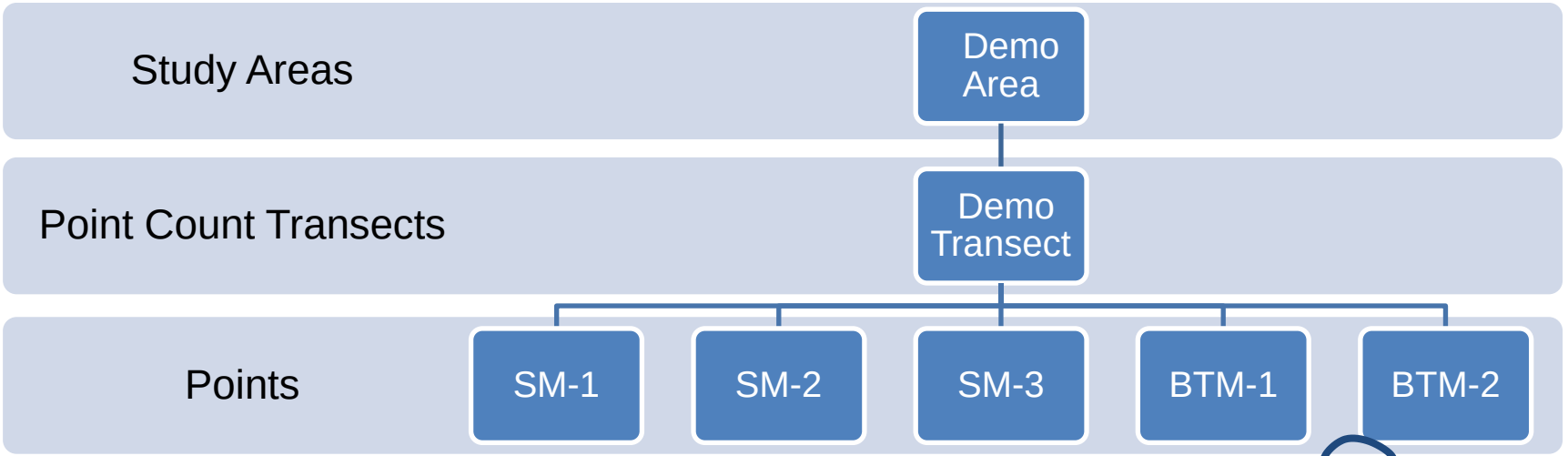


Replicates or independent points?
What questions are you asking?

Sampling Units
Where?

Sampling Unit Types for Point Counts

Project: DOD_DEMO



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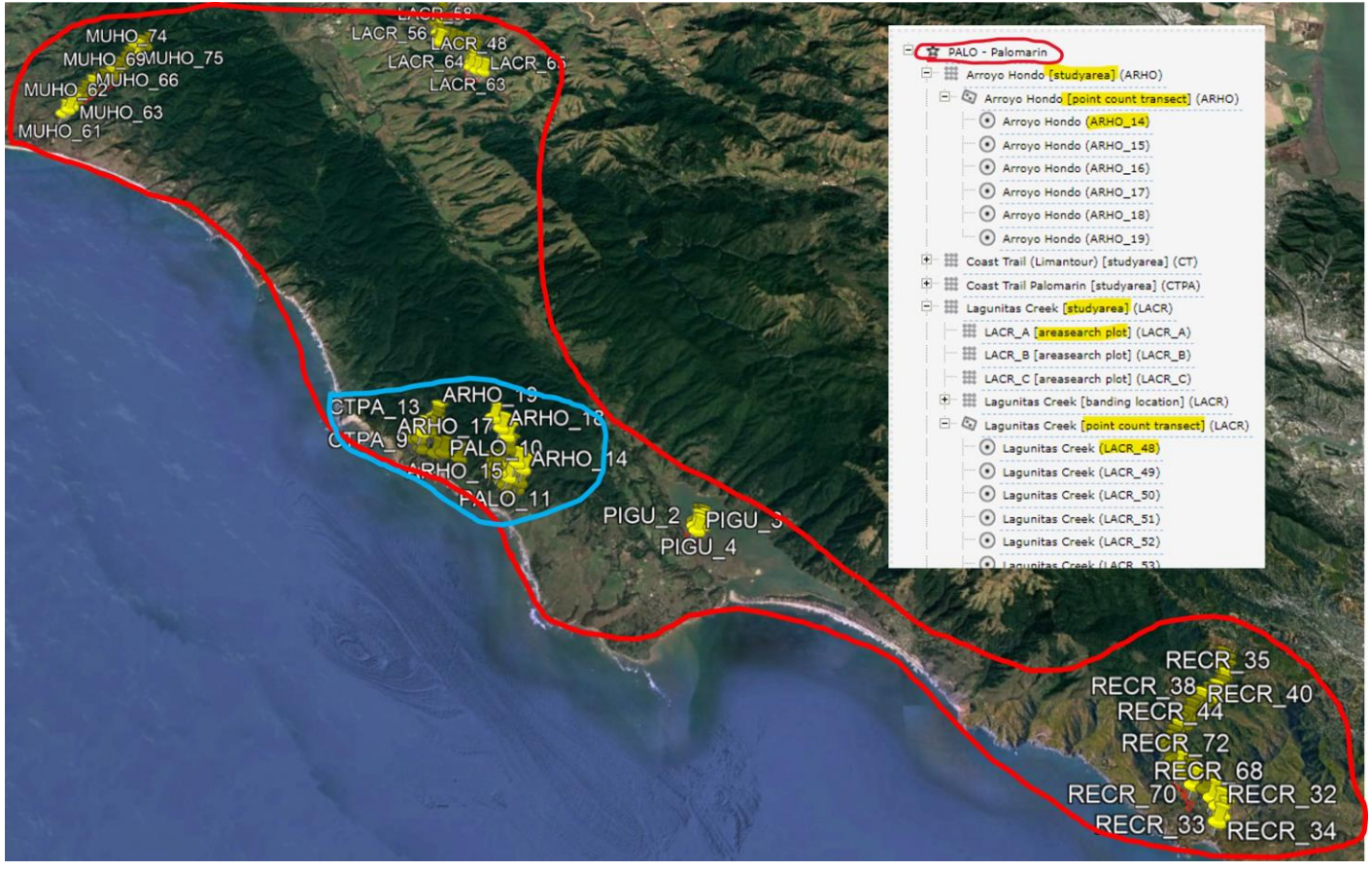
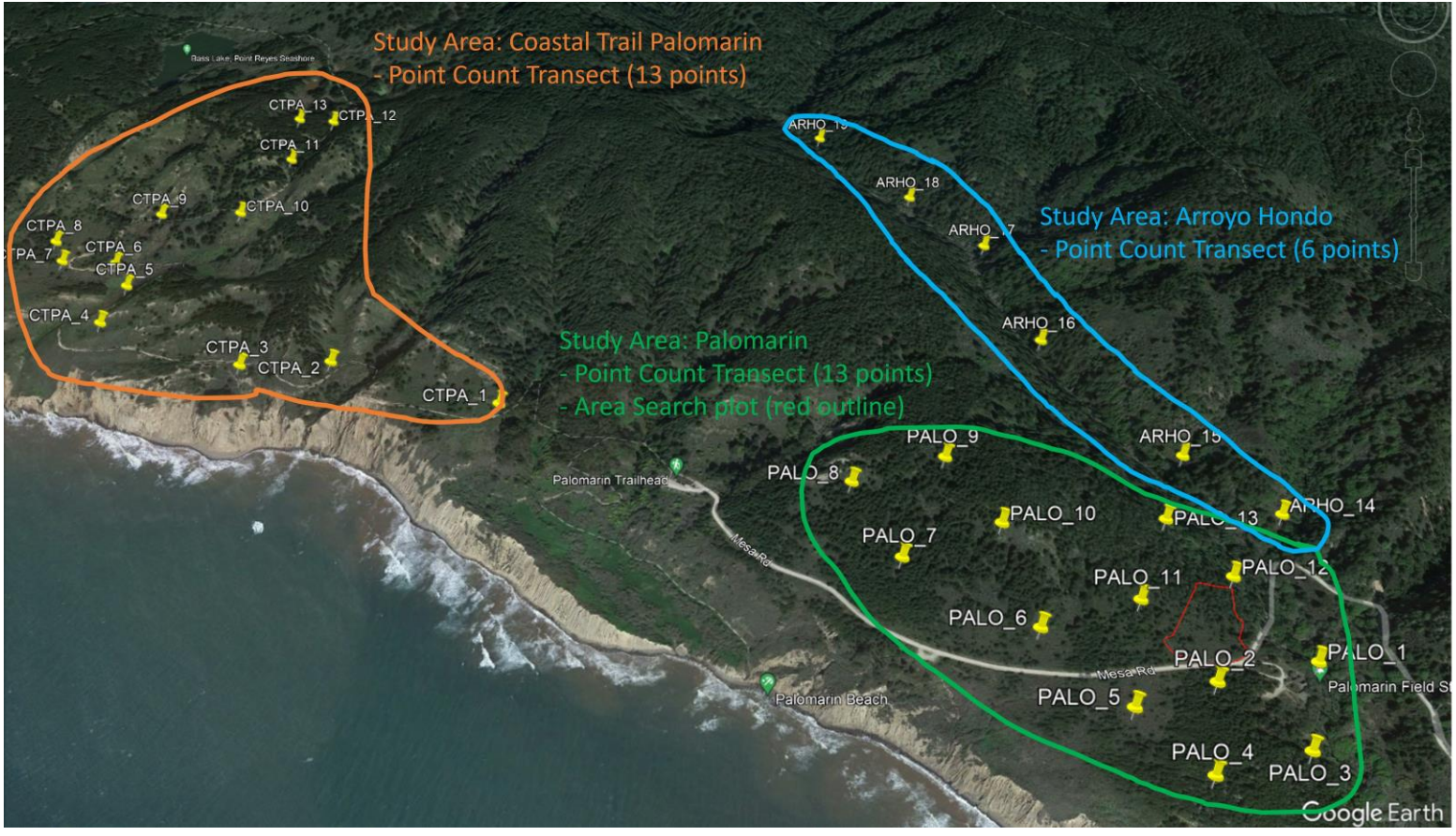


Sampling Unit Types for Point Counts



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)

Researchers
Who?

Researcher Types

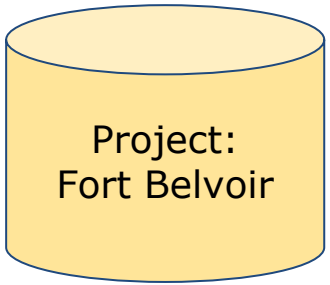
Project Leader: the data owner, has full control over data, metadata, and who gets Project access

Biologist: can enter and review data in the Project

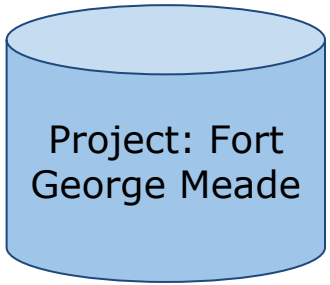
Researchers
Who?

Researchers & Project Access

Access Project assigned by Project Leader



Jane: Project Leader
Mike: Biologist
Pat: Biologist

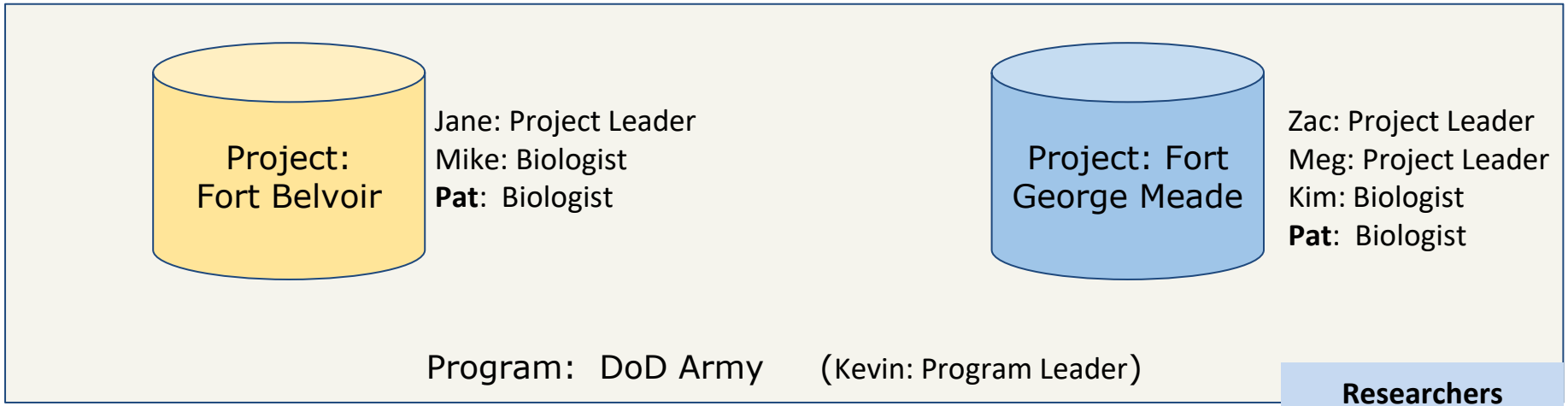


Zac: Project Leader
Meg: Project Leader
Kim: Biologist
Pat: Biologist

Researchers
Who?

Researchers & Project Access

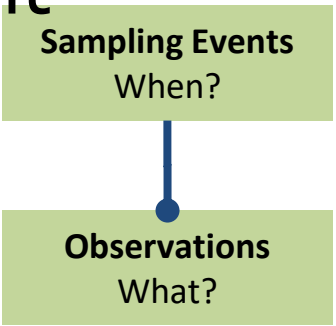
DoD will also have a Program Leader (managed by Point Blue staff w/ guidance from DoD leadership)



Sampling Events and Observations

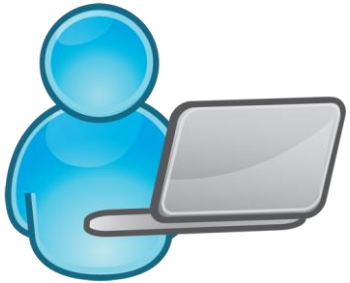
Event: survey at a Sampling Unit using a Protocol by Researcher at a specific date and time

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

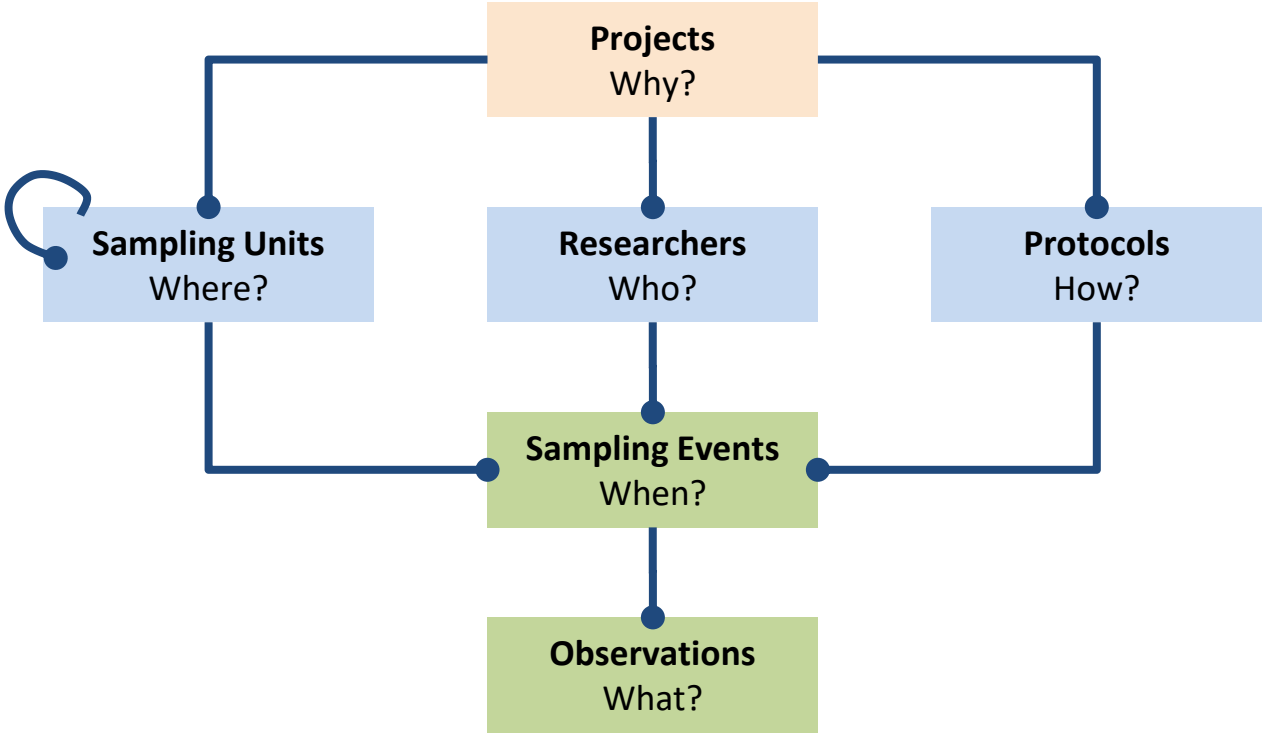
Event is **AVAILABLE**

Data final review

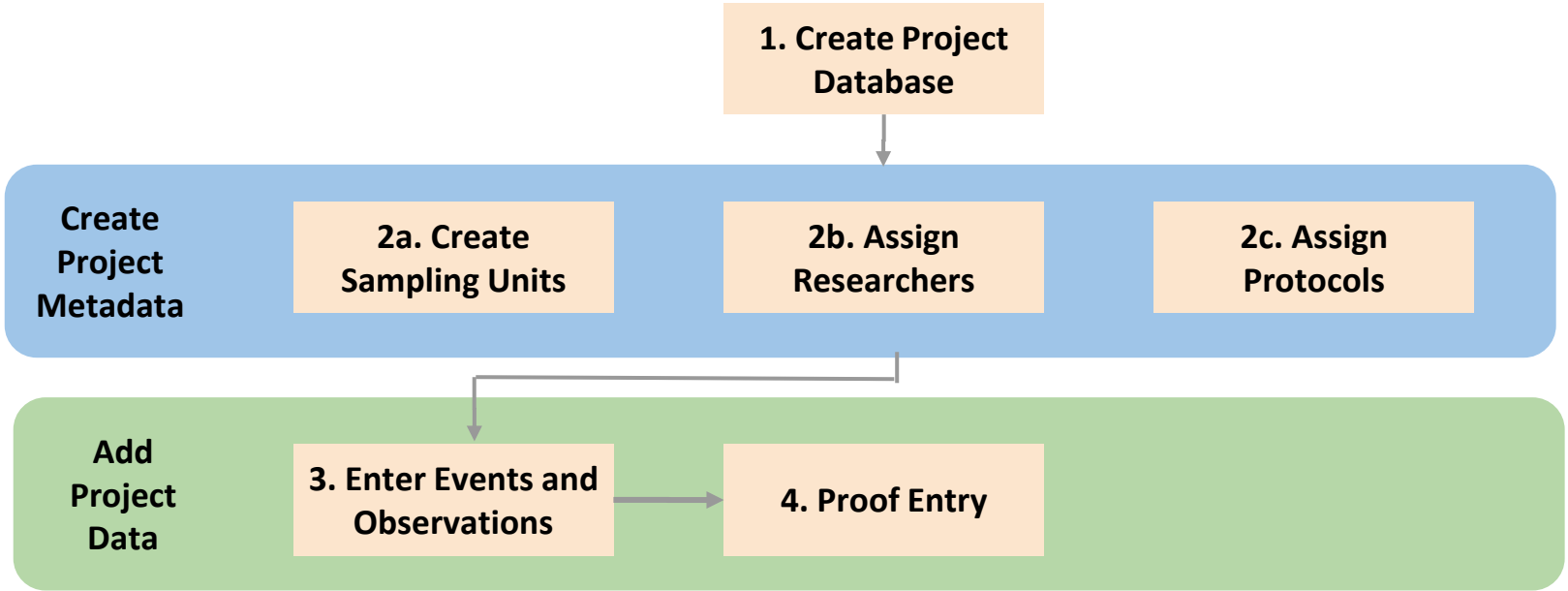
Event is **RESTRICTED**

Data final review and not to be shared

Questions on Project Database?

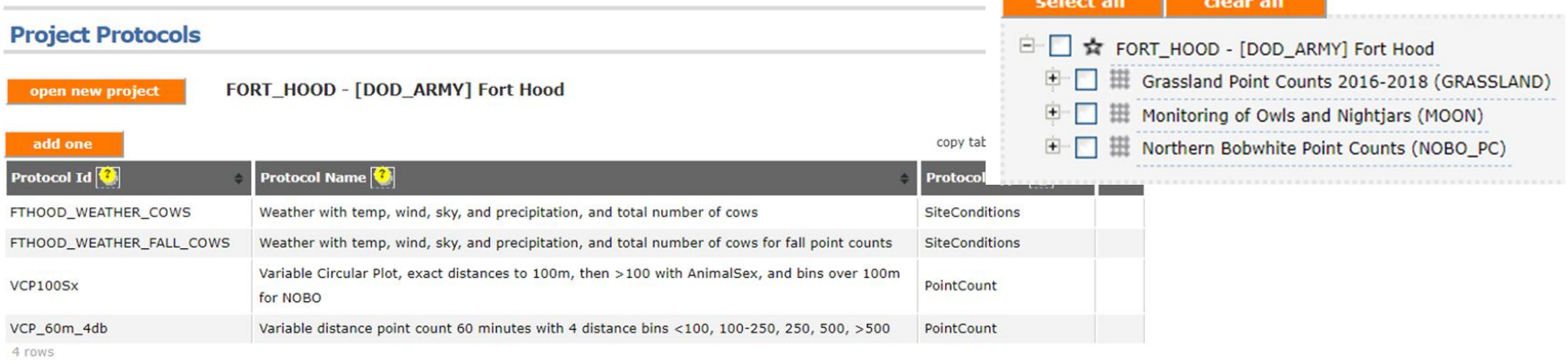


Workflow for Creating a Project



Fort Hood, TX

- Modified existing protocol to meet data entry needs for three survey types
- Structured sampling units across installation
- Bulk uploaded over 3,000 rows of data; now direct entering survey data



Project Protocols

open new project | FORT_HOOD - [DOD_ARMY] Fort Hood

add one | copy tab

Protocol Id	Protocol Name	Protocol
FTHOOD_WEATHER_COWS	Weather with temp, wind, sky, and precipitation, and total number of cows	SiteConditions
FTHOOD_WEATHER_FALL_COWS	Weather with temp, wind, sky, and precipitation, and total number of cows for fall point counts	SiteConditions
VCP100Sx	Variable Circular Plot, exact distances to 100m, then >100 with AnimalSex, and bins over 100m for NOBO	PointCount
VCP_60m_4db	Variable distance point count 60 minutes with 4 distance bins <100, 100-250, 250, 500, >500	PointCount

4 rows

1. Select sampling units from the tree below.

select all | clear all

- FORT_HOOD - [DOD_ARMY] Fort Hood
  - Grassland Point Counts 2016-2018 (GRASSLAND)
  - Monitoring of Owls and Nightjars (MOON)
  - Northern Bobwhite Point Counts (NOBO_PC)

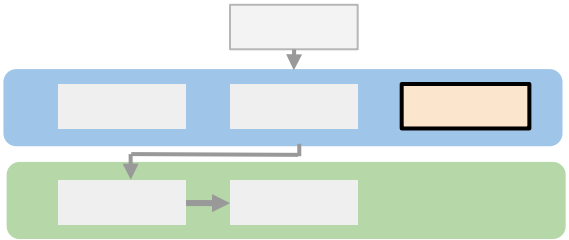
Creating Project Metadata

Choosing Protocols (demonstration)

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

Tools:

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

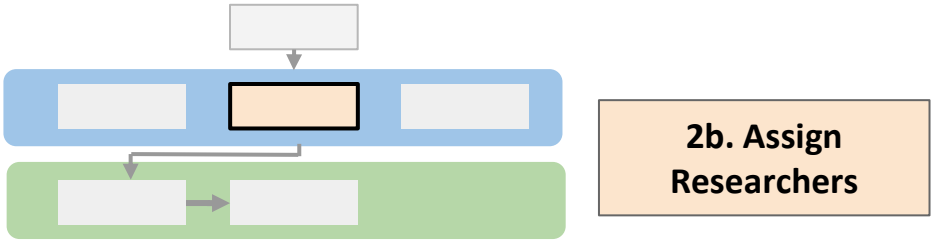


2c. Assign Protocols

Adding Researchers (demonstration)

Tools:

- Biologists for adding researchers to Project



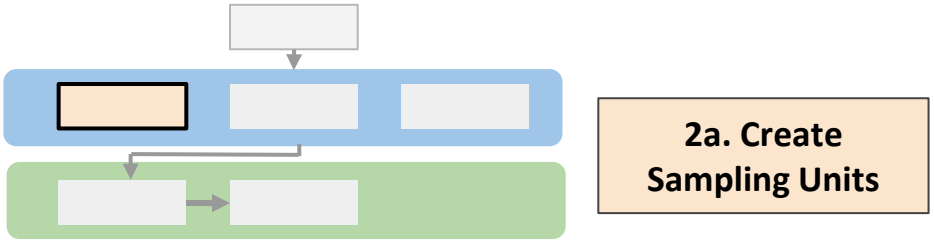
Create Sampling Units (Exercise 1 and demonstration)

Exercise:

- Exercise 1 instructions

Downloading the sampling units:

- Biologists for download locations to GPS, GIS and more



Long Name vs Short Names: 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

EXAMPLES (either of these would be correct):

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

Point Count Transect Long Name: ETA
Point Count Transect Short Name: ETA
Point Count Point Long Name: ETA-1
Point Count Point Short Name: ETA-1

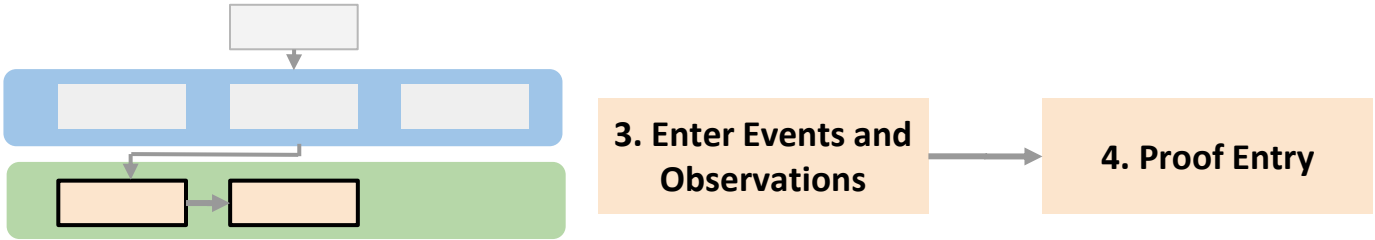
Break (15 mins)

Entering observation data to a Project

Enter & proof point count event (Exercise 2)

Exercise:

- Exercise 2 instructions
- okay not to follow data sheet exactly



Download Point Count Data from Project (demonstration)

Tools:

- Biologists for download observations from our Project

AVIAN KNOWLEDGE NETWORK

Bulk loading metadata & observation data into a Project

Point Blue Conservation Science

Klamath Bird Observatory

ERDC ENGINEER RESEARCH & DEVELOPMENT CENTER

DEPARTMENT OF DEFENSE LEGACY PROGRAM

DEPARTMENT OF DEFENSE NATURAL RESOURCES

DEPARTMENT OF DEFENSE UNITED STATES OF AMERICA

Bulk Loading Data

Loading spreadsheet data into the Project Database for loading Researchers, Sampling Units, and Observations

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

Batch Processing

AVIAN KNOWLEDGE NETWORK

Bulk Uploader V2 - Beta

Follow the steps below to load data in bulk into your project.

First, select the Project you want to bulk load into

FORT_HOOD - [DOD_ARMY] Fort Hood

Next, select the Tool you want to use

Each tool independently does a task that helps you bulk load data into your project. Many of the tools process data
results can be found in the Batches tool.

Add Researchers | Add Sampling Units | Add Observations | Add Protocol | Batches

Results:

Batches for project FORT_HOOD

The table is showing all batches for this project. Click on a row to get the batch result details when St

Save as CSV | Refresh list

ID	Utility	Status	Status Detail			
455	AddSamplingUnits	success	batch completed successfully			
454	AddSamplingUnits	error	batch completed with errors			
453	AddObservations	success	batch completed successfully			
452	AddObservations	error	batch completed with errors			
451	AddObservations	error	batch completed with errors	2021-08-09 19:23:19	0:09	
450	AddObservations	error	batch completed with errors	2021-08-09 19:18:37	0:04	
449	AddObservations	error	batch completed with errors	2021-08-09 19:03:35	0:03	
448	AddObservations	error	batch completed with errors	2021-08-09 19:00:23	0:00	

Results:

Errors:

Error line 744: Value not allowed for weather.winddirectioncardinal: East Northeast
Error line 1055: The count field is required.

Add Observations Summary: CSV Rows Reviewed: 1054

Batch ID 451
AddObservations
plimptonc@gmail.com

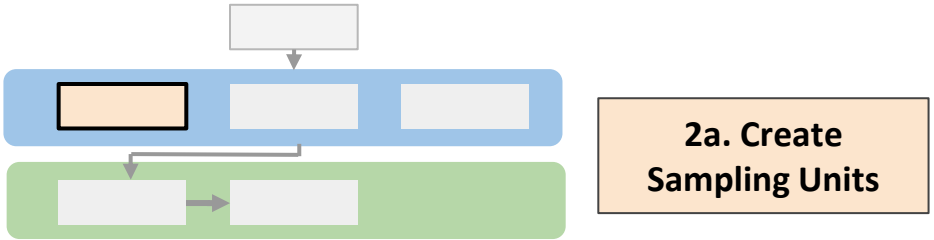
Results:

Add Observations Summary: CSV Rows Reviewed: 1054, New PointCount Events created: 217, New PointCount Observations created: 1045, New PointCount SiteConditionEvents created: 217, New PointCount SiteConditionProperties created: 1207

Bulk load sampling units (Exercise 3)

Exercise:

- Exercise 3 instructions
- Purpose to become familiar with the Bulk Uploader tool and use it to create multiple sampling units at once.
- okay not to follow instructions exactly



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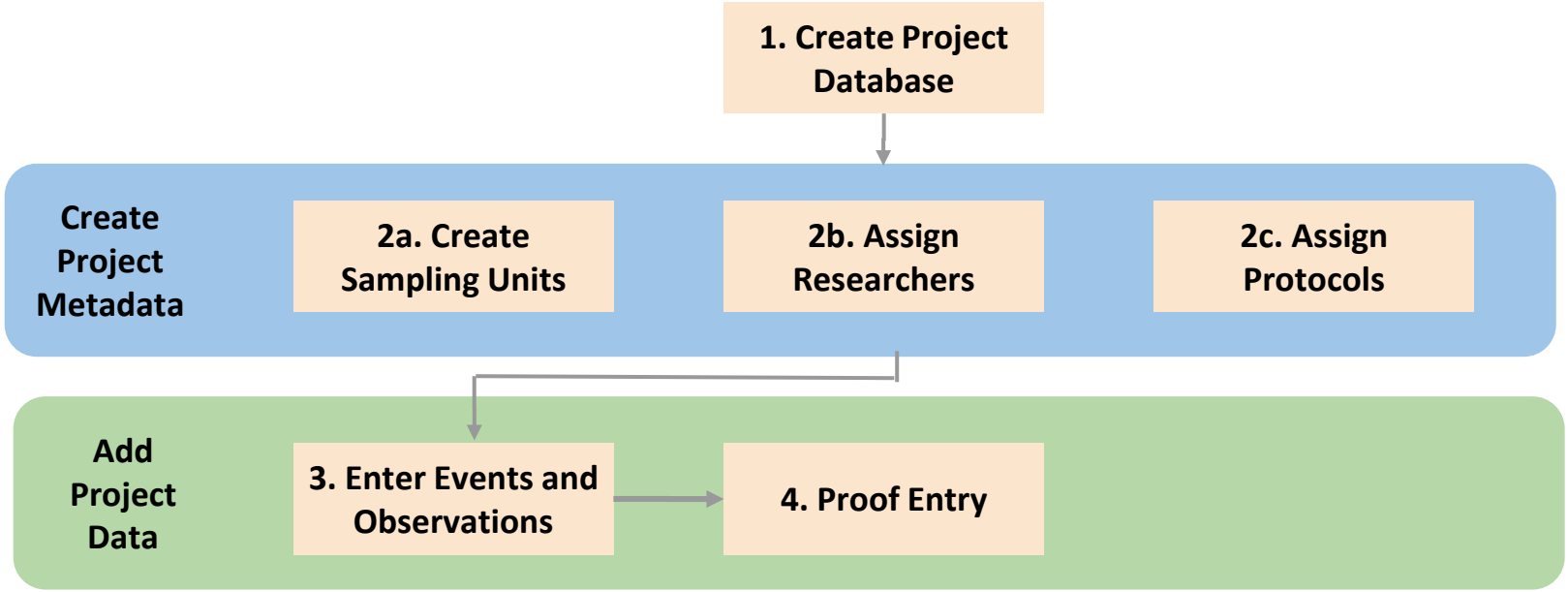
Office Hours

Discuss bulk loading and other issues regarding **your** observation data

Sign-up sheet up front for in-person office hours tomorrow and Thursday.

For future virtual office hours, sign up here: https://outlook.office365.com/owa/calendar/DoDAKNOfficeHours@pointblue.onmicrosoft.com/bookings/

Any questions on Creating a Project?



Camp Lejeune Bird Projects

Lunch

Camp Lejeune
Bird ID Presentation

Introduce Field Exercise and Logistics for Tomorrow

Pluses and Deltas

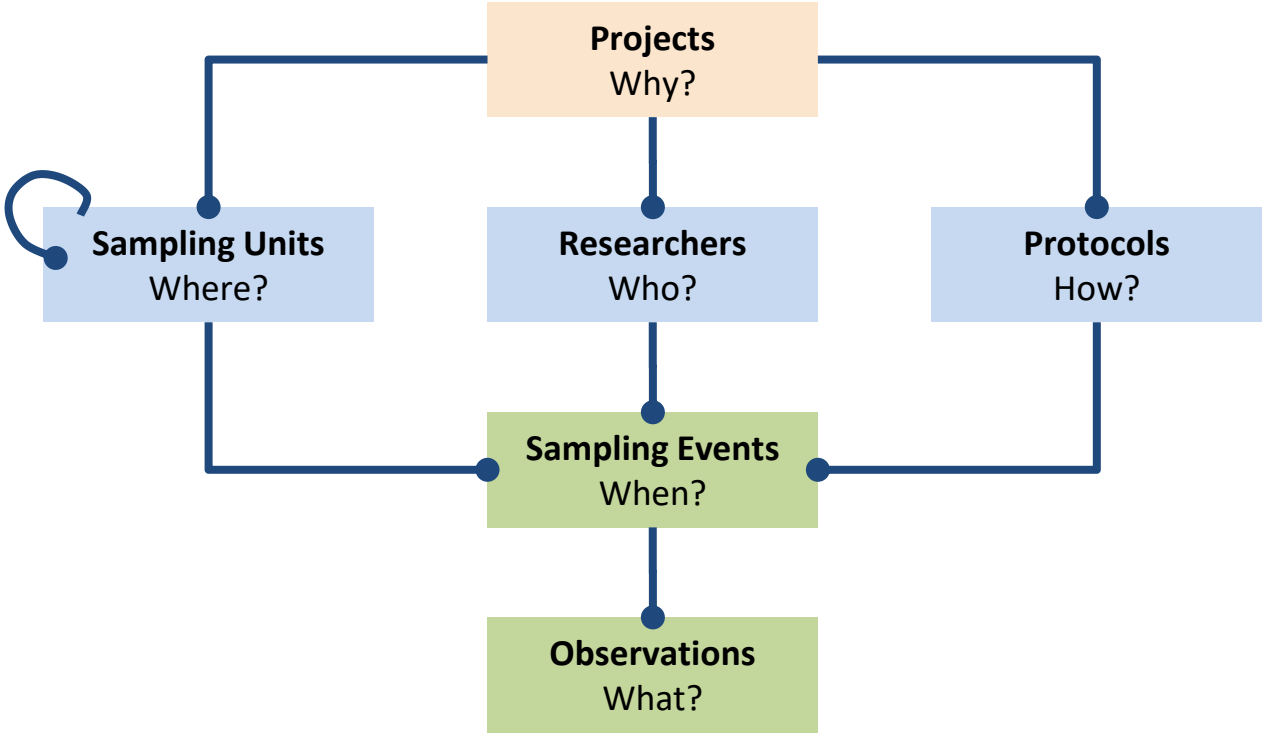
Wrap-up

Reminder: Bring lunch tomorrow!

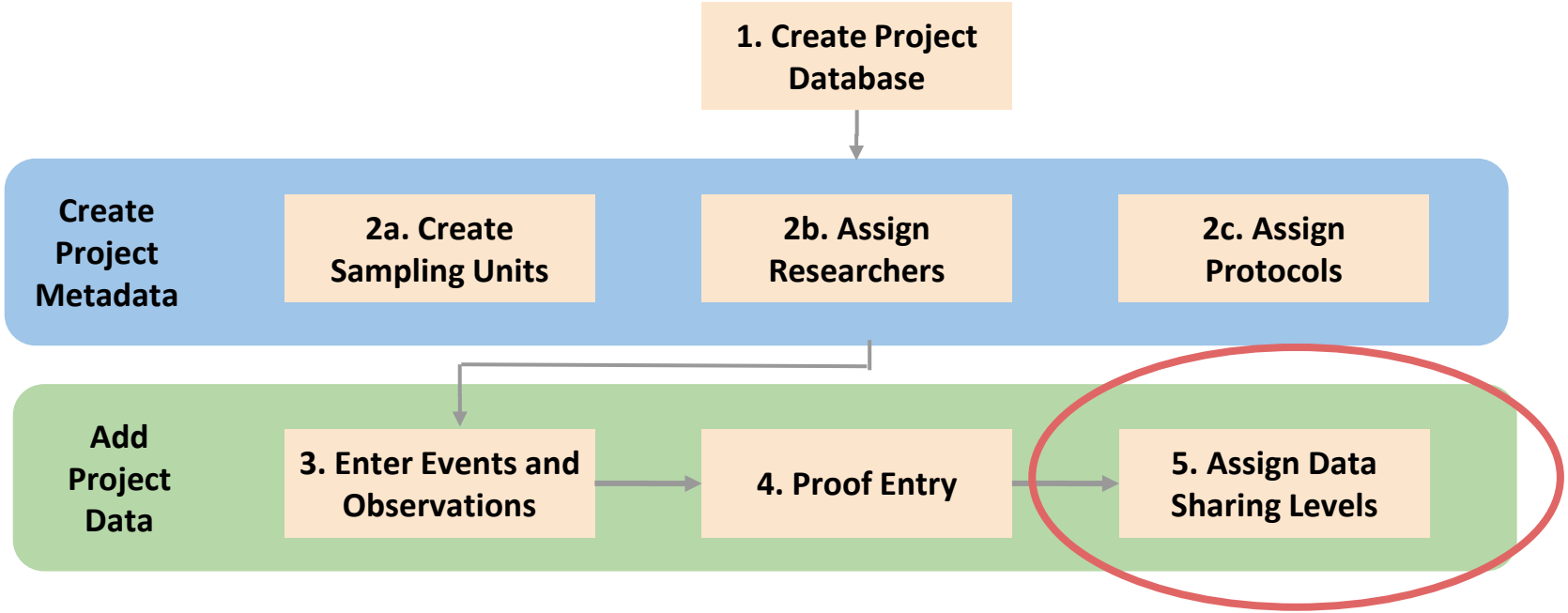
End of Day 1

AKN Warehouse Data 101

The Project Database



Workflow for Creating a Project



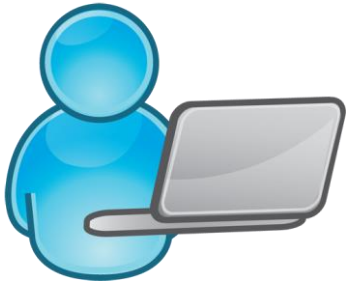
Data Sharing Levels

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

Controlled by the Project Leader within each project

Review Levels for each Event

Steps to enter and review data in preparation for sharing



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Data 1st review by Biologist

Event is **AVAILABLE**

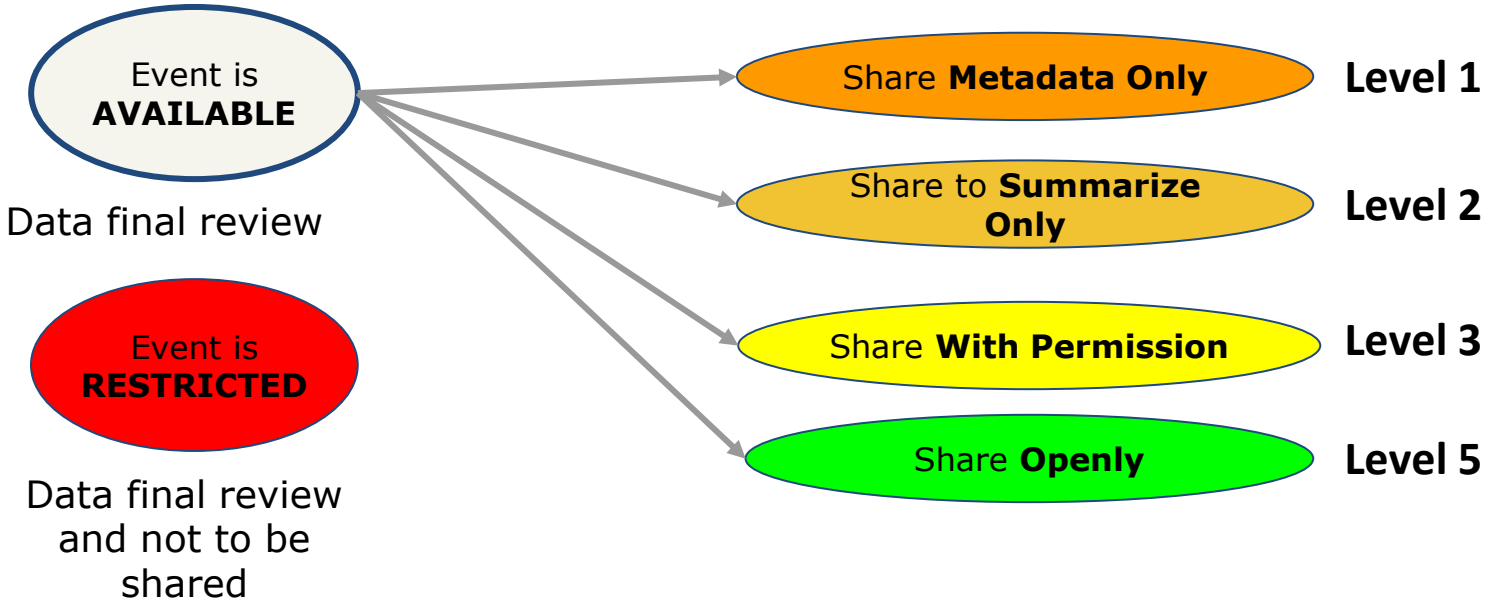
Data final review

Event is **RESTRICTED**

Data final review and not to be shared

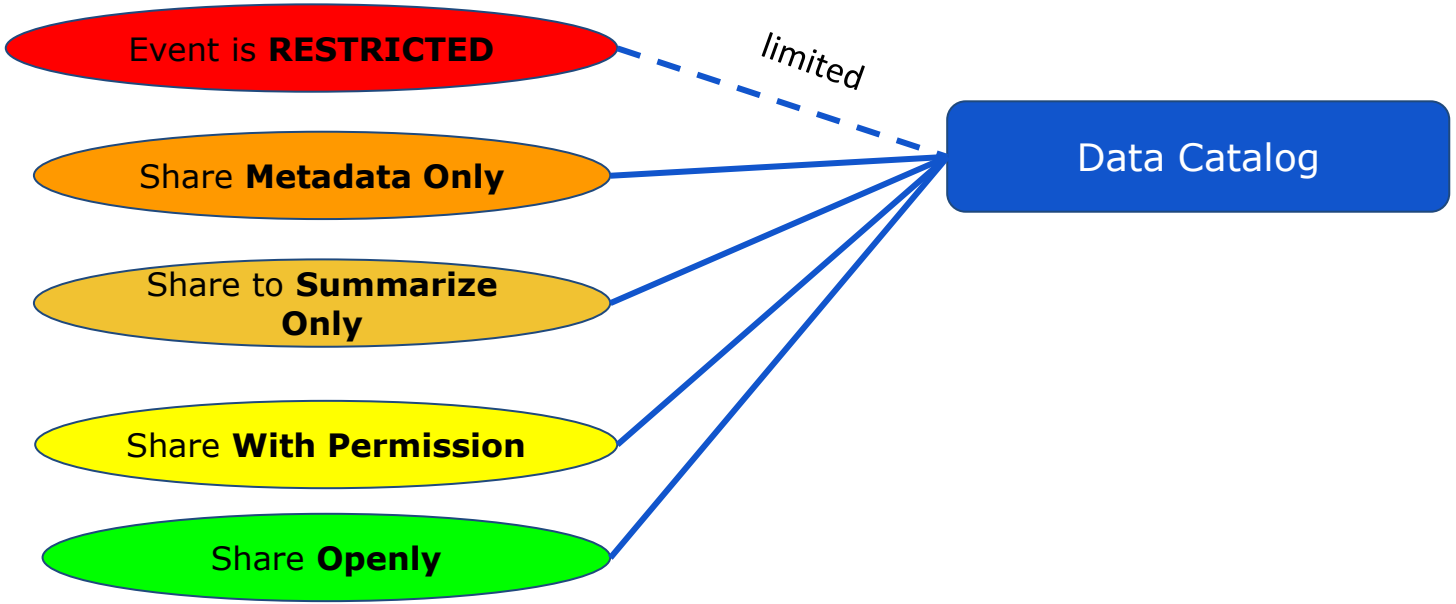
Data Sharing Levels for each Event

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



Data Sharing and Tool Access

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



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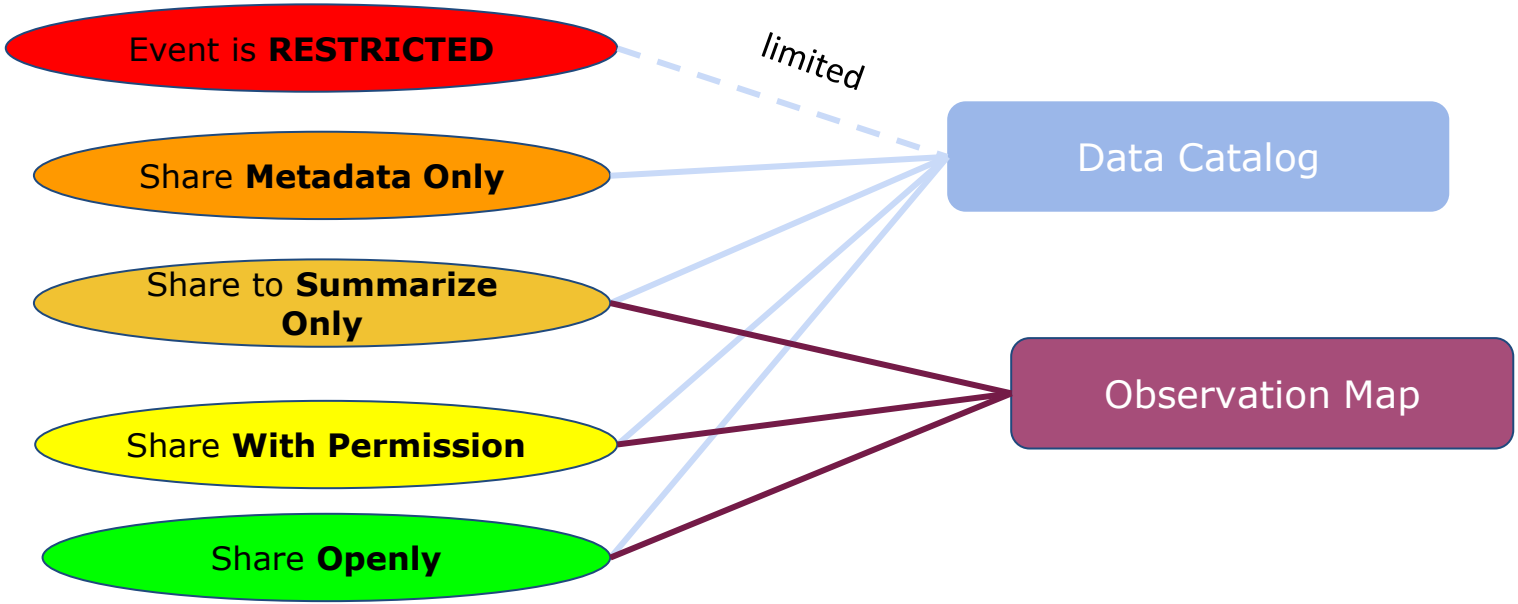
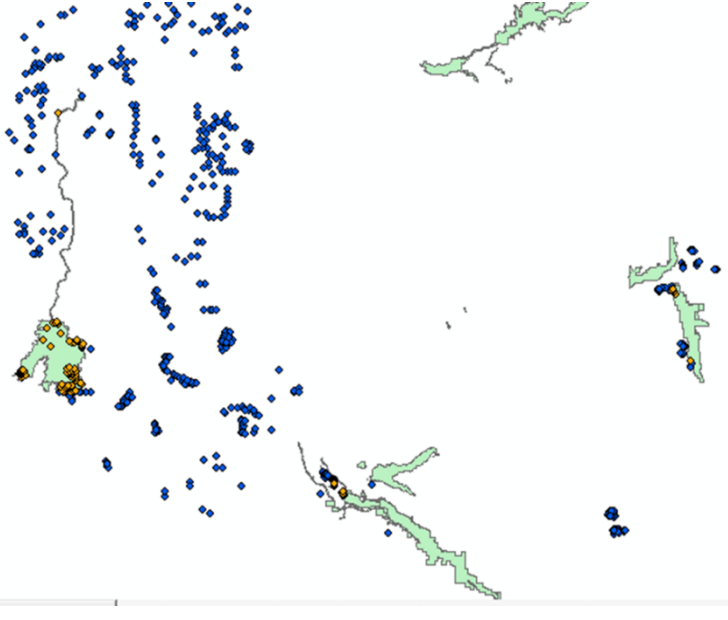


Data Sharing Level Motivation

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

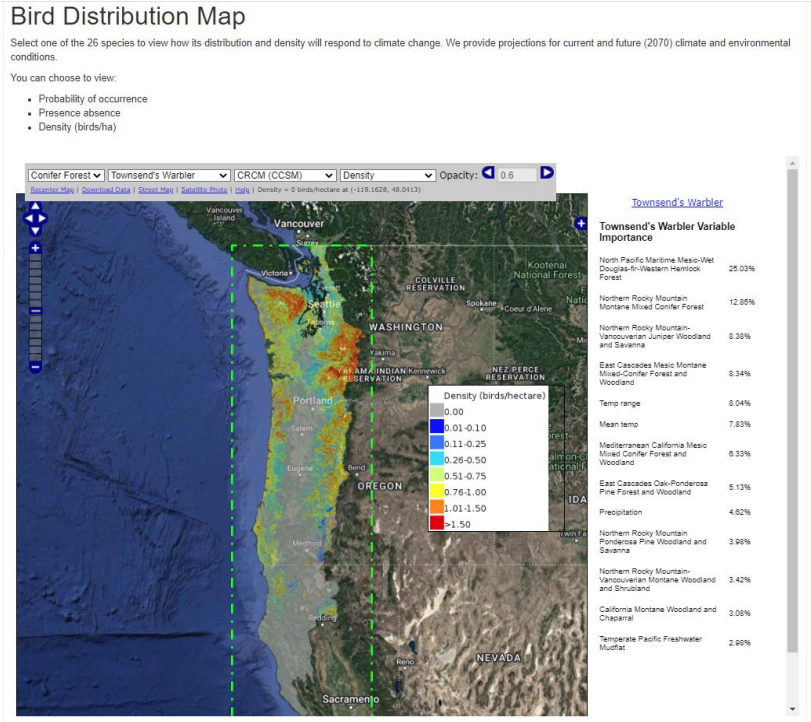
USACE-Willamette Valley Project, OR

- New biologist took DoD AKN training at NMFWA
- Worked with DoD 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

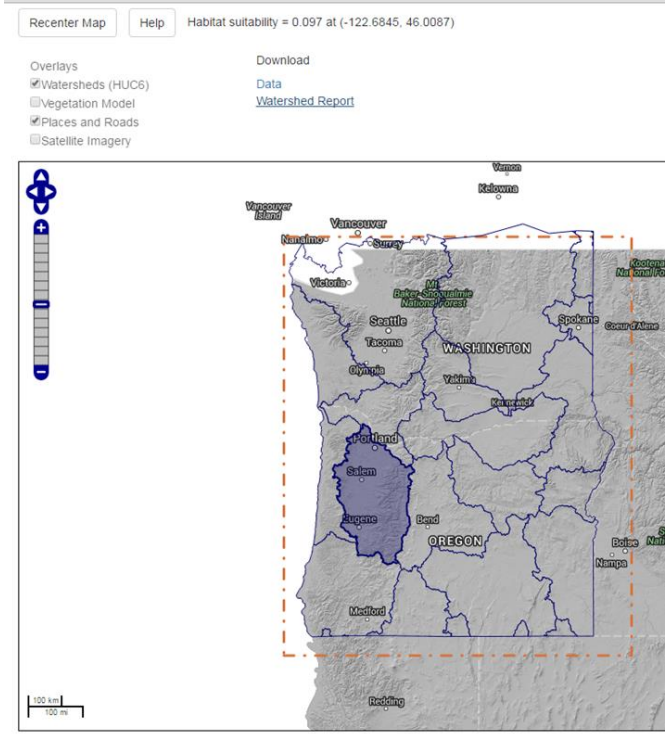


Interactive web tools

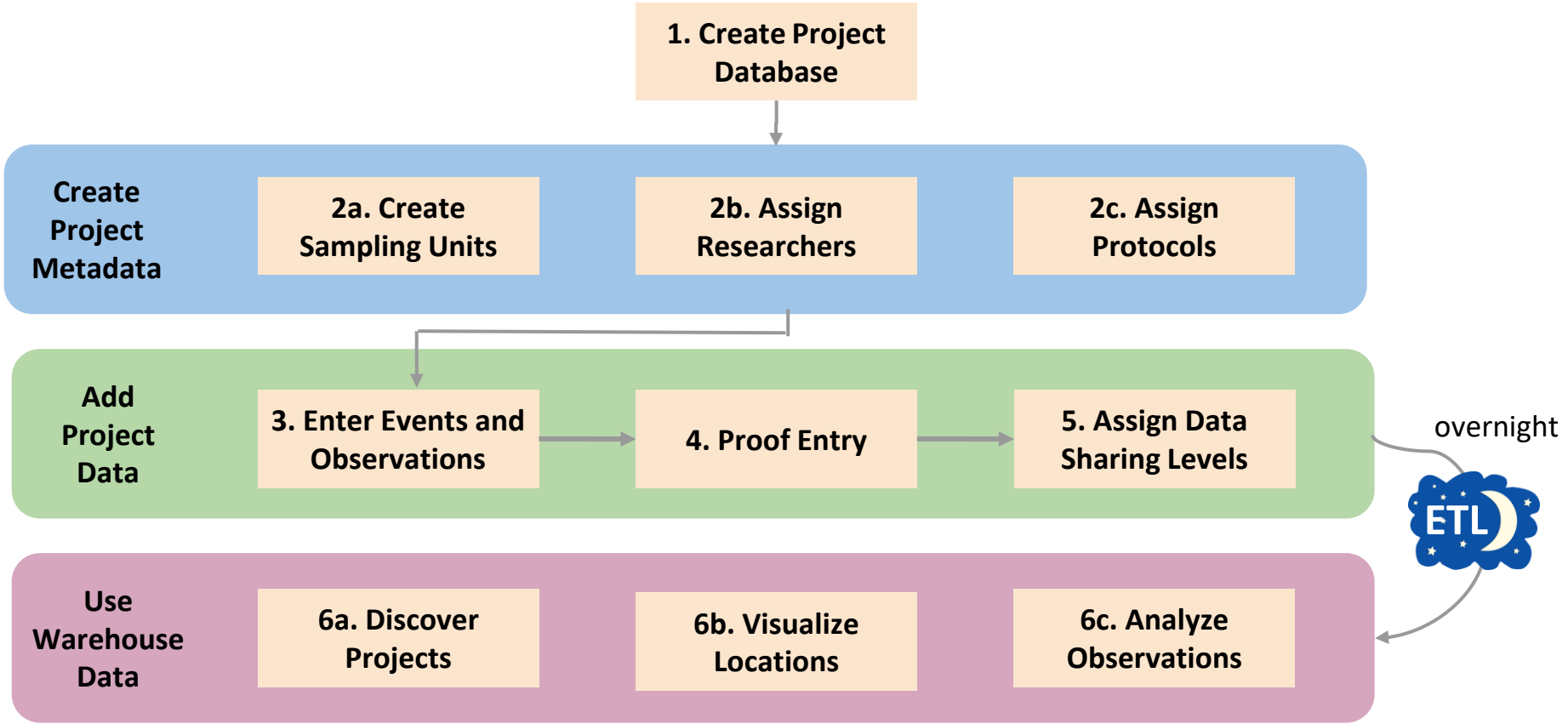
https://data.pointblue.org/apps/nplcc/



http://data.pointblue.org/apps/nwcsc/



Workflow for Creating a Project



Data Warehouses

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

Project data input today shows up automatically in the warehouse the day after you enter it

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

Project Database Version

Warehouse Version

GlobalUniqueIdentifier	ProjectCode	ProjectName	LocalityID	StudyArea	Transect	TransectName	Point	SamplingU	ParentSam	Samp
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	164	300600	348115	Point
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	164	300600	348115	Point
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	Point
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	Point

DecimalLatitu	DecimalLon	Visit	ProtocolCode	Observatic	YearCollec	Month	DayC	JulianDa	JulianDayV	P	Time	Collec	ScientificN	CommonN	SpeciesCo	Phylogen	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

Data Sharing Guidelines/Policies and Agreements

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

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

DoD

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

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

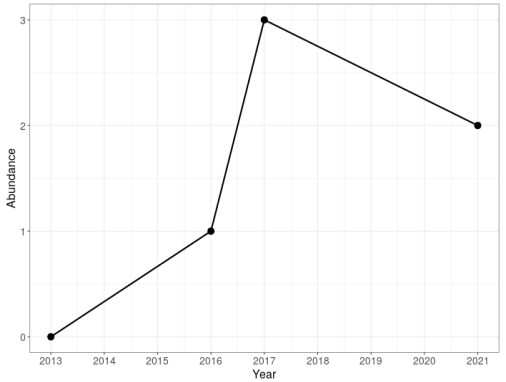
Using the Analyst Tool
(demonstration)

AVIAN KNOWLEDGE NETWORK

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



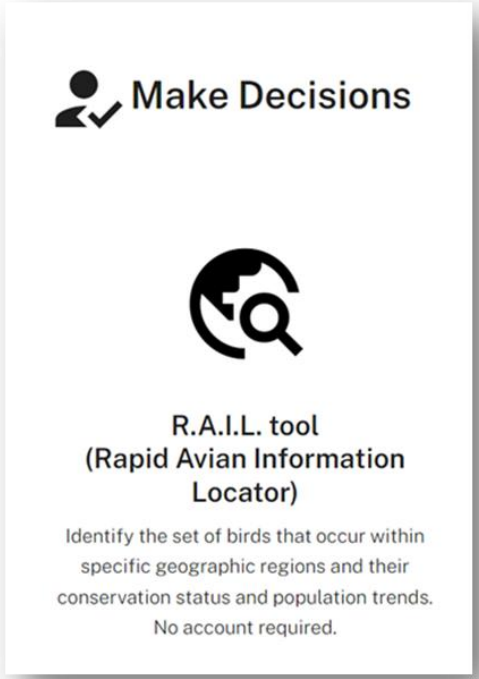
Discovering observation data

Vance AFB, OK

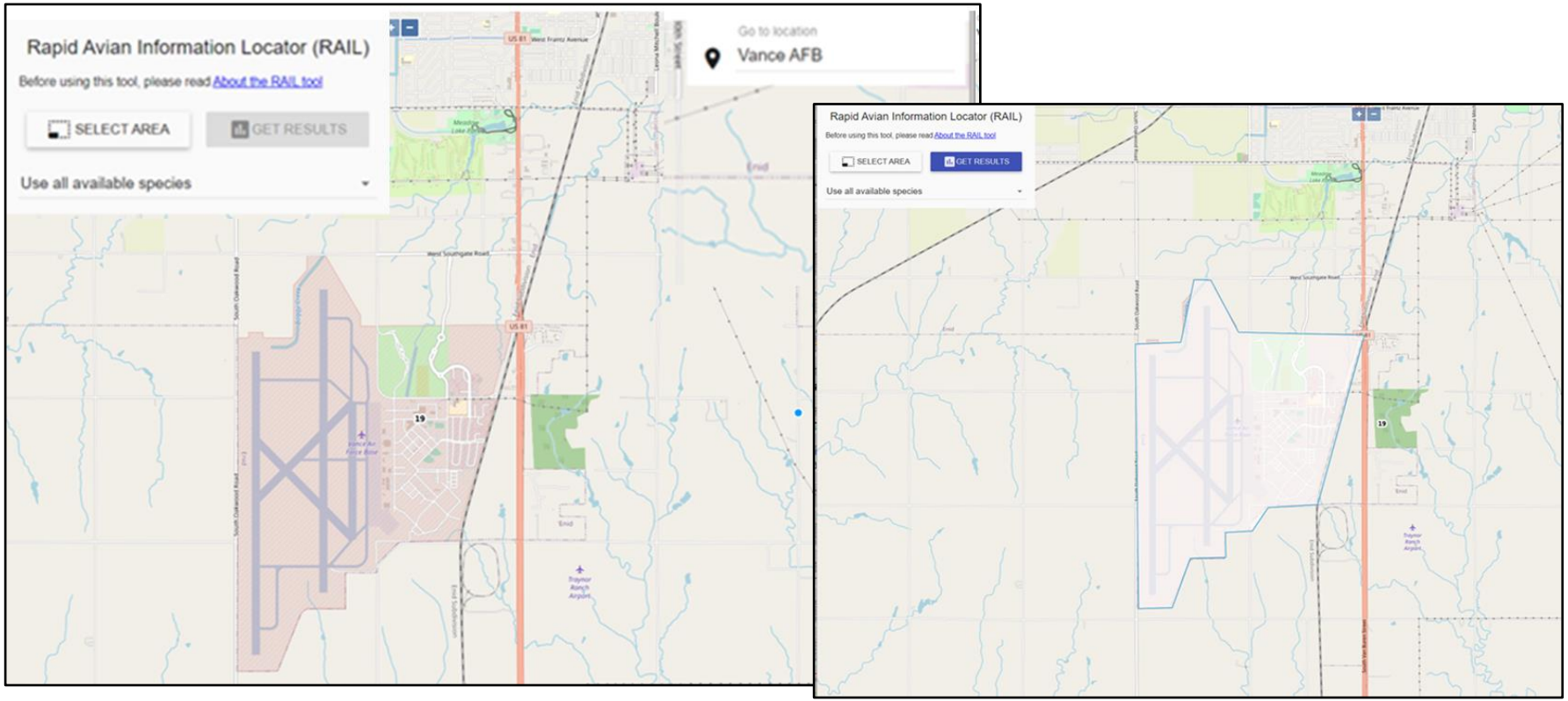
- Biologist was new to AF and did not have any bird data
- Wanted a list of birds on Vance for NEPA and INRMP updates
- RAIL tool available at no cost and without an account

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.

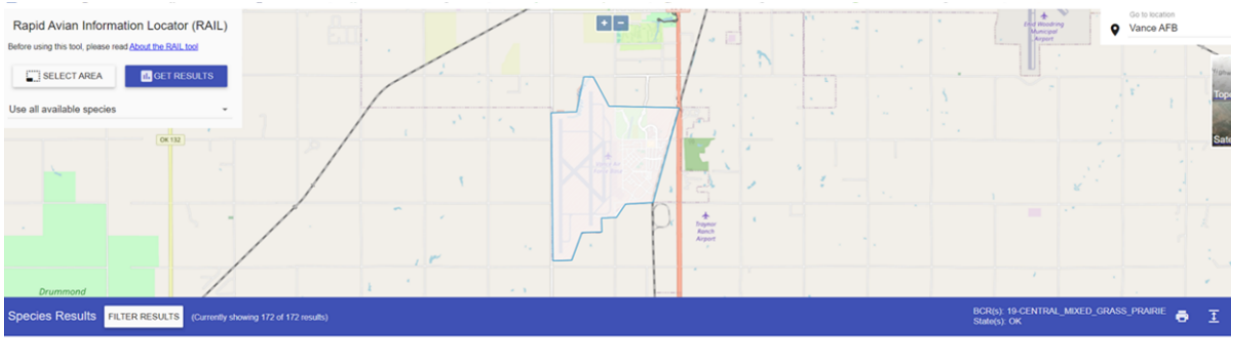
https://data.pointblue.org/apps/rail/



Vance AFB, R.A.I.L.

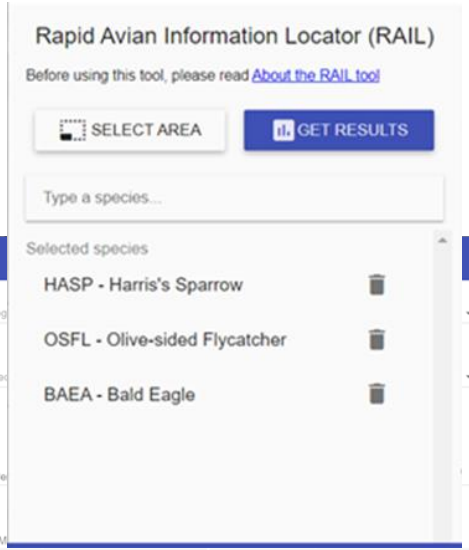


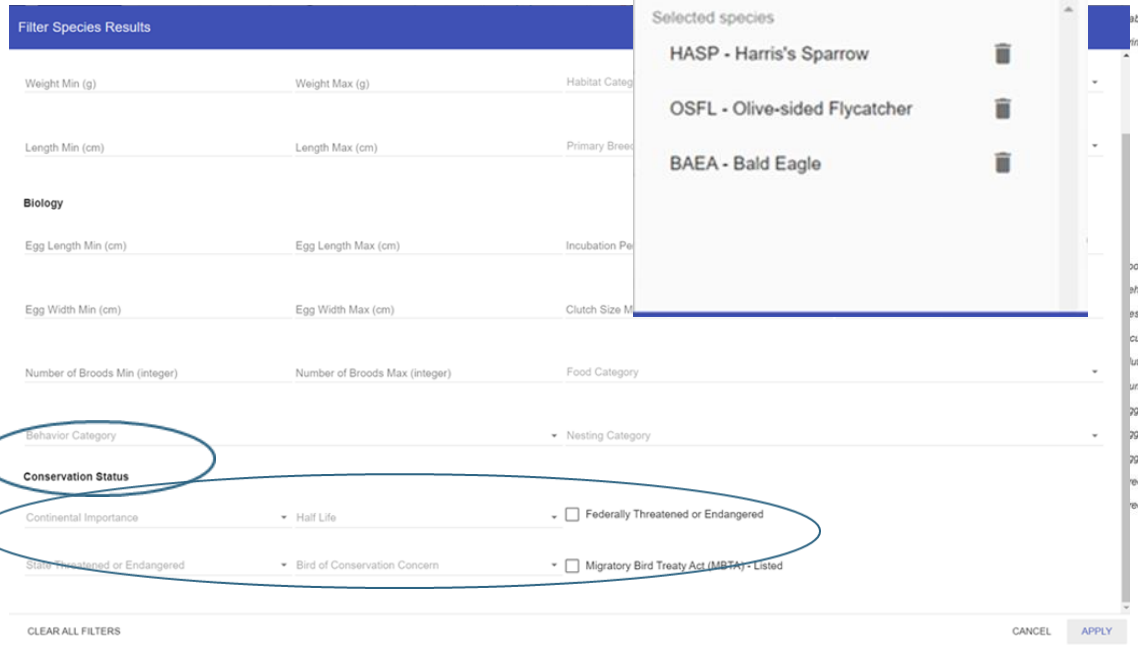
Vance AFB, R.A.I.L.



Bird Species	Population Estimates	Conservation Status	Detail
American Avocet *Recurvirostra americana*	Global: Not yet available Continental U.S.: Not yet available	**BCRBCC Breeding:** 9, 33	
American Bittern *Botaurus lentiginosus*	Global: Not yet available Continental U.S.: Not yet available	**State Threatened:** MD **State Endangered:** MA, CT, NJ, PA, OH, IN	
American Coot *Fulica americana*	Global: Not yet available Continental U.S.: Not yet available	**Common**	
American Crow *Corvus brachyrhynchos*	Global: 28,000,000 Continental U.S.: 18,000,000	**Common**	

Vance AFB, R.A.I.L.





Bald Eagle
Haliaeetus leucocephalus

Global: 200,000
Continental U.S.: Not yet available

State Threatened: MA, CT, NH, NY, TX
State Endangered: NJ, VT, CA

Alpha Code

Alpha Code[1]: Not yet available

Physical Details

Weight[2]: 3000 - 6300 g
Length[2]: 71 - 96 cm

Habitat

abitat Category[2]: Forests
imary Breeding Habitat[4]: Wetlands, Generalist

Population Information

Global Population[3]: 200,000
% Population Estimate USA[3]: Not yet available
Lower 95% Bound USA[3]: Not yet available
Upper 95% Bound USA[3]: Not yet available
Continental Population Trend[4]: Significant large increase
Regional Population Trend[4]: BCR19 - Significant large increase
% BCR Population[3]: BCR 19 - 0.00%
Lower 95% Bound BCR[3]: BCR 19 - null
Upper 95% Bound BCR[3]: BCR 19 - null
% State Population[3]: OK - 0.00%
Lower 95% Bound State[3]: OK - null
Upper 95% Bound State[3]: OK - null

Biology

ood Category[2]: Fish
ehavior Category[2]: Soaring (raptor)
esting Category[2]: Tree
cubation Period[2]: 34 - 36 days
utch Size[2]: 1 - 3 eggs
umber of Broods[2]: 1
gg description[2]: Dull white, usually without markings.
gg length[2]: 5.8 - 8.4 cm
gg width[2]: 4.7 - 6.3 cm
reeding time-frame - Start[5]: Not yet available
reeding time-frame - Stop[5]: Not yet available

Conservation Status

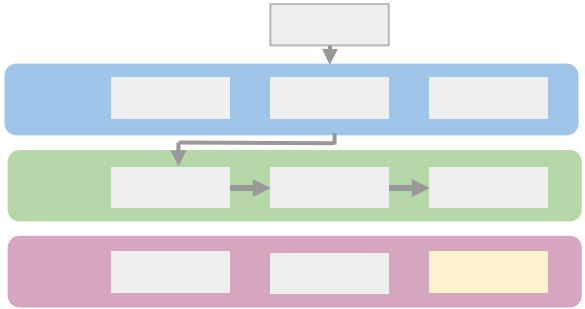
Continental Importance[4]: Not yet available
Half Life[4]: Not yet available
Federally Threatened[6]: No
Federally Endangered[6]: No
State Threatened[7]: MA, CT, NH, NY, TX
State Endangered[7]: NJ, VT, CA
Migratory Bird Treaty Act[8]: Listed
Bird of Conservation Concern[9]: No
Bird of Conservation Concern Entire Range[9][9]: Not yet available
BCRs where BCC Breeding[9]: Not yet available
BCRs where BCC Non-breeding[9]: Not yet available
More information on BCR's

Phenology Graph

Create Species List with RAIL Tool (Exercise 4)

Exercise:

- Orientation of RAIL Tool
- Exercise 4 instructions



6c. Analyze Observations

Download Point Count Data from Warehouse (demonstration)

Tools:

- Data Downloader

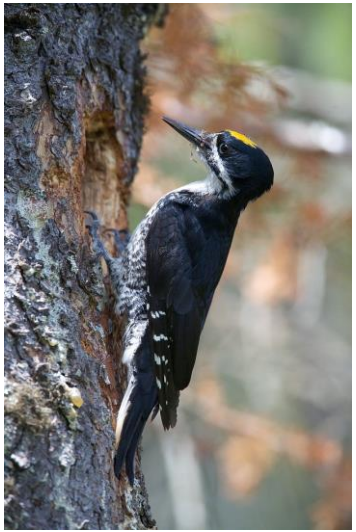
Making Forest Management More Efficient

USDA

Region 5 Post-Disturbance Hazardous Tree Management Project

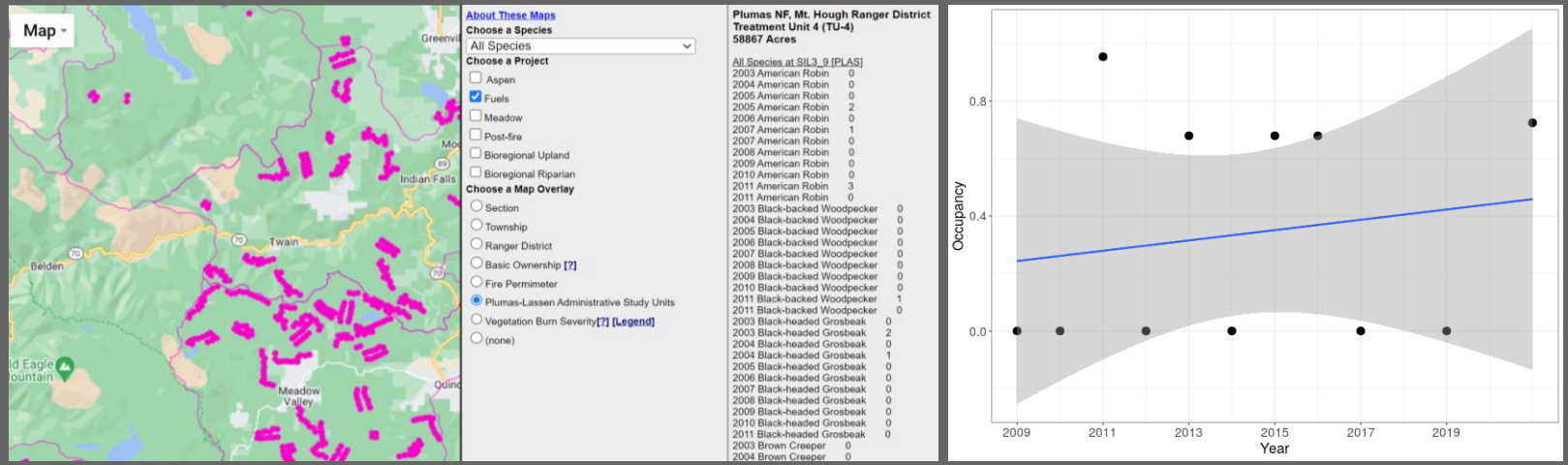
Management Indicator Species Report

Prepared by: Angela Gatto, Wildlife Biologist
For: Lassen and Plumas National Forests
Date: March 2022

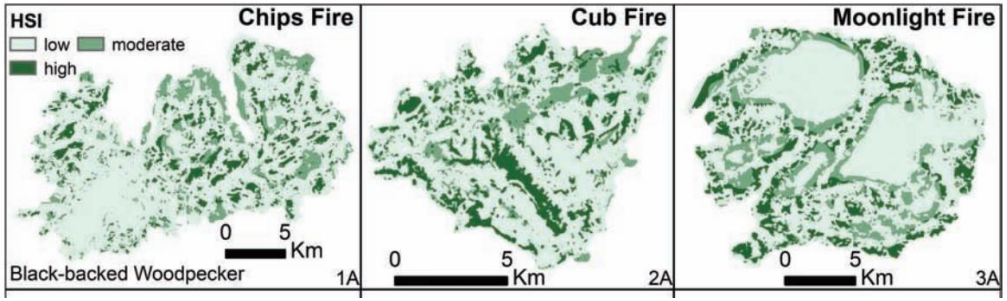


https://data.pointblue.org/apps/snamin/

AKN Tools guide forest management



AKN tools focus future studies



Campos et al. 2020. Predictive habitat suitability models for nesting woodpeckers following wildfire in the Sierra Nevada and Southern Cascades of California

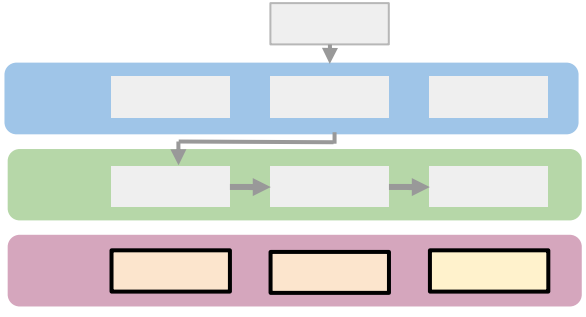
Break (15 mins)

Looking for trends

Looking for Trends (Exercise 5)

Exercise:

- Orientation of Data Catalog and Observation Map
- Exercise 5 instructions



6a. Discover Projects	6b. Visualize Locations	6c. Analyze Observations

- If case studies remain scattered throughout earlier in the presentation, remove slides 92-102

What should you expect this year with AKN and DoD participation?

Legal Drivers

- Migratory Bird Treaty Act (PL 65-186; 16 USC 703 *et seq*.)
- Sikes Act (PL 105-85, as amended through 2004 including PL 108-136; 16 USC 670 *et seq*.)
- Executive Order 13186 *Responsibilities of Federal Agencies to Protect Migratory Birds*
- DoD Instruction 4715.03, *Natural Resources Conservation Program*
- 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
    - Prioritize species
    - Facilitate and encourage collaboration with partners
    - Focus research and planning efforts
    - Increase information sharing

DoD AKN Strategic Approach

- DoD AKN Program Management Plan
- OSD and Military Services Support
- Cooperative Agreement
- Updates on Service-specific Work
- Planned Updates, Tools, Data Initiatives
- On-going Support

DoD AKN Program Management Plan

- Outlines plan/strategy for DoD and AKN
- Background and work-to-date
- Data problems and solutions
- Outline goals and objectives for program
- 5-year needs for new tools and tasks; includes rough budgets
- Approach and work plan for each task
- Agencies and organizations involved and responsibilities

DoD AKN Program Management Plan

5-Year Needs/Initiatives

- ***Training***
  - Instructor-led training courses (in-person and virtual)
  - Create video trainings for common actions (continuing)
  - Monthly "Office Hours"
- ***DoD-Specific Tools***
  - DoD AKN portal page
  - DoD user guide
  - DoD data standards
  - Scope of work language for contractors
- ***Data Initiatives***
  - Mission-Sensitive Species data
  - MAPS and banding data (cost-share)
  - BASH data
- ***AKN Tools (partner initiatives)***
  - Program query tool
  - "Contractor" role
  - "Analyst" role
- ***On-going Support***
  - DoD Program Management
  - Historical data updates
  - Technical support
  - Annual maintenance

OSD and Military Services Support

- ***Office of Secretary of Defense and Military Service Support***
  - Ryan Orndorff and Liz Galli-Noble-Office of Secretary of Defense
  - Karla Meyer & Kirsten Christopherson-Air Force
  - Brian Moyer & Steve Sekscienski-Army
  - Jacque Rice-Marine Corps
  - Jeff Gardner & Tom Mayes-Navy
  - Alisa Dickson & Jay Rubinoff-National Guard
- ***DoD Support Memo***
  - Signed 24 June 2022
  - Mandate use DoD-wide
- ***DoD-wide Cooperative Agreement***
  - Allows oversight of all AKN actions
  - Cost-share actions
  - Enable Military Services and installations to empower smaller amounts of $$
  - Allows MIPR for funding our program partners

Military Service-Specific Actions

Air Force

- Funded two virtual trainings, Nov 30 – Dec 1, 2022 and February 7 & 8, 2023
- Funded initial training videos-COMPLETE; available on AKN YouTube Channel
- Funded five MSS Initiatives, BUOW first
- Funded data discovery survey, data prioritization, assistance with set number of data sets

Navy

- Funded data discovery survey and data prioritization
- Funded SOW language for contractors

Army

- Initial steps for data discovery survey for informed decisions

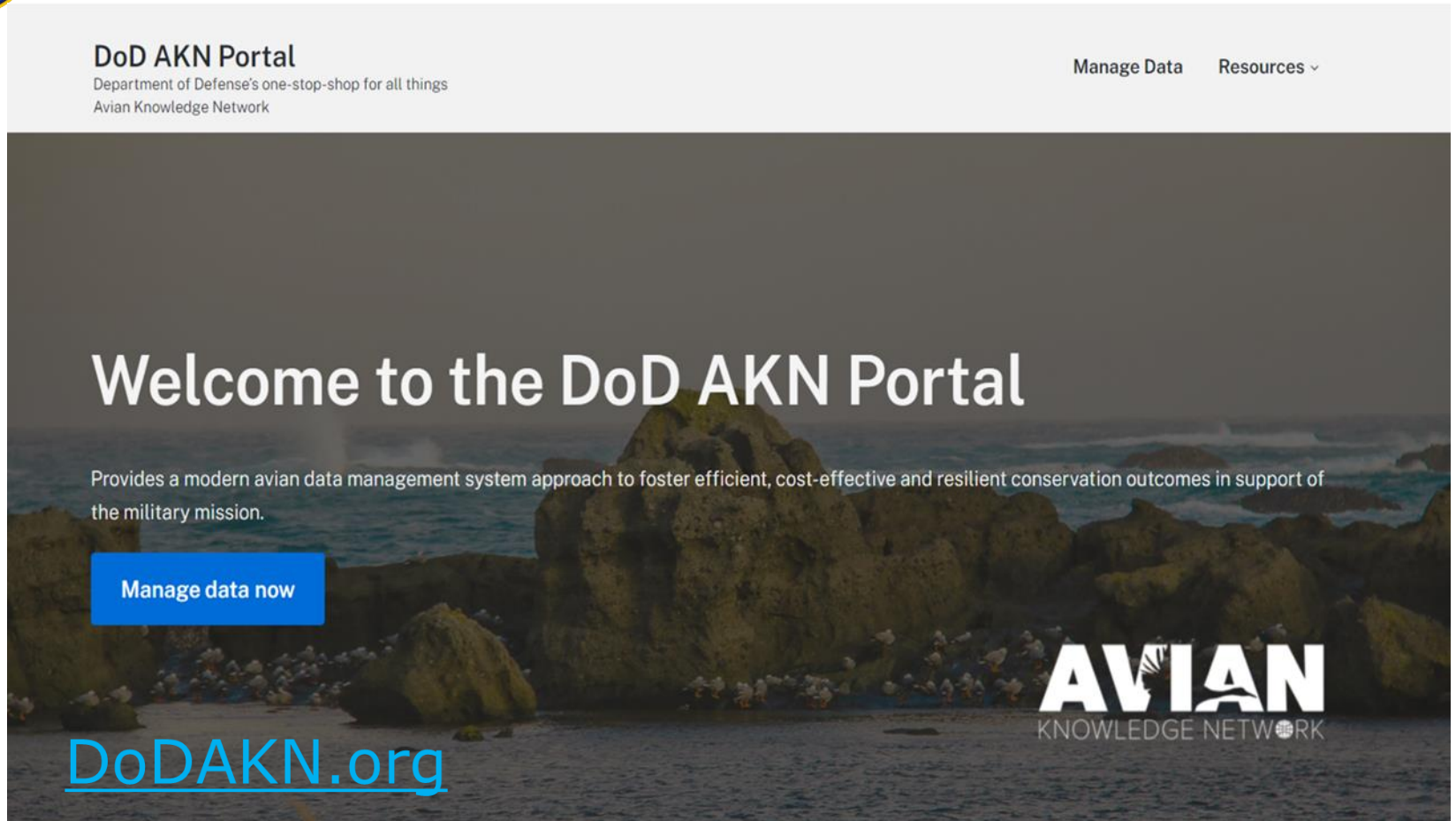
Marine Corps

- Commitment to fund improved tools and training
- Developing solid 5-year investment plan for trainings, data support, and tool development

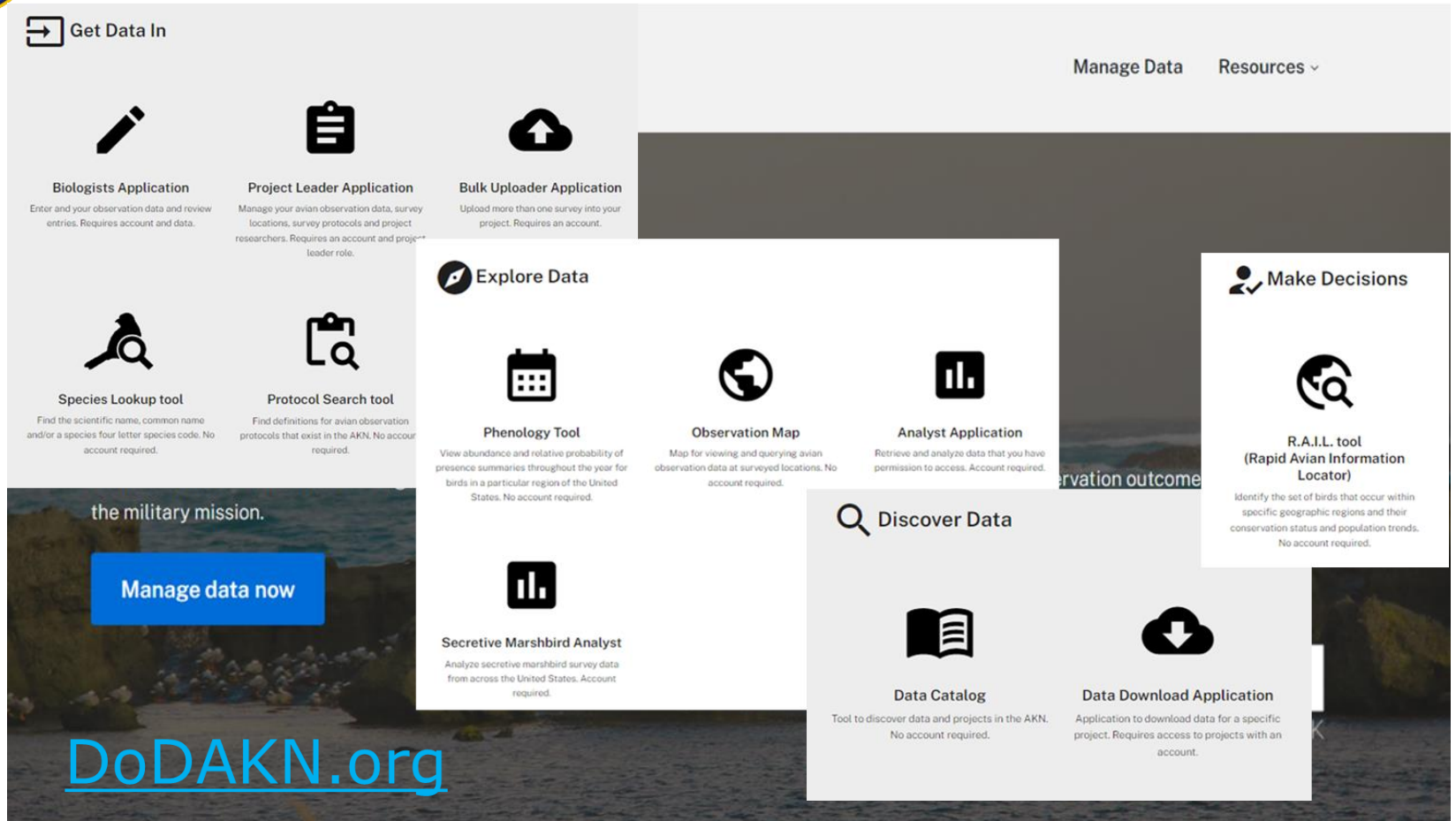
National Guard

- Need to work with States
- ARNG Environmental Advisory Council's Conservation Committee approved Guard-specific training for FY23 hosted by ORARNG

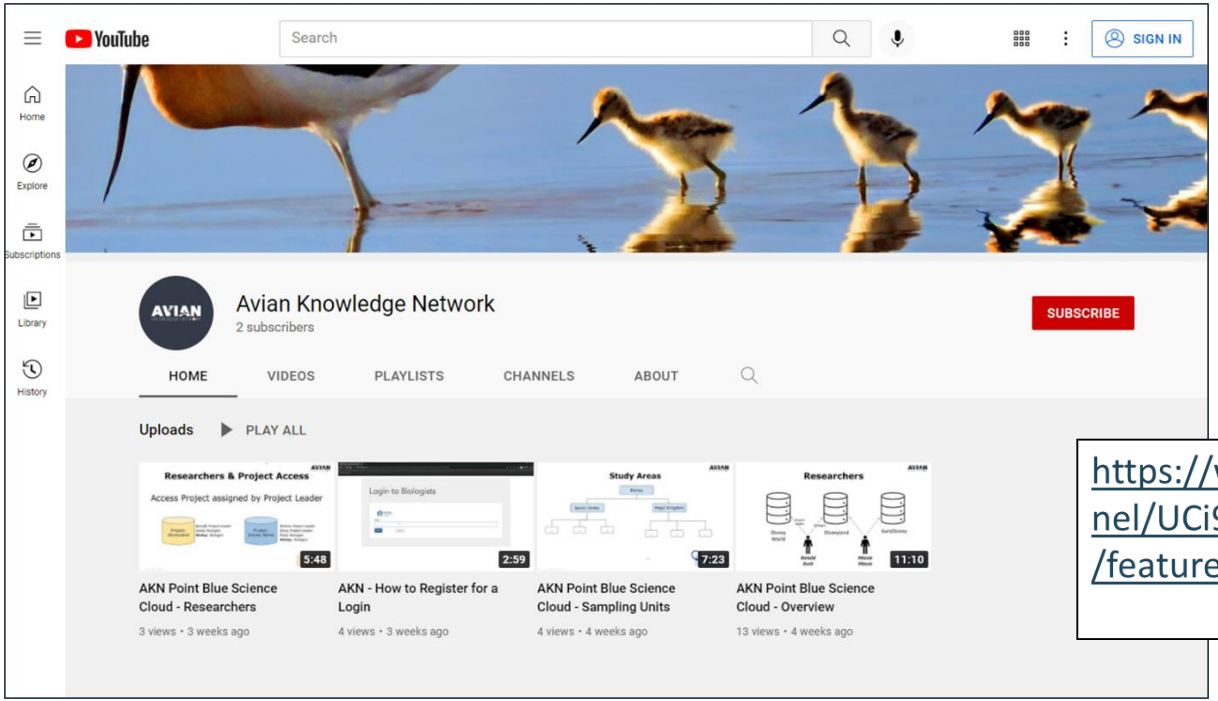
DoD AKN Portal



DoD AKN Portal

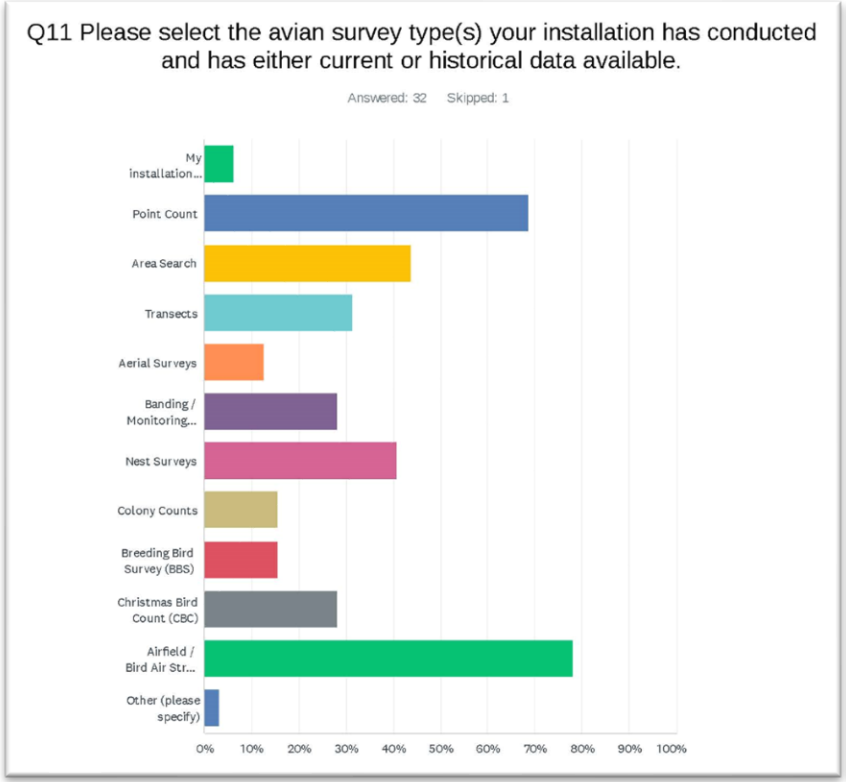


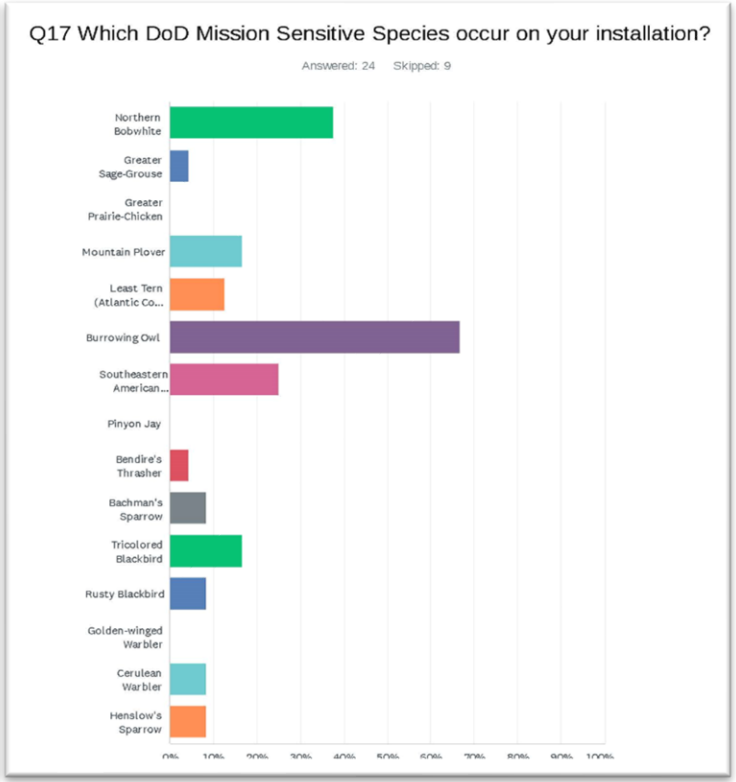
Training Materials



https://www.youtube.com/channel/UCi9in_tC9uTZa9Bo3HgnY1Q/featured

Data Discovery Survey & Training Questionnaire





DoD Mission-Sensitive Species (MSS)

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

DoD MSS

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

DoD MSS Initiative

DATA

- Locate historical and contemporary data
- Identify and prioritize datasets and projects for AKN integration

FIELD METHODS

- Identify SMEs for each species and categorize acceptable and appropriate survey methodologies
- Work with DoD PIF Research and Monitoring Working Group

DATA ENTRY PROTOCOL

- Upload data protocols into AKN, ready for use by any user

MSS QUERY TOOL IN AKN

- Add MSS as a guild in tools, such as Analyst and Data Downloader

DoD MSS Initiative: *BUOW*

Data Survey

- Survey installations with BUOW
- Historical and contemporary data discovery and prioritization

DoD Focus Group of SMEs

- Identify SMEs for BUOW
- Clarify objectives
- Field method review
- Standard monitoring methods (acceptable and appropriate)

AKN Data Protocols

- Bulk upload
- Data entry user interface

Science Delivery

- Custom queries and analyses
- Decision support tools

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

✓ Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993)

DoD MSS Initiative: *PIJA*

Data Survey

- Survey installations with PIJA
- Historical and contemporary data discovery and prioritization

DoD Focus Group of SMEs

- Identify SMEs for PIJA
- Clarify objectives
- Field method review
- Standard monitoring methods (acceptable and appropriate)

AKN Data Protocols

- Bulk upload
- Data entry user interface

Science Delivery

- Custom queries and analyses
- Decision support tools

✓ Data Standards and Survey Protocol for Pinyon Jays Version 1.0 (Pinyon Jay Working Group 2021)
✓ Guidance for Locating Pinyon Jay Nests and Confirming Breeding (Pinyon Jay Working Group 2021)

DoD Data Needs

- BASH Data, specifically data collected by USDA-WS
- Banding data including MAPS
- Nest data
- Sensor and machine-collected data
- Survey 1,2,3 cross-walk directly into AKN
- Foreign OCONUS data

DoD-Specific Tools

Contract Language

- Possession of data collected by contractors is an issue identified by NMFWA Bird Conservation Working Group since its inception in 2014
- AKN offers a mechanism and structure
- Develop guidelines and language for DoD personnel to integrate into contracts
  - Option to upload directly into system (current limitations)
  - Option to deliver data in format acceptable for immediate upload into system

AKN-wide Tools

Enterprise Support for Programs

Need: Data curation, management, and analysis at multiple scales (installation, Military Service, and DoD-wide)

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

Plan: Add ability to create/manage Programs appropriately based on rights, especially for query and download of project data, user access management, protocol assignment, data sharing level.

Status: Completed the program enterprise warehouse feature preliminary research phase and are moving on to the prototype phase, where we will attempt our first successful build of a program warehouse. Expecting to roll out in next 18 months.

AKN-wide Tools

Updated User Roles

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

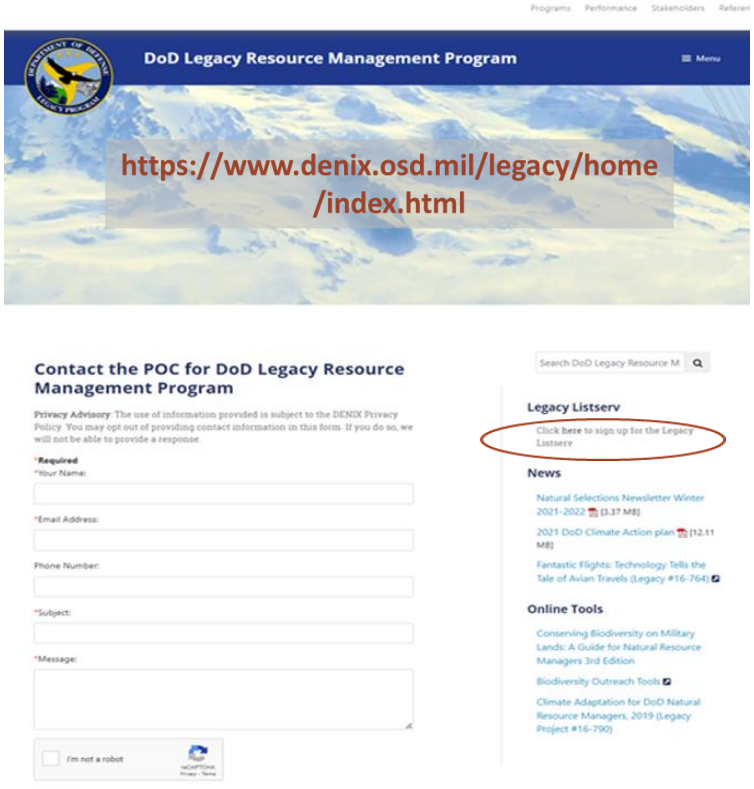
Solution: Creation of two new user roles that meet identified needs

Plan: Creation of Contractor Role - Create a new role to support contractor who gets access (data entry, data download, data analysis) for the portion of a Project for which they are providing services.

Creation of Analyst Role - Create a new role to allow full access to a Project or Program for data download and analysis, but not ability to manage metadata or user access.

Status: Needs and roles identified and prioritized. Awaiting completion of the Enterprise Support for Programs.

Sign-up for DoD AKN Updates



1. Enter name
2. Enter email address
3. Enter “add to listserv”
4. Say please in message
5. Confirm you’re not a robot

On-going 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)
  - Funded data initiatives from Military Services
  - Email me, elizabeth.s.neipert@erdc.dren.mil

What's Next For You?

Demonstration of end-to-end process to register a new user

What Updates, Initiatives, Tools Do You Want to See?

Open Forum

Pluses and Deltas

Wrap-up

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

DoD Regional Training, May 2-4, 2023

Sam Veloz, Dianne Miller Point Blue Conservation Science
John Alexander, Klamath Bird Observatory
Elizabeth Neipert, US Army ERDC

Thank you for participating &
thank you to our hosts, Camp Lejeune