

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

*NMFWA Workshop, March 12, 2021 via WebEx*

---

Michael Fitzgibbon, Point Blue Conservation Science  
John Alexander and Kate Halstead, Klamath Bird Observatory  
Elizabeth Neipert, US Army ERDC

[https://pointblue.github.io/dod\\_workshop](https://pointblue.github.io/dod_workshop)



# Welcome, Introductions, and Logistics



# Introductions

Who are the instructors?

Who is in the class? (we'll call on you)

Name, Branch, Position

What type of avian data you collect?

What other avian data do you use?

# A few logistics

The Agenda with links (bookmark this)

[https://pointblue.github.io/dod\\_workshop](https://pointblue.github.io/dod_workshop)

- WebEx: mute, put questions in chat, cameras on & share screens in breakouts (no Pathable)
- Materials available in meeting calendar
- Session: interactive & casual
- Office hours next Friday
- Parking lot items

# Can you log in?

Biologists:

[data.pointblue.org/science/biologists](https://data.pointblue.org/science/biologists)

Problems logging in?

Put something in the chat.

# Limitations and caveats

Focus today: Point Count data

Bulk loading of data: focus in office hours

Second time giving this workshop, first time entirely online.

If you are having problems: put in chat.

# AKN Project Data 101



# Federal Avian Data Center

[data.pointblue.org/partners/fedadc/](https://data.pointblue.org/partners/fedadc/)

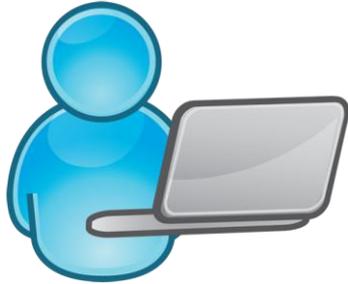
Federal Avian Data Center

Avian Knowledge Network

[Home](#) [About](#) [Uses of This Data Center](#) [Resources](#) [Help](#)



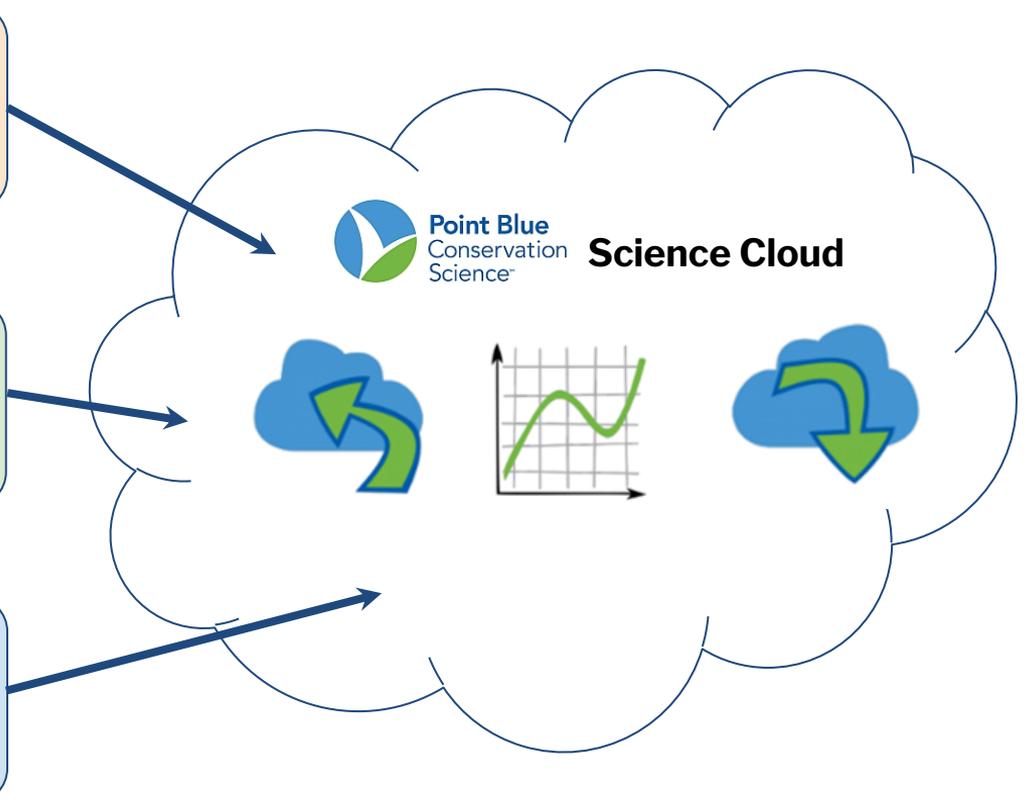
# AKN: common cloud technology



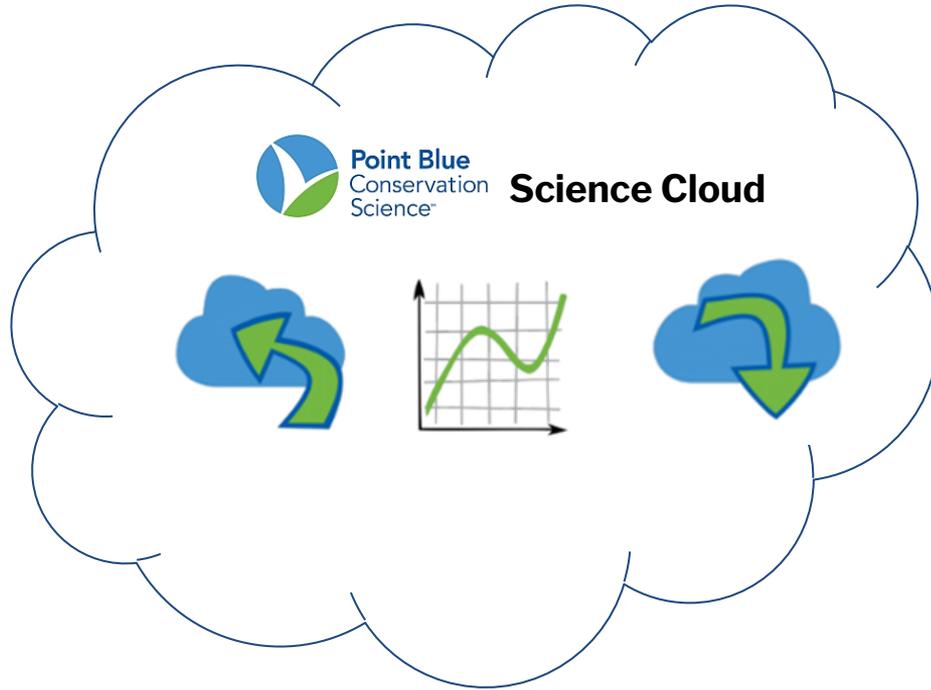
**Federal Avian  
Data Center**

**Avian  
Knowledge  
Northwest**

**Midwest  
Avian Data  
Center**



# Focus for this workshop



How do we represent protocol-based science?

How do you get data in?

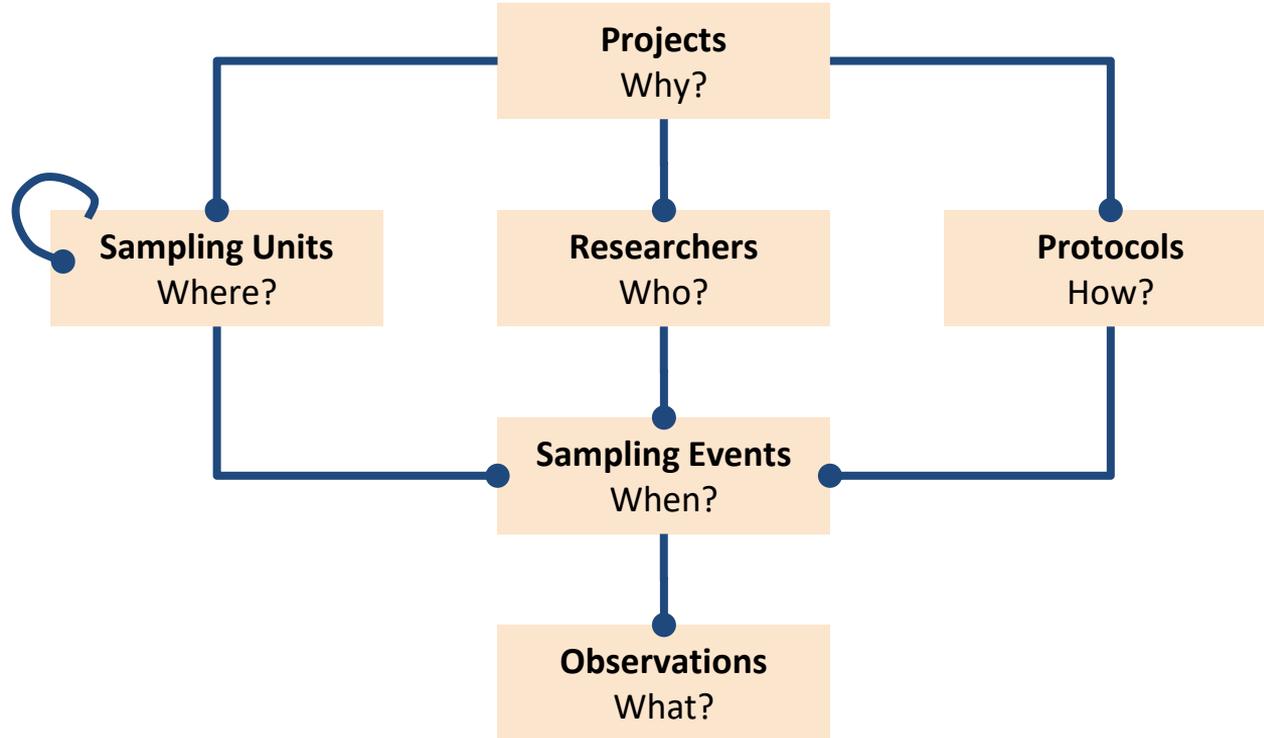
How do you data & information out?

What conservation questions can you answer?

# 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 or State

# 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

# Primary Protocol Types

- Point Count (the focus of this seminar)
- Linear Transect
- Area Search
- Secretive Marshbird
- Site Conditions

# 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?

# Sampling Units

The locations where observations are collected

Organized into a tree (hierarchy)

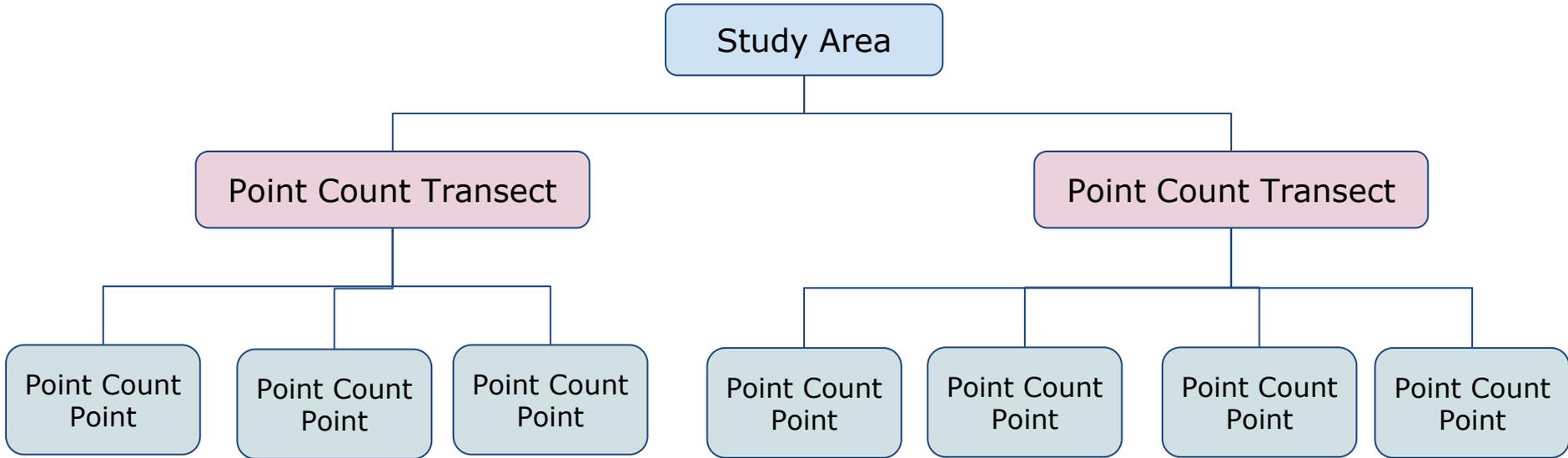
Uniquely named with Project

Can have Point/Line/Polygon



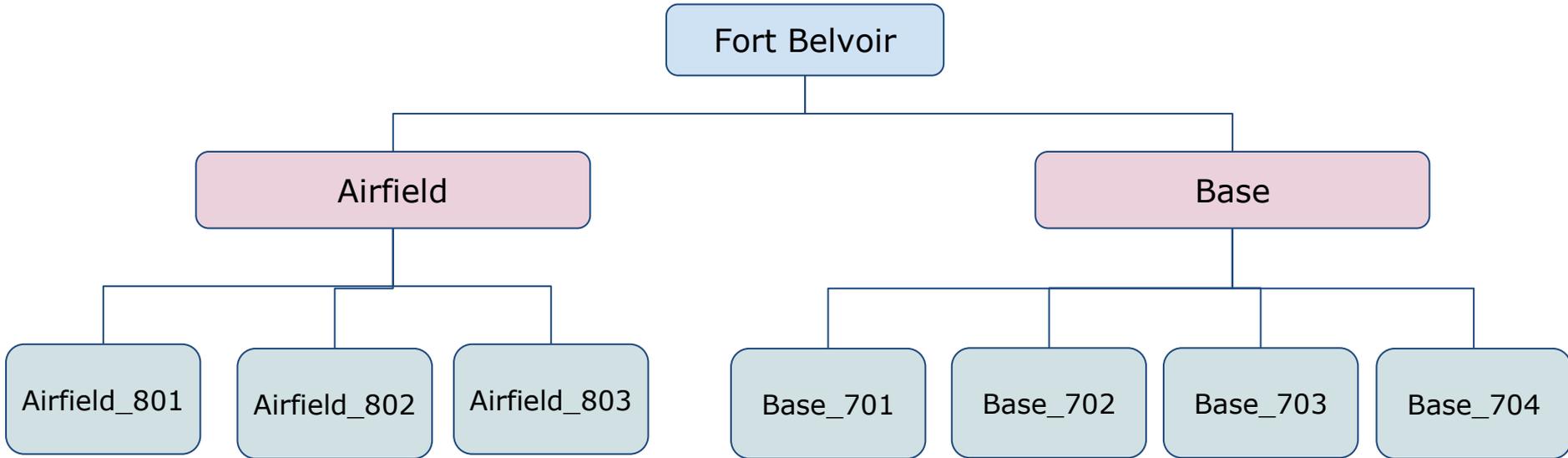
Sampling Units  
Where?

# Sampling Unit Types for Point Counts



 **Sampling Units**  
Where?

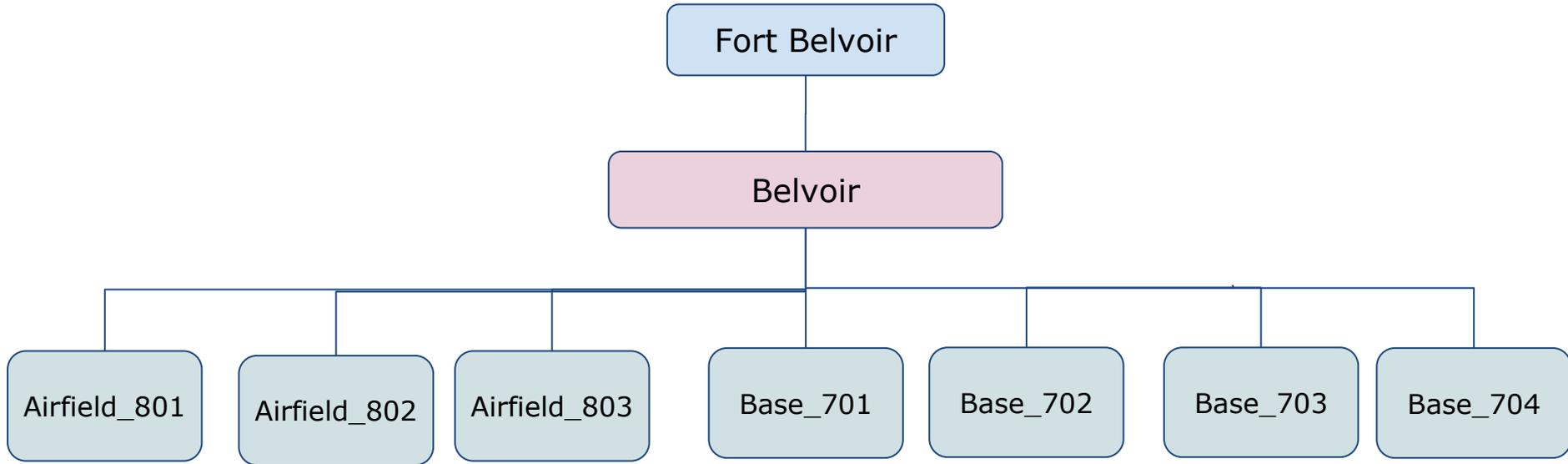
# Sampling Unit Types for Point Counts



Replicates or independent points?  
What questions are you asking?



# Sampling Unit Types for Point Counts



Replicates or independent points?  
What questions are you asking?



# 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

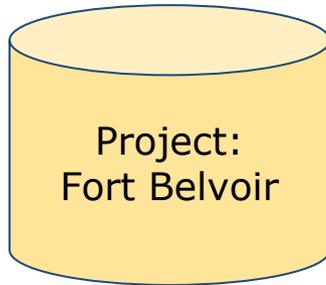
Project Leader: the data owner, has full control over data, metadata, and who gets Project access

Biologist: can enter and review data in the Project

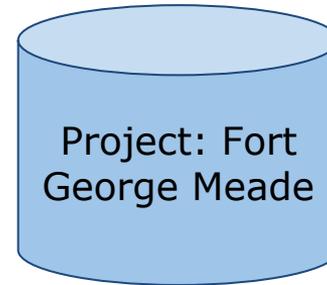
Researchers  
Who?

# Researchers & Project Access

Access Project assigned by Project Leader



Jane: Project Leader  
Mike: Biologist  
**Pat**: Biologist

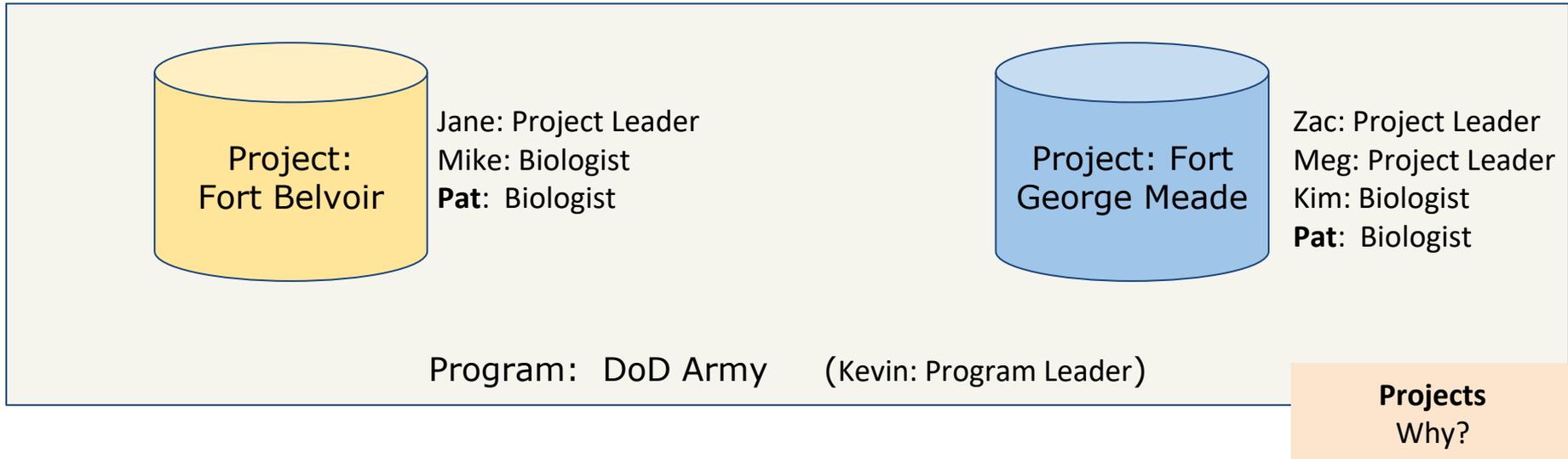


Zac: Project Leader  
Meg: Project Leader  
Kim: Biologist  
**Pat**: Biologist

**Projects**  
Why?

# Researchers & Project Access

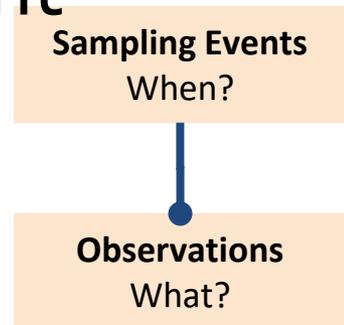
DoD will also have a Program Leader (managed by Point Blue staff w/ guidance from DoD leadership)



# Sampling Events and Observations

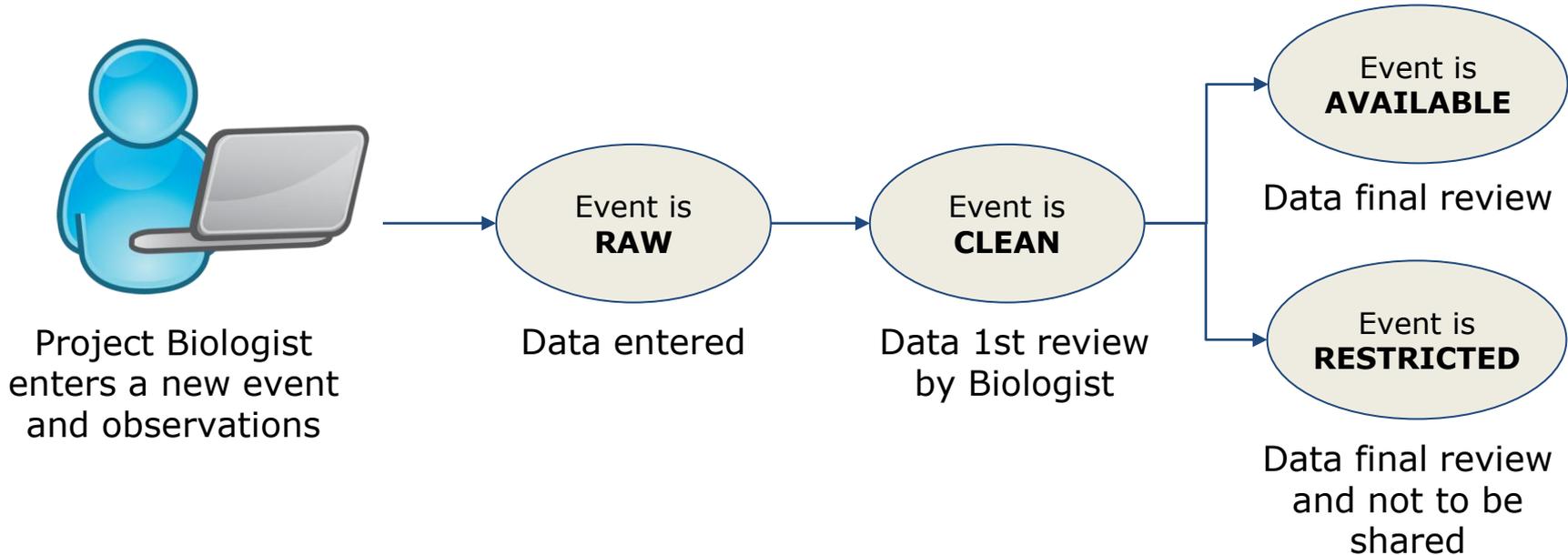
**Event:** survey at a Sampling Unit using a Protocol by Researcher at a specific date and time

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

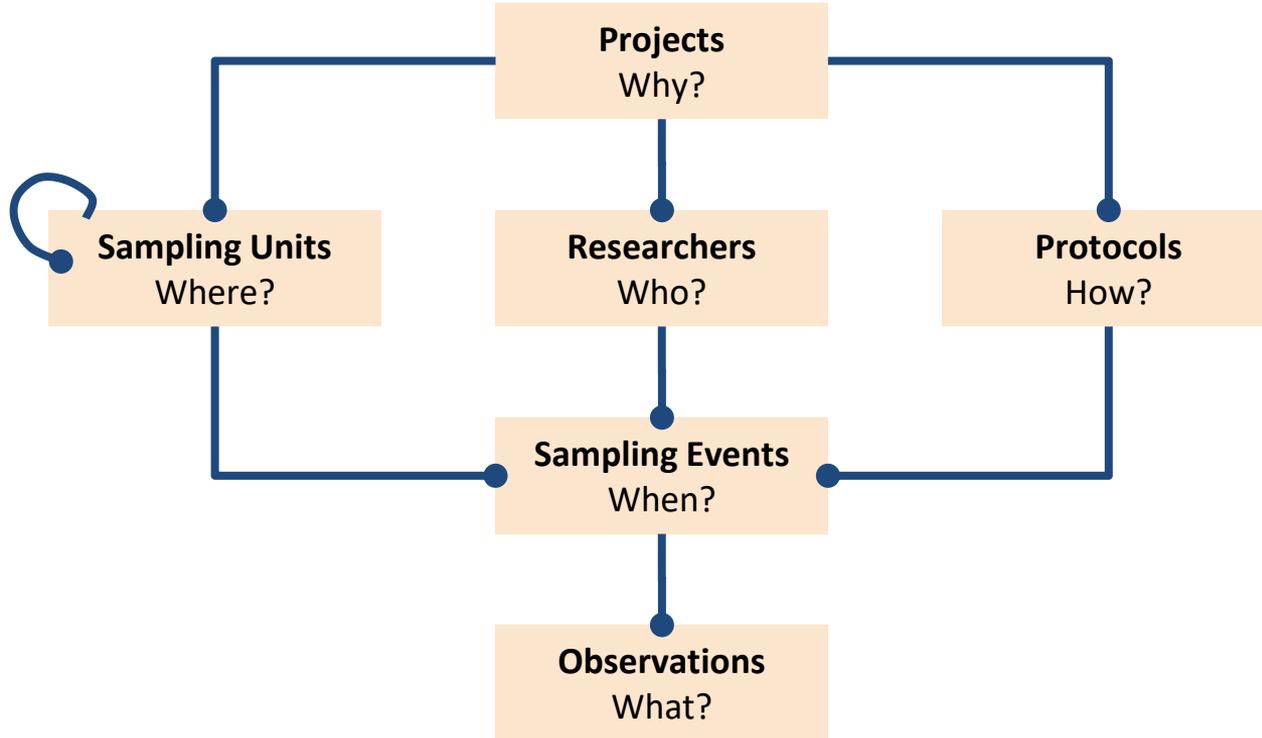


# Review Levels for each Event

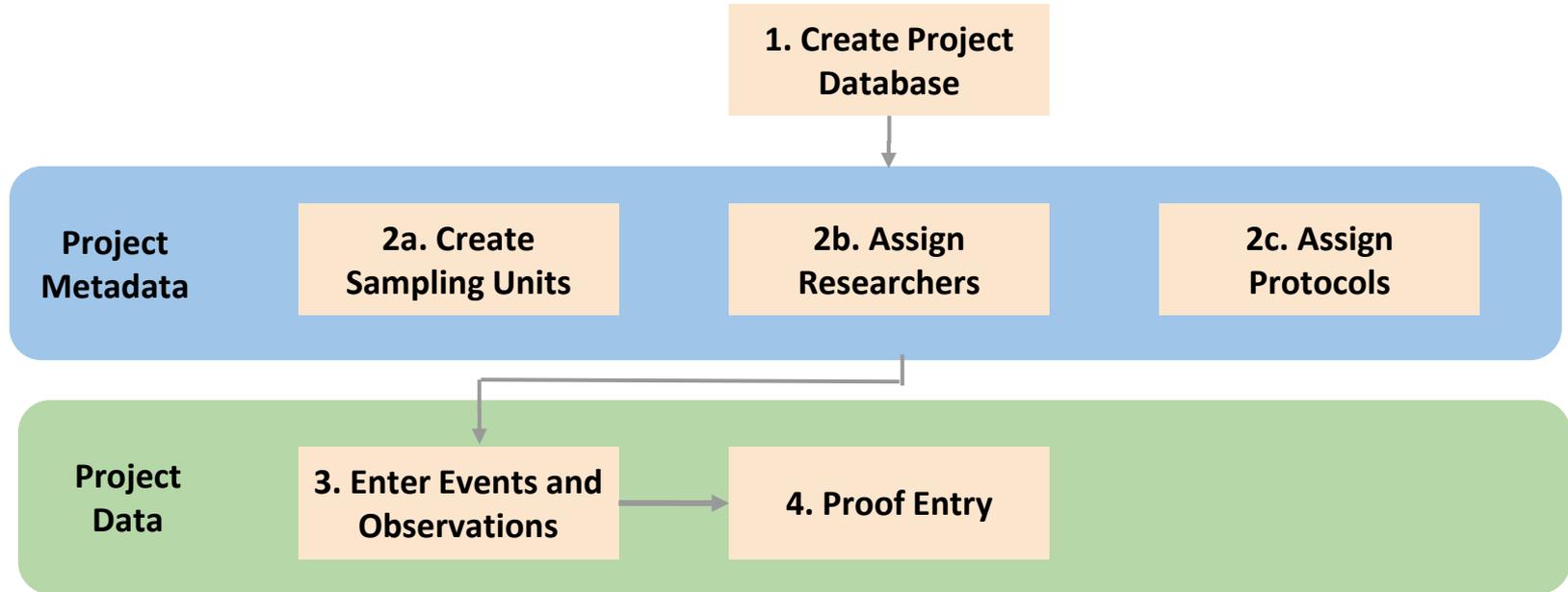
Steps to enter and review data in preparation for sharing



# Questions on Project Database?



# Workflow for Creating a Project



# Creating Project Metadata



# Prepare for Exercises

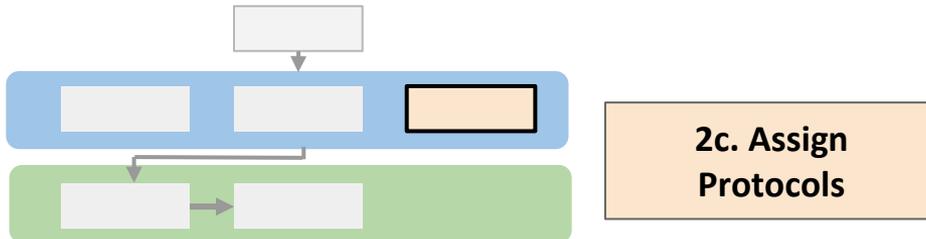
1. Download and Edit/Print Exercise 1.  
(Print/open Exercises 2, 3, and 4)
2. At the top, step A, circle the Area matching the first letter of your last name (eg Fitzgibbon → "Area-A-F")
3. In step B, add letters, such as your initials (eg MEF)
4. In step C, use the same letters, but add a single (eg MEF2)

# Choosing Protocols (demonstration)

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

Tools:

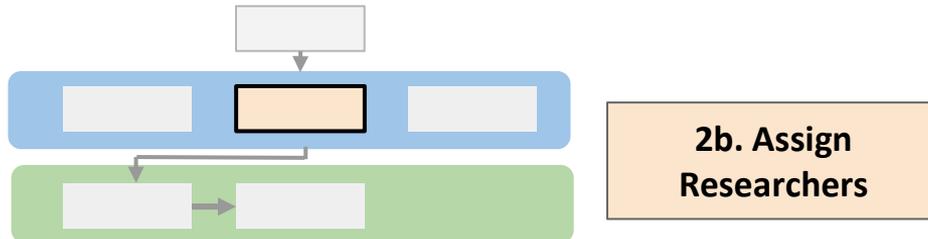
- [Our data sheet](#)
- [Protocol search tool](#)
- [Biologists](#) for adding protocol to project



# Adding Researchers (demonstration)

Tools:

- [Biologists](#) for adding researchers to Project





# Break (15 mins)

---

## Entering observation data to a Project



**US Army Corps  
of Engineers**



# Enter & proof point count event (Exercise 2)

Exercise:

- Download 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

# Bulk loading data into a Project



# Bulk Loading Data

Loading spreadsheet data into the Project Database, including all metadata

Uses definition file to describe how your spreadsheet of observations map into AKN

# Bulk Loading Data (Demonstration)

Tools:

- [Bulk Uploader](#) for
  - Adding researchers
  - Adding sampling units (DEMO)
  - Adding observations (DEMO)

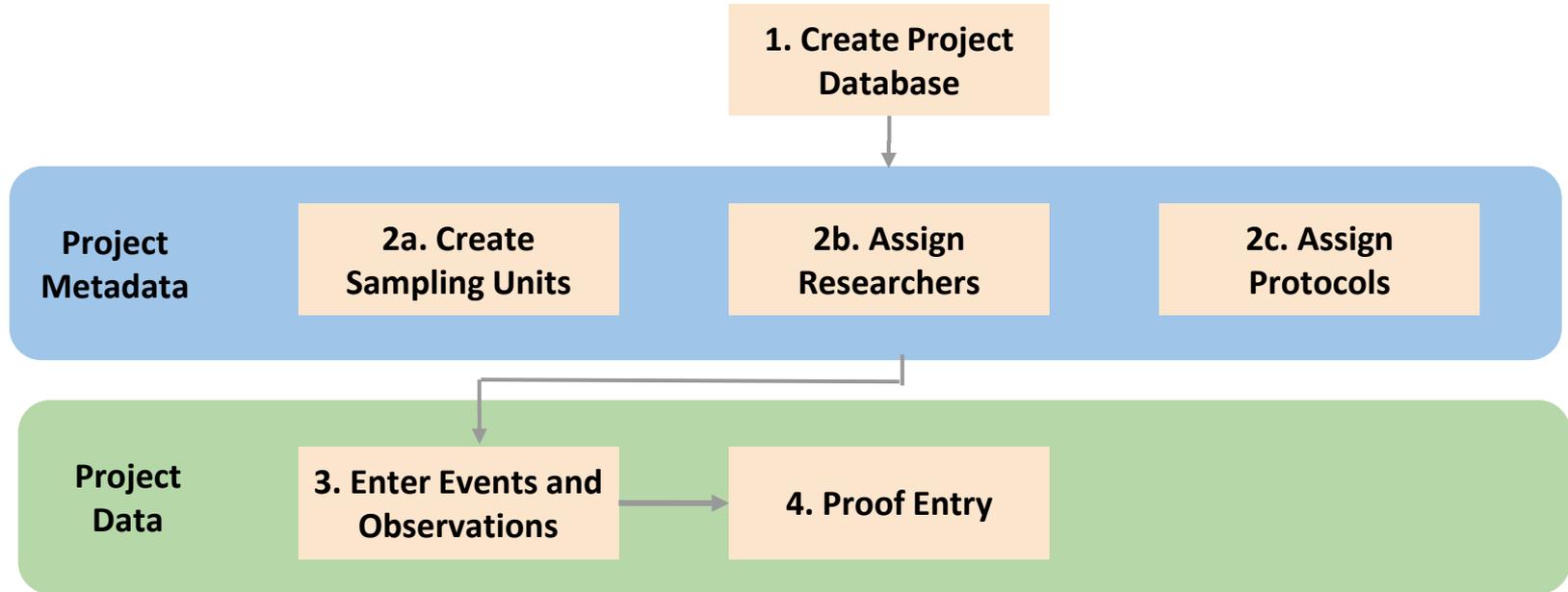
# Office Hours

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

Friday, March 19, 0800-1700 Pacific  
(1100-2000 Eastern) in WebEx

Sign up sheet available

# Any questions on Creating a Project?



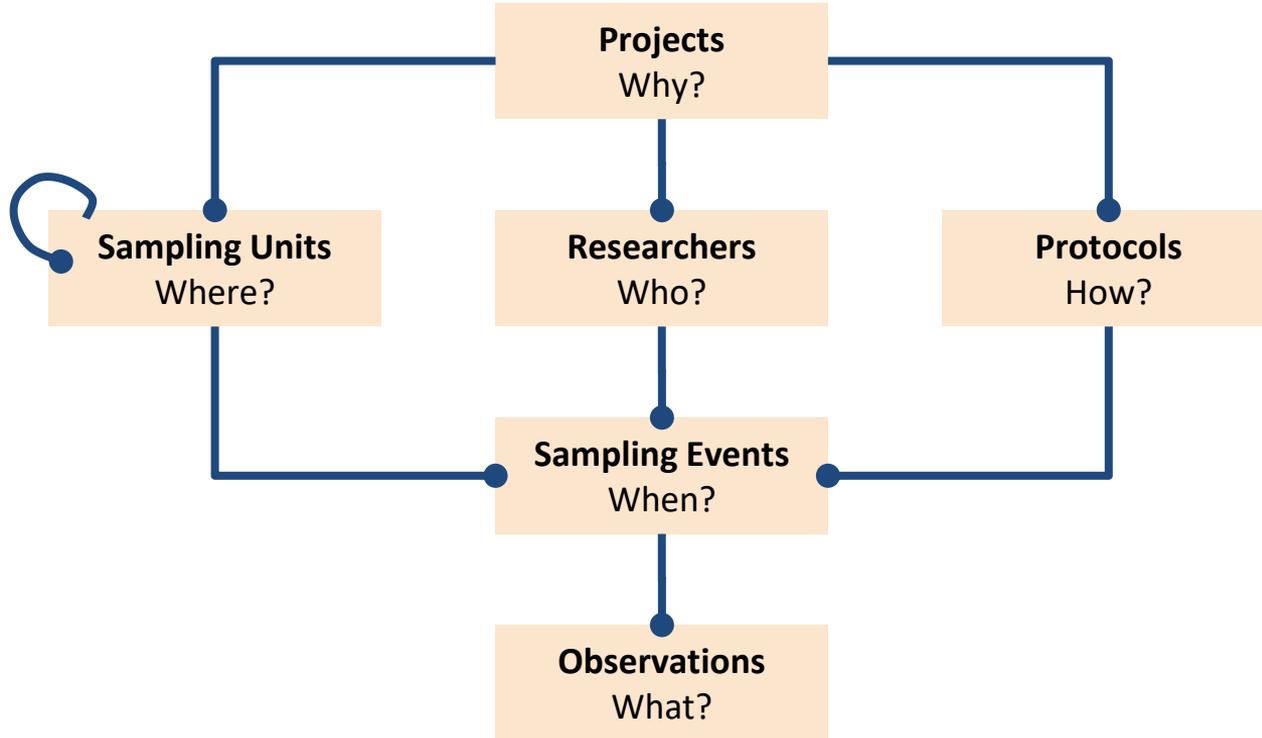
# Mealtime (60 mins)



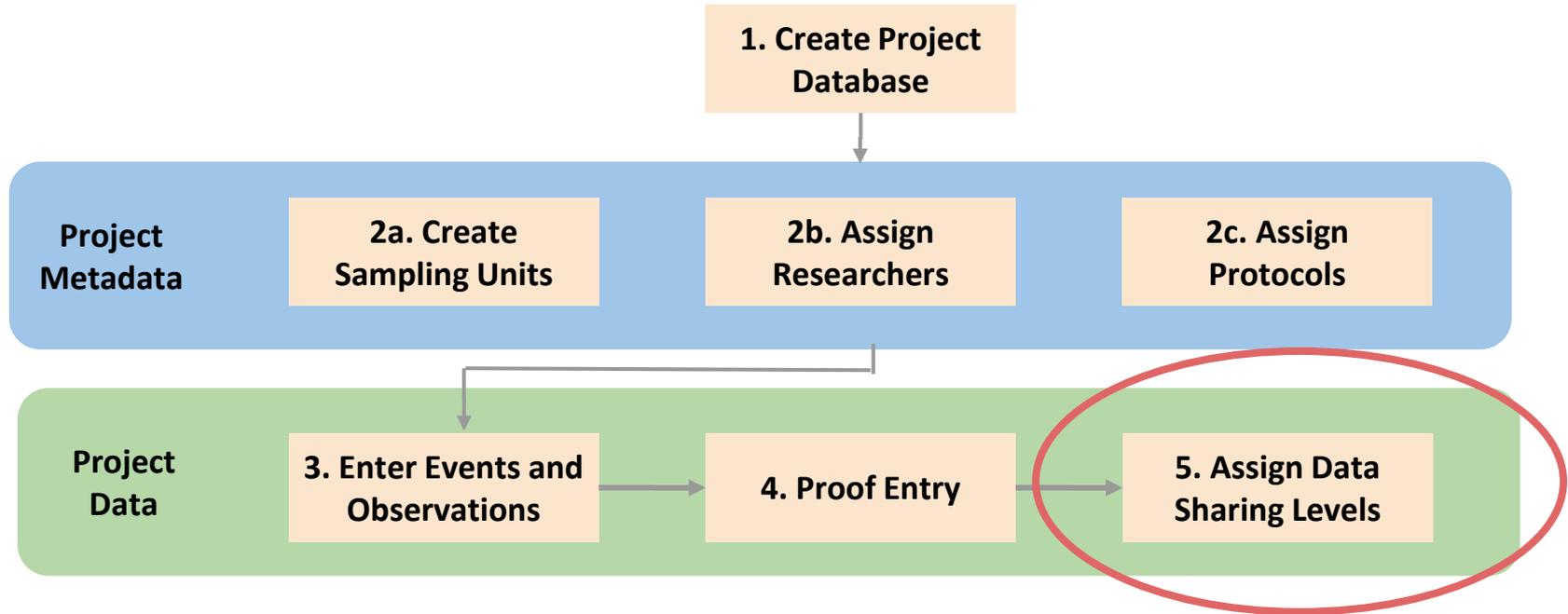
# AKN Warehouse Data 101



# The Project Database



# Workflow for Creating a Project



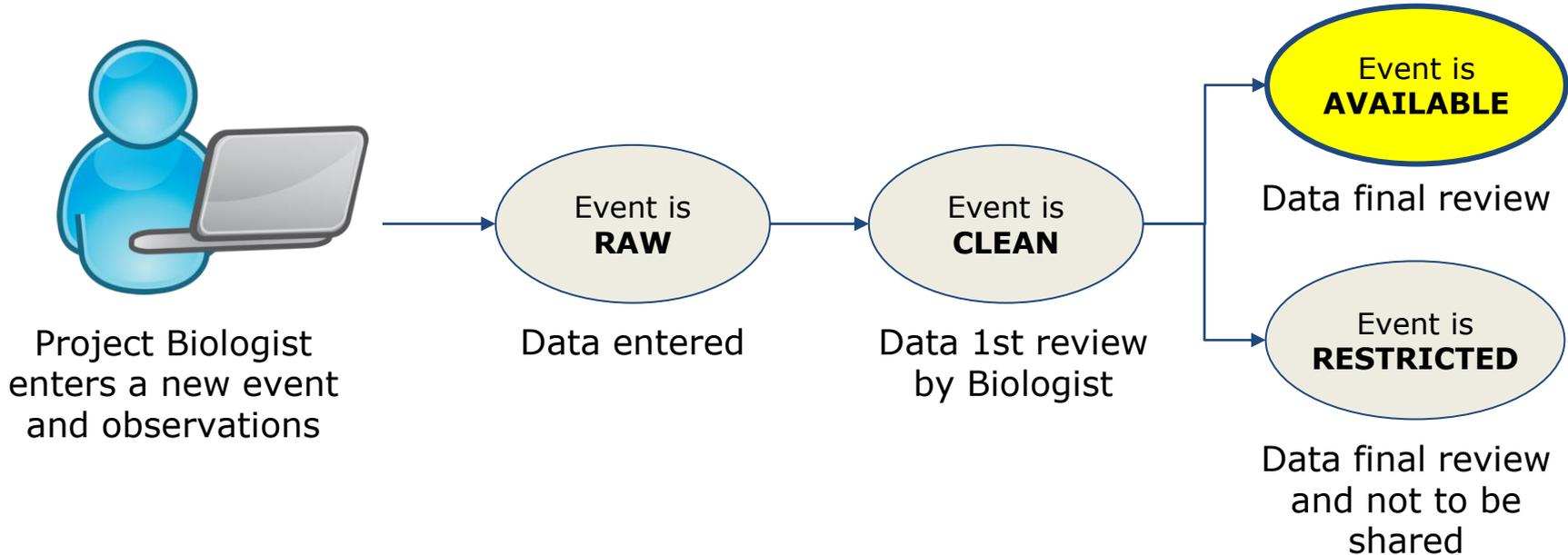
# Data Sharing Levels

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

Controlled by the Project Leader within each project

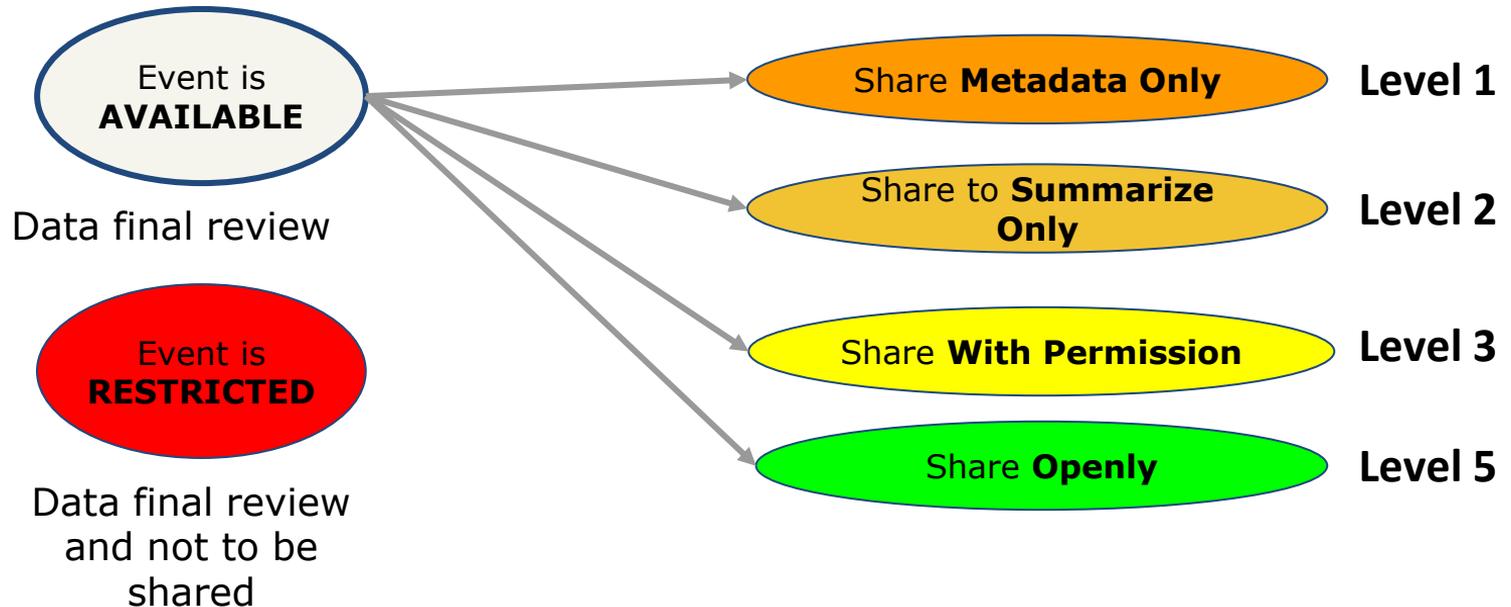
# Review Levels for each Event

Steps to enter and review data in preparation for sharing



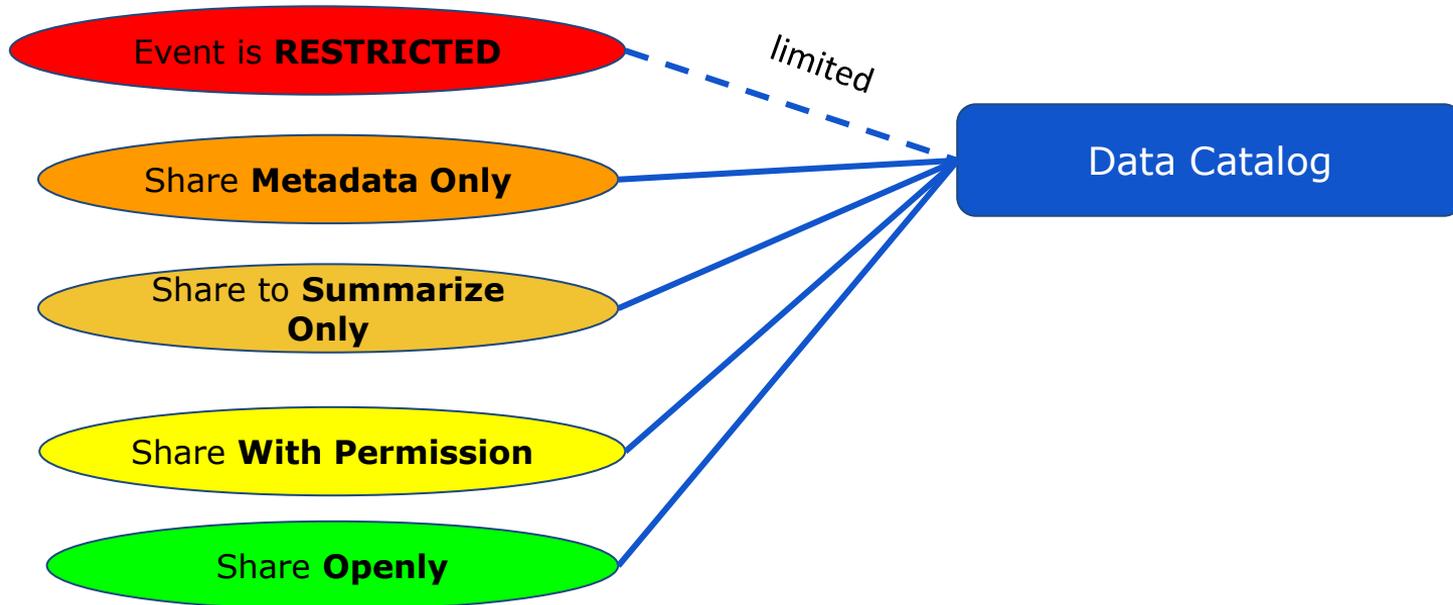
# Data Sharing Levels for each Event

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



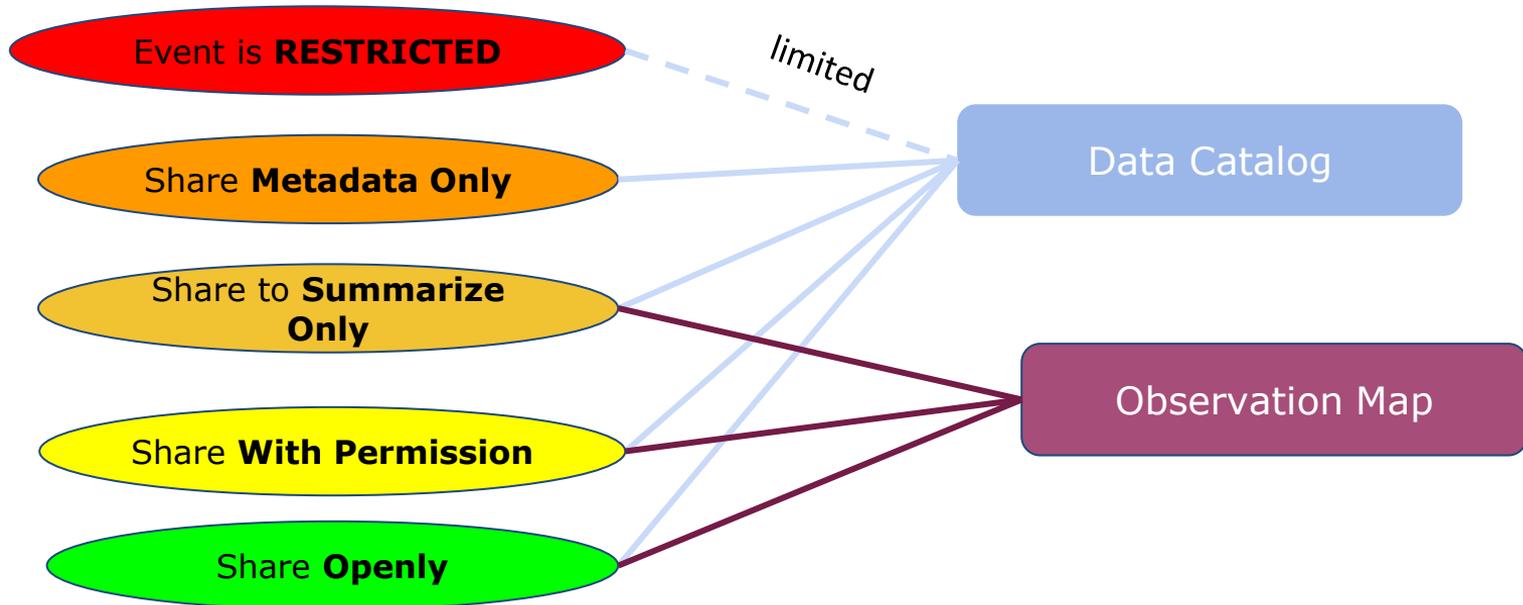
# Data Sharing and Tool Access

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



# Data Sharing and Tool Access

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



# Data Warehouses

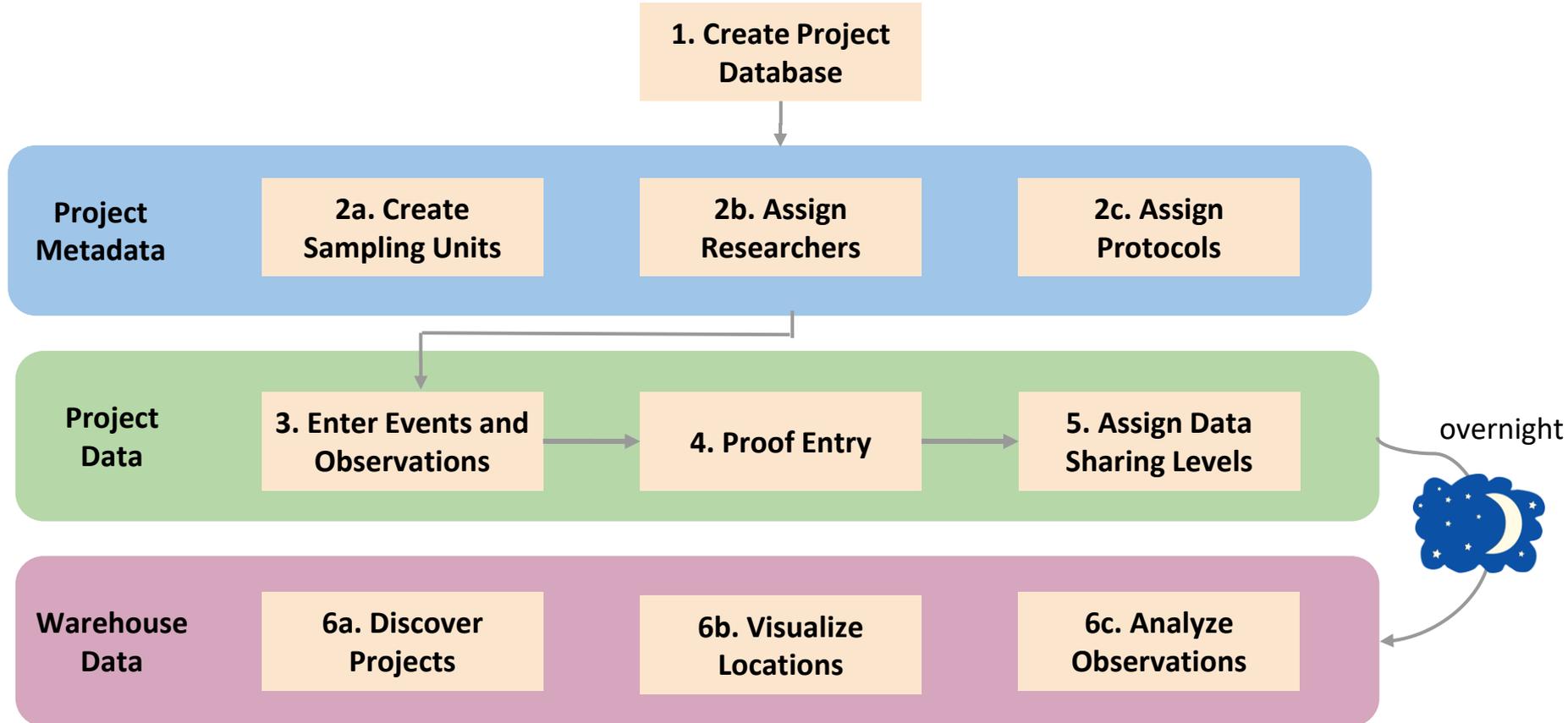
Database that with homogenized copy of observation data, organized by sampling method for cross-project query and analysis

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

# 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

# Workflow for Creating a Project



# Project Data vs Warehouse Data

| Study Area  | Transect | Point | Protocol | Visit | Date     | Start Time | End Time | Time Bin   | Count | Spp  | Common Name          | Scientific Name    | Detection | Distance | 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 crinitus | 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 formic  | 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 Cowbird | Molothrus ater     | NR        | G50      | 50 to 100  | Light sprinkle, light rain |     | Arbour, David | AVAILABLE Level 5 |

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

Project Database Version  
Warehouse Version

| GlobalUniqueIdentifier  | ProjectCode    | ProjectName      | LocalityID            | StudyArea        | Transect | TransectName  | Point | SamplingU | ParentSam | Sam   |
|---|----------------|------------------|-----------------------|------------------|----------|---------------|-------|-----------|-----------|-------|
| 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 |

| DecimalLatitude | DecimalLongitude | Visit | ProtocolCode             | ObservationYear | CollectionMonth | DayC | JulianDay | JulianDayV | P Time | Collection | ScientificName | CommonName           | SpeciesCode | Phylogen | DistanceFrom | Flycatcher | Detection | Observation | NoObserved | 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  | 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

| StudyArea          | Transect | Point    | Protocol | Visit    | Date    | Start Time | End Time   | 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_5min   | 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_5min   | 1        | GCFL  | Great Crested Flycat | Myiarchus crinitus     | 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_5min   | 1        | KEWA  | Kentucky Warbler     | Geothlypis formicivora | 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 Cowbird | Molothrus ater         | NR              | G50       | 50 to 100  | Light sprinkle, light rain | Arbour, David | AVAILABLE | Level 5    |             |

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

## Sharing Levels

| ProjectCode    | ProjectName      | LocalityID            | StudyArea        | Transect | TransectName  | Point | SamplingU | ParentSam | Sam   |
|----------------|------------------|-----------------------|------------------|----------|---------------|-------|-----------|-----------|-------|
| LITTLERIVERNWR | Little River NWR | LITTLERIVERNWR:COMP_5 | Little River NWR | COMP_5   | Compartment_5 | 164   | 300600    | 348115    | Point |
| LITTLERIVERNWR | Little River NWR | LITTLERIVERNWR:COMP_5 | Little River NWR | COMP_5   | Compartment_5 | 164   | 300600    | 348115    | Point |
| LITTLERIVERNWR | Little River NWR | LITTLERIVERNWR:COMP_5 | Little River NWR | COMP_5   | Compartment_5 | 164   | 300600    | 348115    | Point |
| LITTLERIVERNWR | Little River NWR | LITTLERIVERNWR:COMP_5 | Little River NWR | COMP_5   | Compartment_5 | 164   | 300600    | 348115    | Point |

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

| Det        | Category  | Distance B | Distance B               | Point    | Protocol | Visit | Date | Start Time | End Time | Time Bin | Count | Spp        | Common Name  | Scientific Name | Detection | Distance B | Distance B | Point Note | Obs | 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        | GCFL            | 1214      | 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     | 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       | 8:01:00  | DA    | Molothrus  | Brown-headed | BHCO            | 1718      | 75         | NR         | 1          | 0   | AVAILABLE         | LEVEL 5 |

# **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

# Partners and Data Ownership

1. Collecting data on/near an installation that is for a partnership.
2. Having a 3<sup>rd</sup> party collecting data for an installation.

**DoD goal:** ask questions across DoD – data needs to be in Installation projects

# Discovering observation data



# Analyze Data from Warehouse (demonstration)

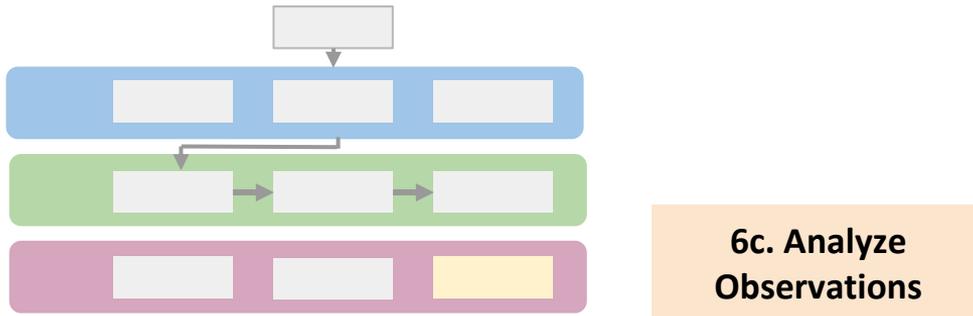
Tools:

- [Analysts](#)

# Create Species List with Phenology Tool (Exercise 3)

Exercise:

- Orientation of [Phenology Tool](#)
- Download Exercise 3 instructions



# Download Point Count Data from Warehouse (demonstration)

Tools:

- [Data Downloader](#)

# Break (15 mins)

---

## Looking for trends



**US Army Corps  
of Engineers**



# Looking for Trends (Exercise 4)

Exercise:

- Orientation of [Data Catalog](#) and [Observation Map](#)
- [Exercise 4 instructions](#)



# How have others organizations fully leveraged the AKN?



**US Army Corps  
of Engineers®**



# What should you expect this year with AKN, DoD, and your Service Branch?



# DoD Strategic Approach

- DoD AKN Program Management Plan
  - OSD and Military Services support
  - Funding mechanism
- Planned updates and tools
- Contractors
- Data initiatives

# DoD Mission-Sensitive Species (MSS)

Species occurring on DoD lands that may be at risk of becoming listed under the federal Endangered Species Act (ESA) and have high potential to impact the military mission should ESA listing be warranted.

# 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

# Pluses and Deltas Wrap-up



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

*NMFWA Workshop, March 12, 2021 via WebEx*

---

Michael Fitzgibbon, Point Blue Conservation Science  
John Alexander and Kate Halstead, Klamath Bird Observatory  
Elizabeth Neipert, US Army ERDC

## Thank you for participating!



**US Army Corps  
of Engineers®**

