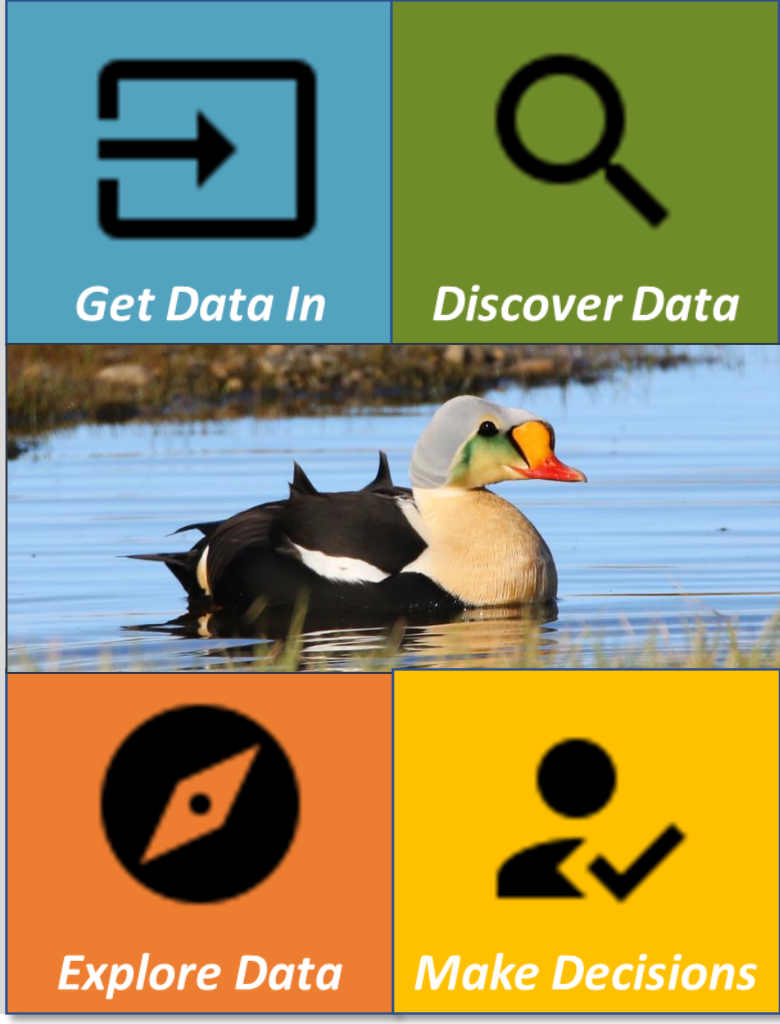
Avian Knowledge Network Update

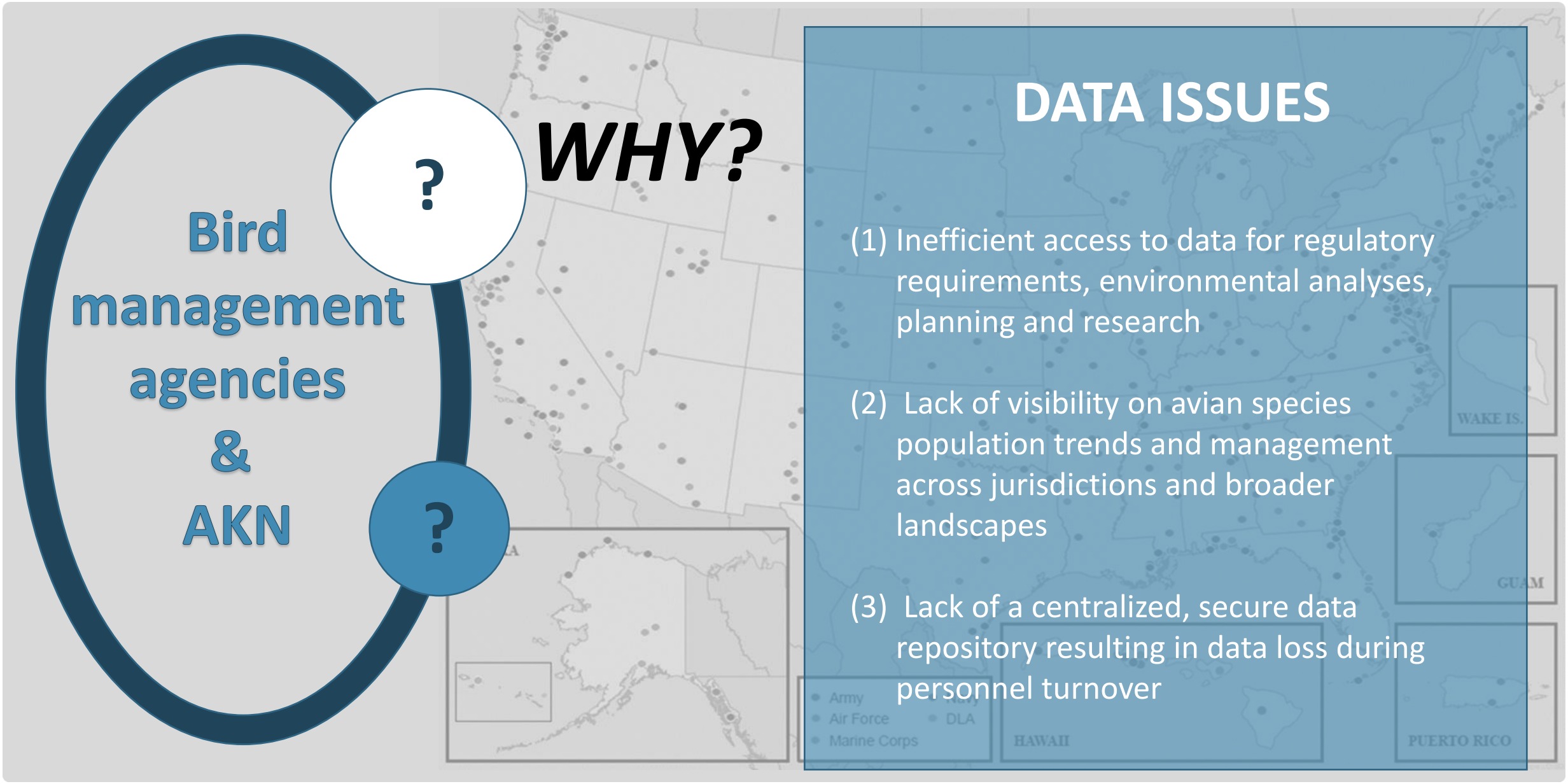


Sam Veloz, Ph.D.
Director Ecoinformatics & Climate Solutions
Point Blue Conservation Science
AKN Steering Committee member

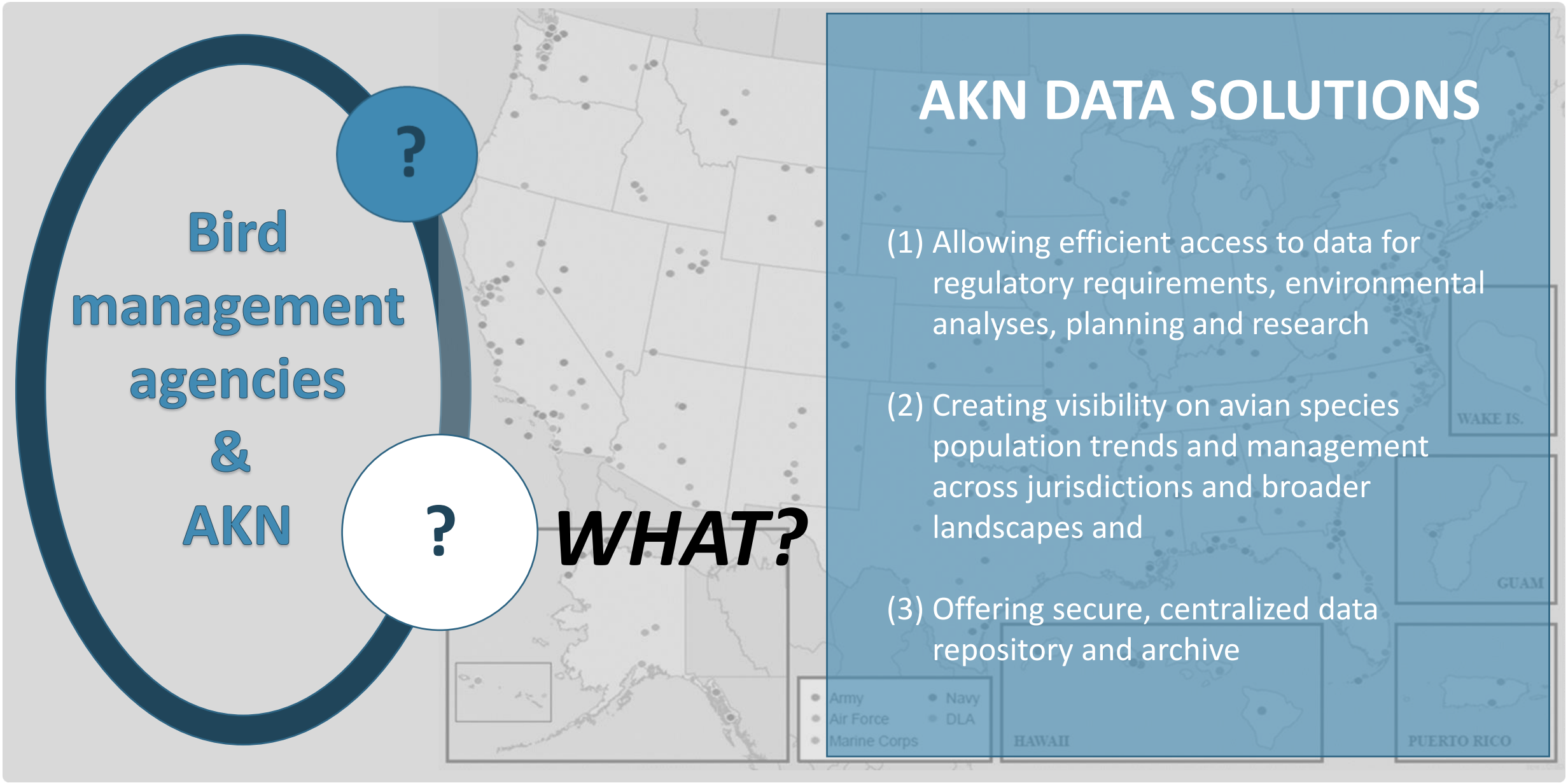
Elizabeth Neipert
US Army Engineer Research and Development Center, Environmental Lab
Technical Coordinator, DoD Partners in Flight
Director, DoD AKN Program
Chair, National AKN Steering Committee

AVIAN KNOWLEDGE NETWORK

Leveraging Partnerships, Data and Information to Revolutionize Avian Conservation



AVIAN KNOWLEDGE NETWORK

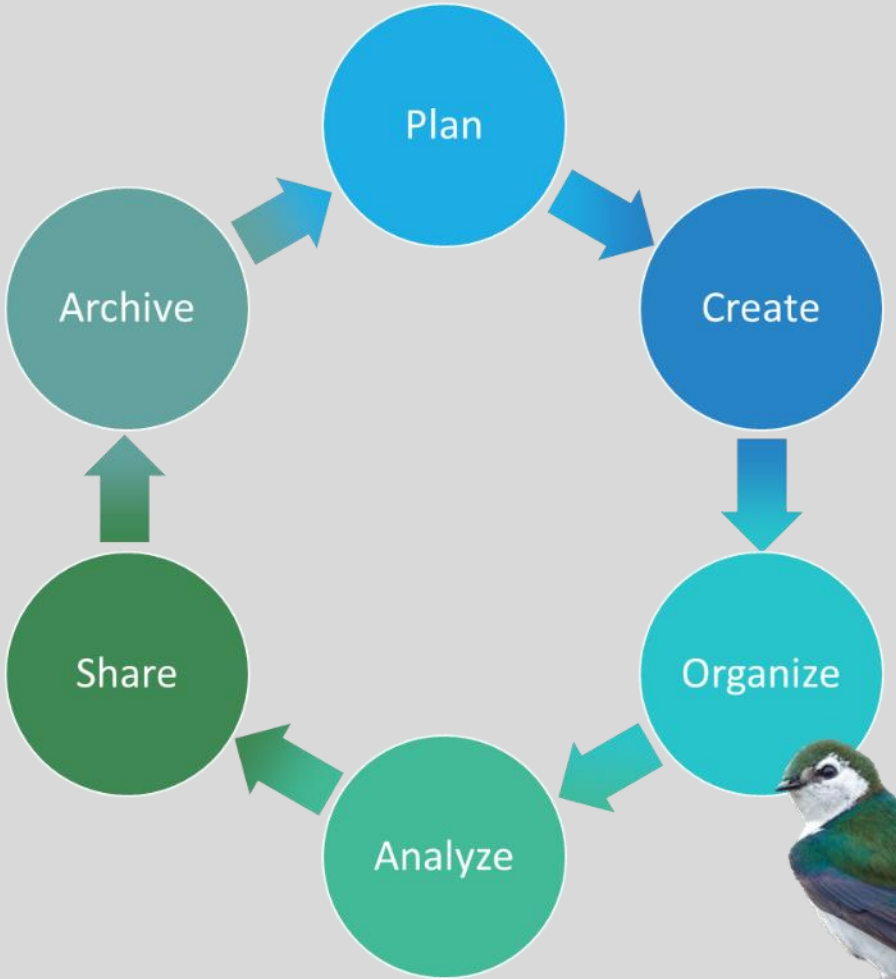


AVIAN KNOWLEDGE NETWORK

FULL AVIAN DATA LIFE CYCLE

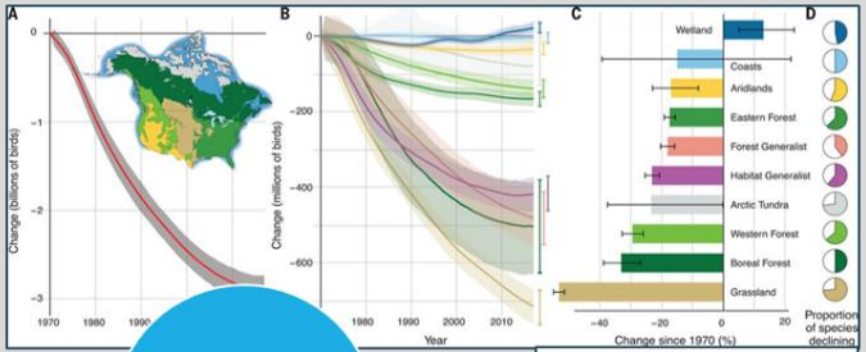
AVIAN KNOWLEDGE NETWORK

FULL AVIAN DATA LIFE CYCLE



AVIAN KNOWLEDGE NETWORK

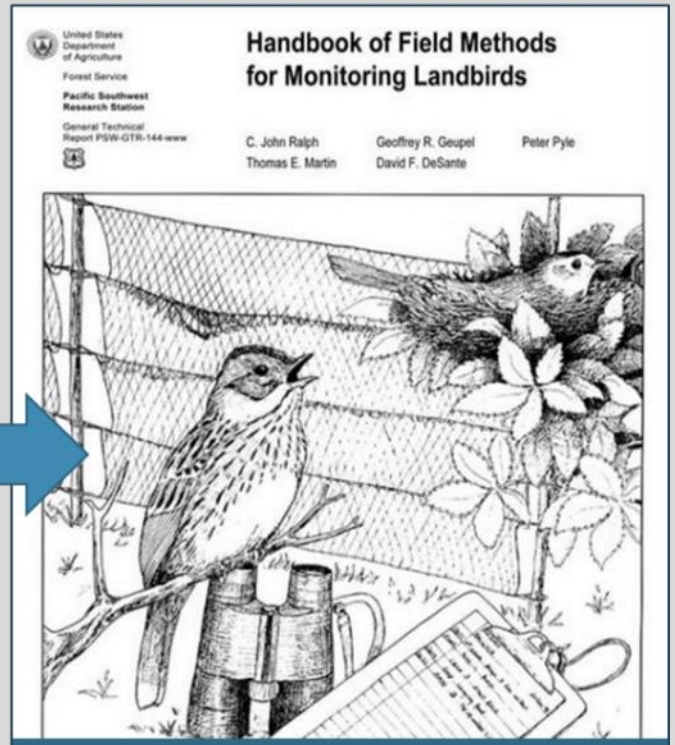
FULL AVIAN DATA LIFE CYCLE



Objective: population trends

Objective: restoration & management

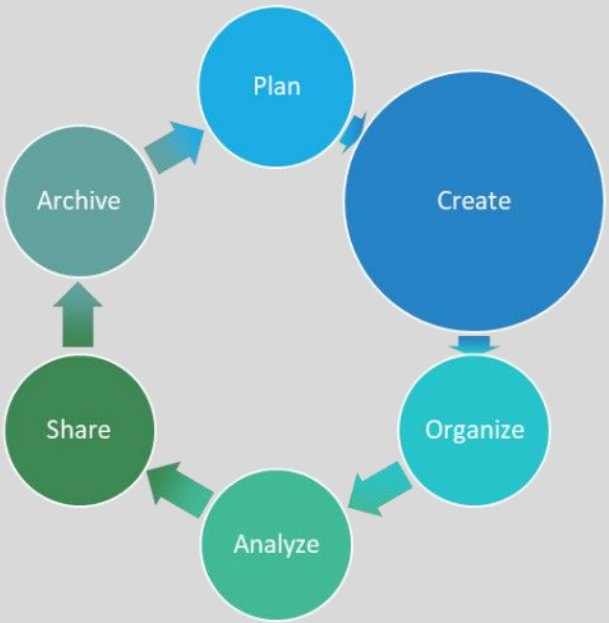
SURVEY OBJECTIVES

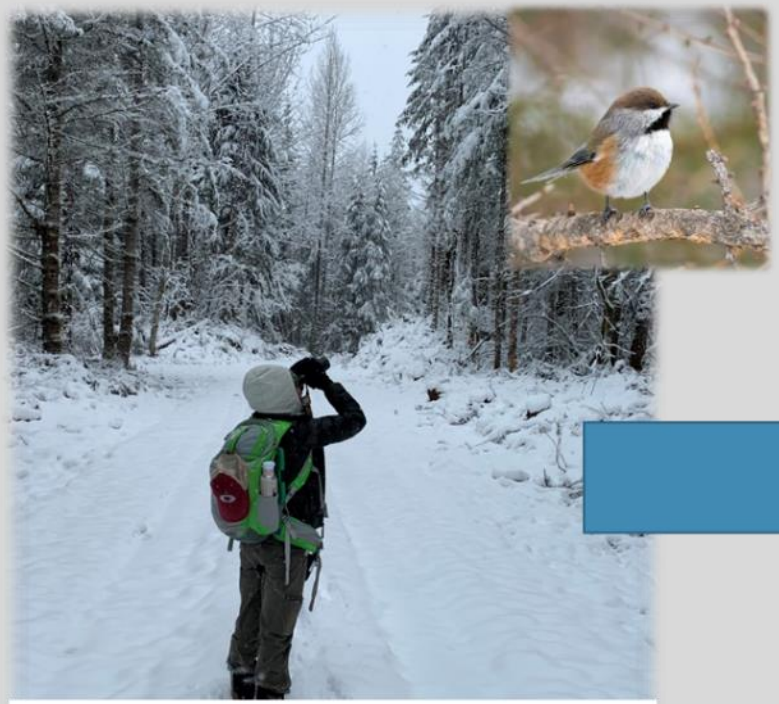


APPROPRIATE METHODOLOGIES

AVIAN KNOWLEDGE NETWORK

FULL AVIAN DATA LIFE CYCLE



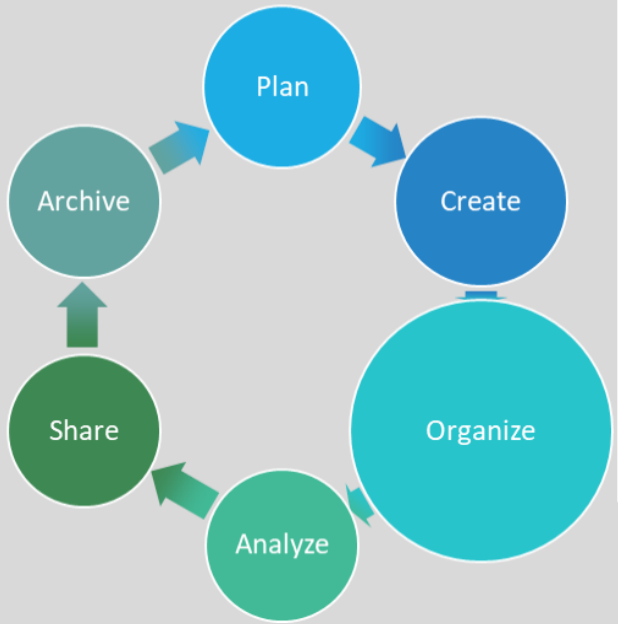


FIELD SAMPLING-OBSERVATIONS

FIELD FORM-DATA

AVIAN KNOWLEDGE NETWORK

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			✖

AVIAN KNOWLEDGE NETWORK

FULL AVIAN DATA LIFE CYCLE

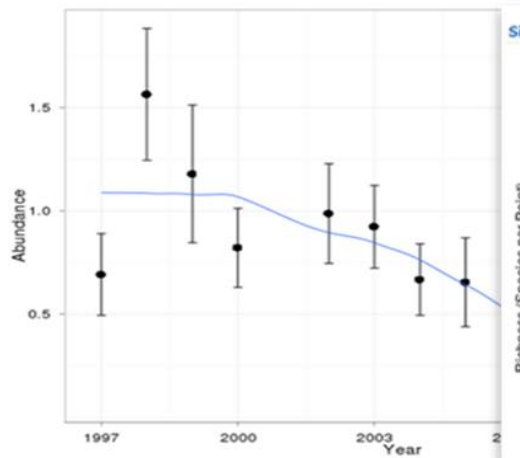
ANALYSIS

Total Number of Observations of each Species by Year

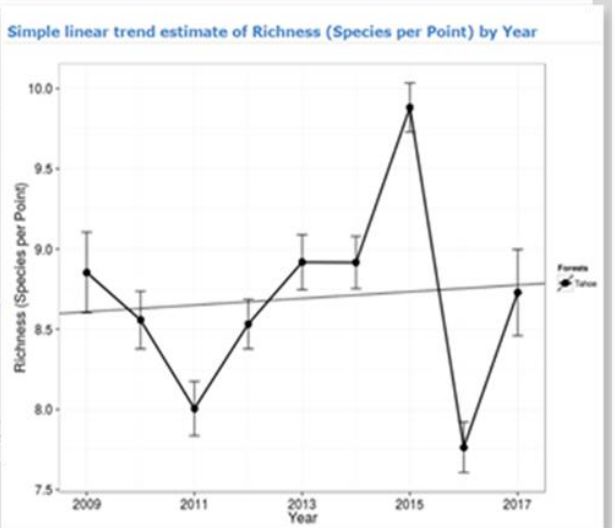
copy table to: CSV HTML DOC PDF

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										

Trend in Abundance over YearCollected. Generalized additive trend estimate of Abundance by Year with locally weighed (loess) smoother. Estimate for Species = Song Sparrow Using Locally Weighed (loess) Smoother

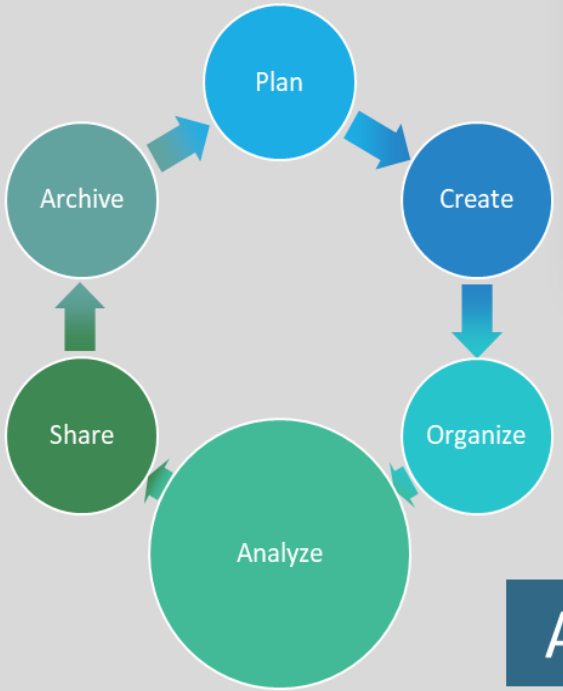


Simple linear trend estimate of Richness (Species per Point) by Year

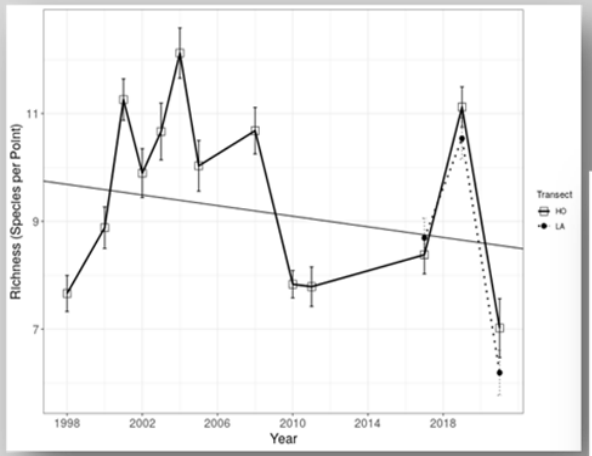


AVIAN KNOWLEDGE NETWORK

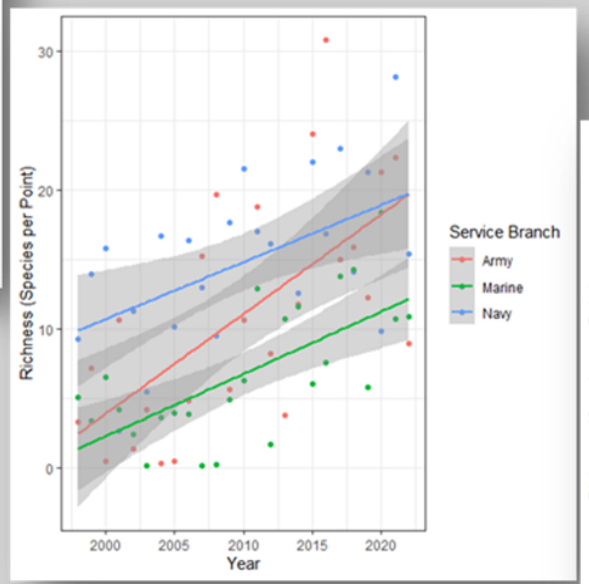
FULL AVIAN DATA LIFE CYCLE



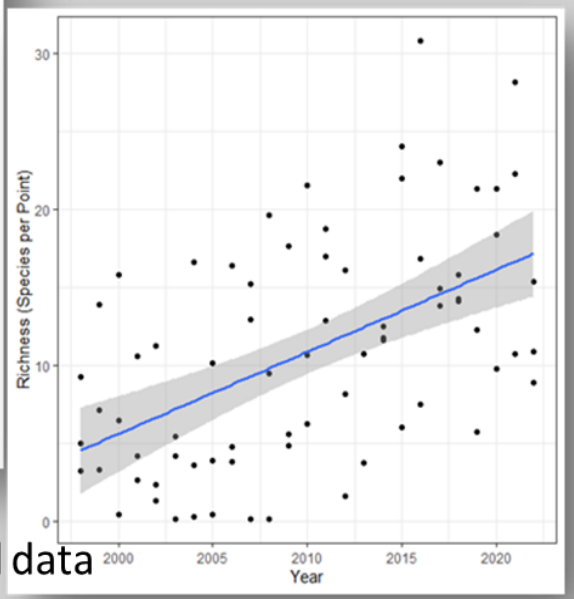
Vandenberg Space Force Base
Project Riparian Richness



Service Branch Program
Riparian Bird Richness



DoD Program
Riparian Bird Richness



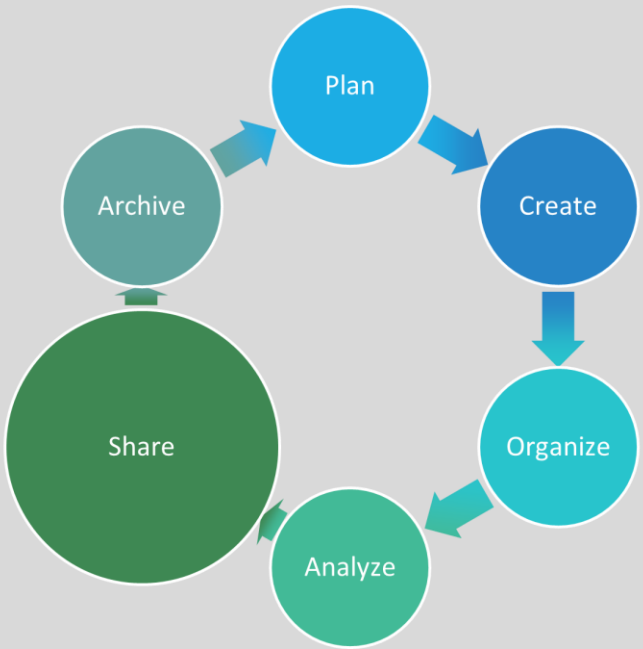
ANALYSIS AT MULTIPLE SCALES

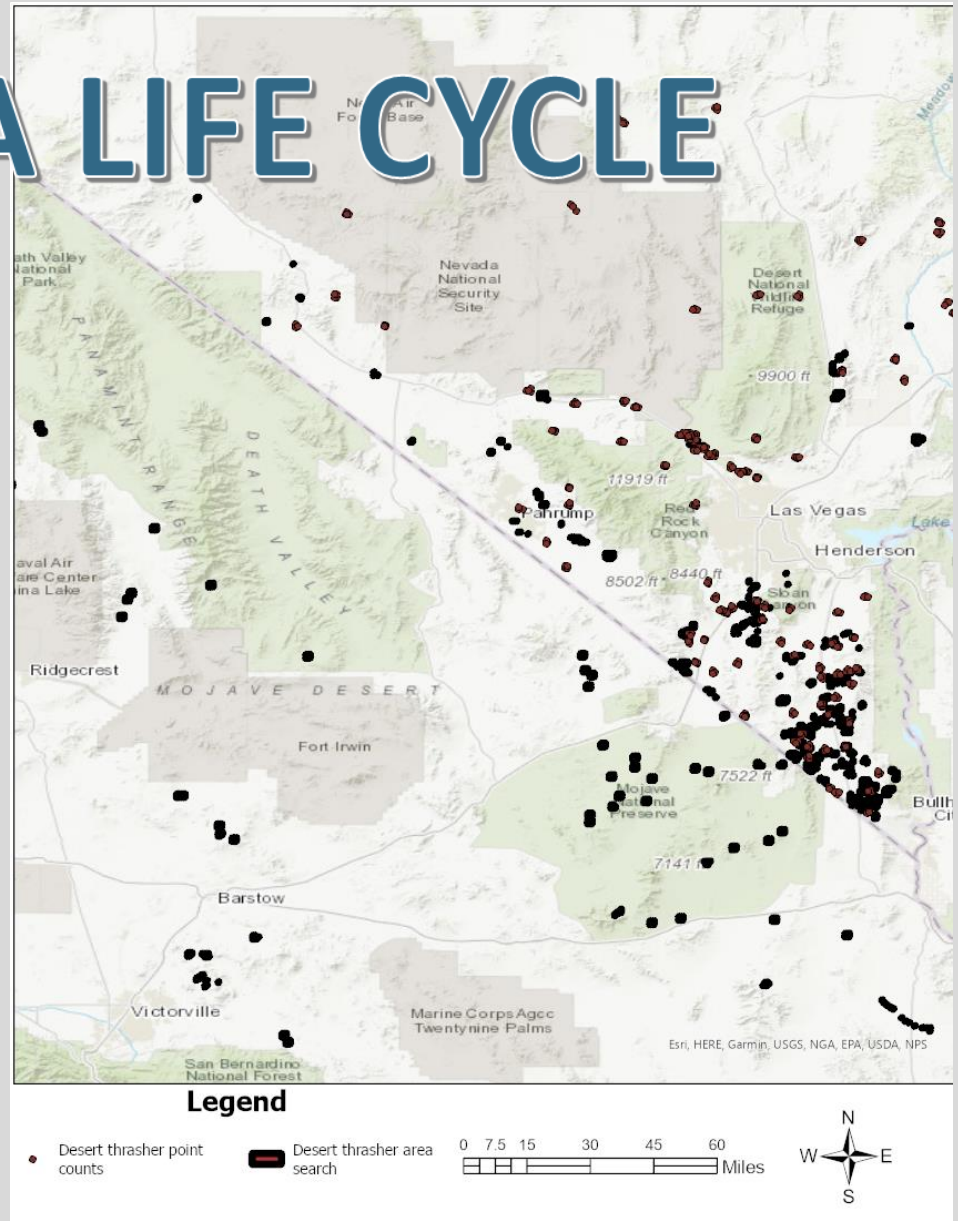
*Simulated data

AVIAN KNOWLEDGE NETWORK

FULL AVIAN DATA LIFE CYCLE

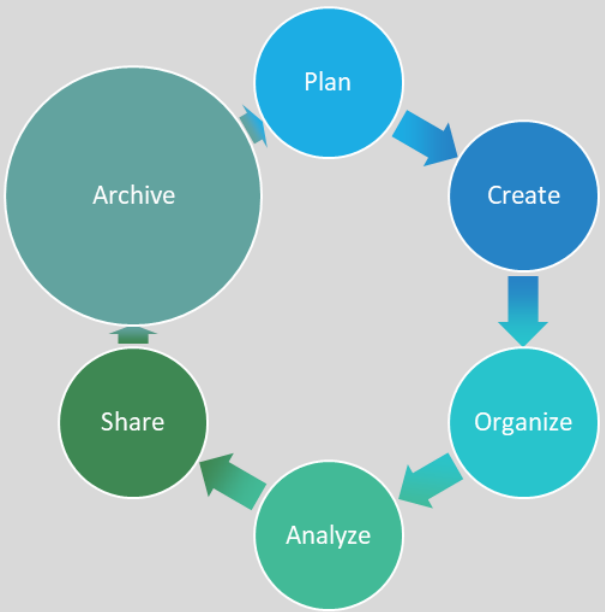
DATA IN LARGER CONTEXT & FILLING DATA GAPS

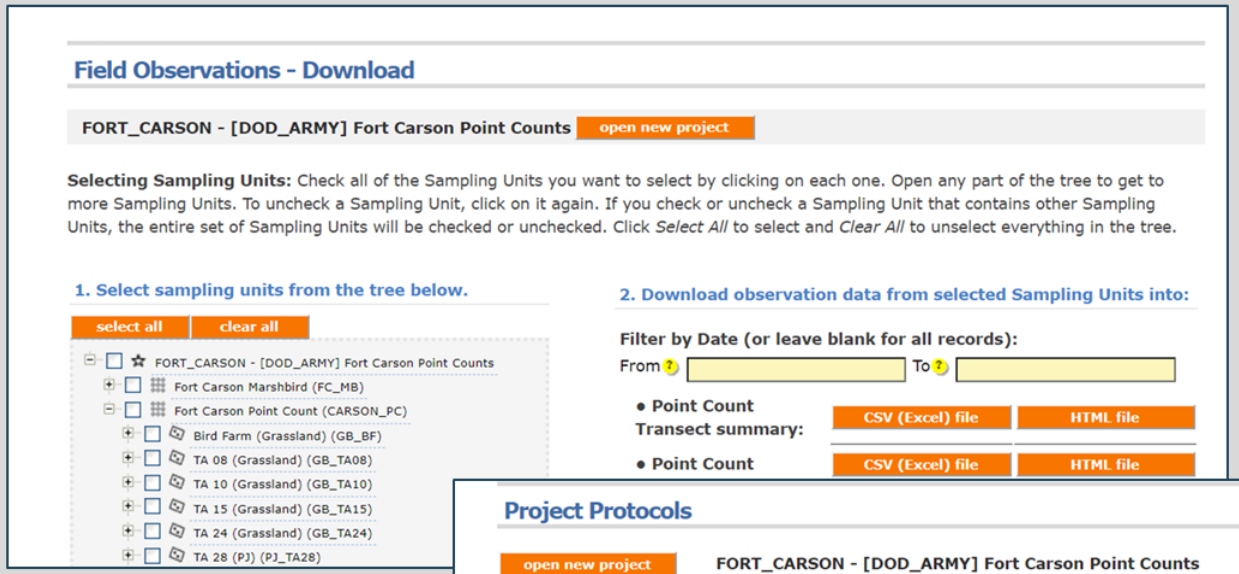


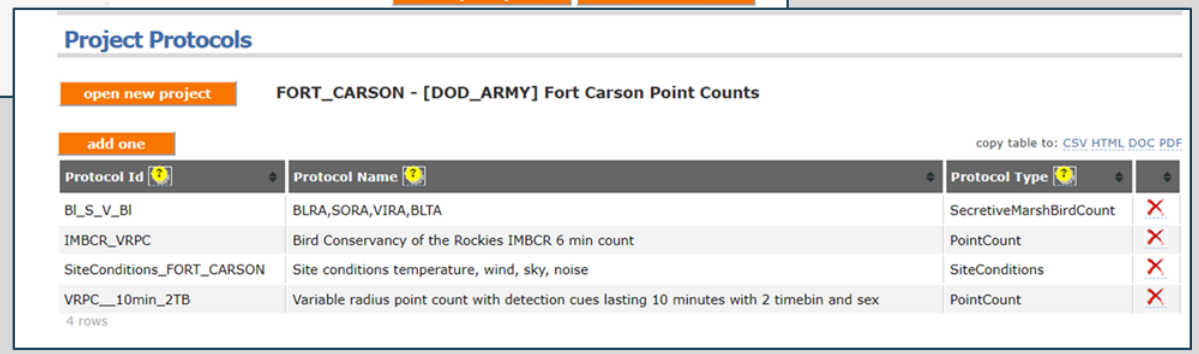


AVIAN KNOWLEDGE NETWORK

FULL AVIAN DATA LIFE CYCLE



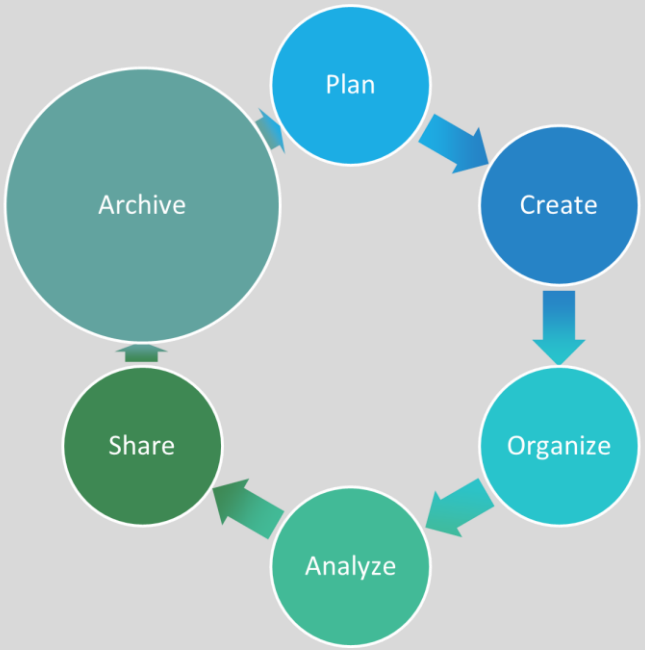


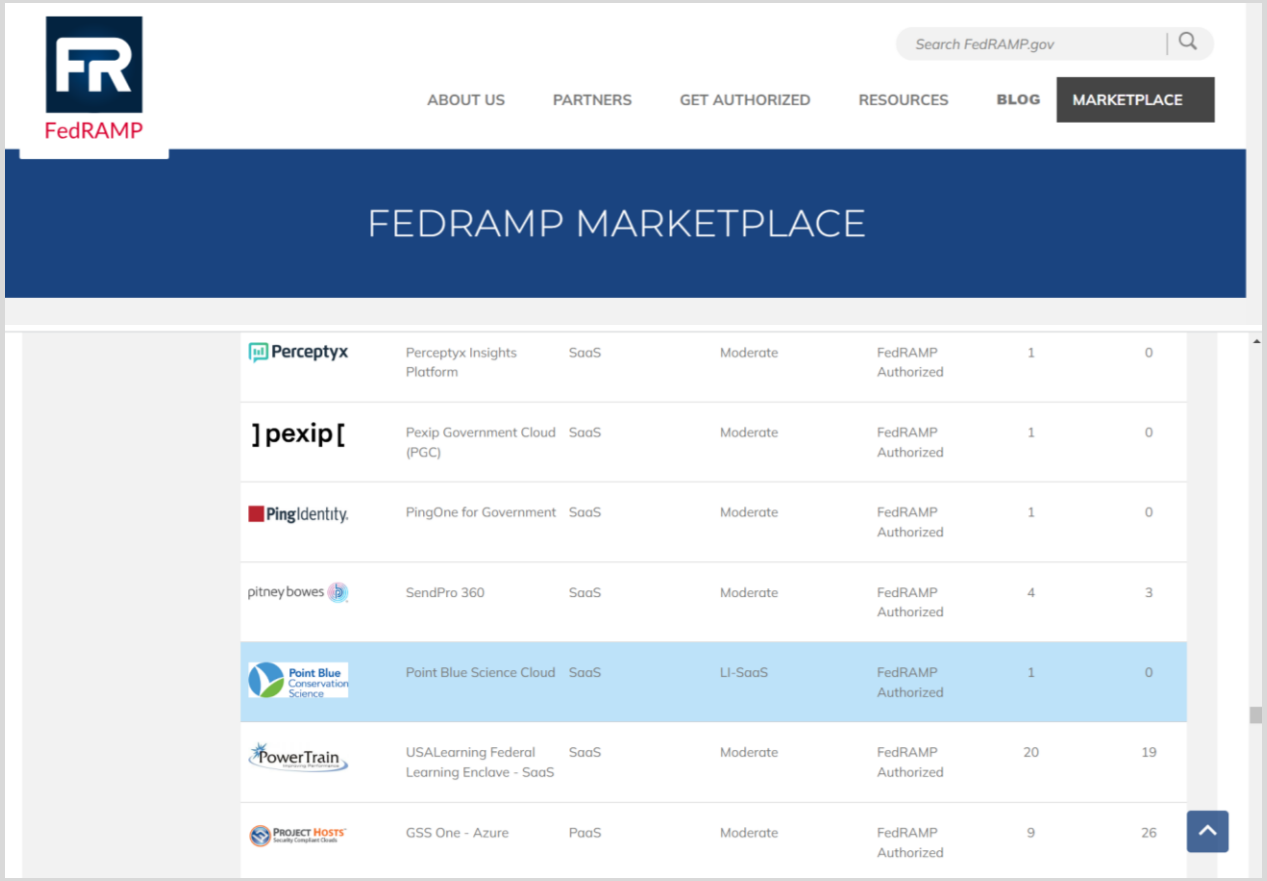


PERMANENT STORAGE & ACCESS

AVIAN KNOWLEDGE NETWORK

FULL AVIAN DATA LIFE CYCLE

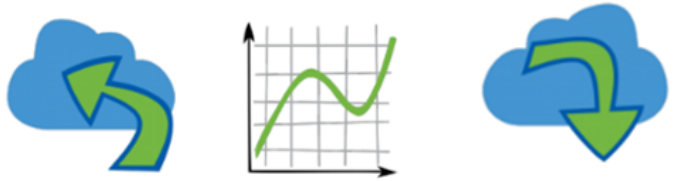




AVIAN KNOWLEDGE NETWORK

Point Blue Conservation Science

Science Cloud



Using data to support better conservation

AVIAN KNOWLEDGE NETWORK

AKN Steering Committee & Priorities

- Chair: Liz Neipert, US Army Engineer R&D Center
- Chris White, Bird Conservancy of the Rockies
- David Hanni, Wildlife Resources Agency, Tennessee
- Donna Ray, US Forest Service
- John Alexander, Klamath Bird Observatory
- Jennie Duberstein, Sonoran Joint Venture
- Lee O'Brien, US Fish and Wildlife Service
- Renee Chi, Bureau of Land Management
- Russell Norvell, Utah Division of Wildlife Resources
- Ruth Boettcher, Department of Wildlife Resources, Virginia
- Sam Veloz, Point Blue Conservation Science

Program enterprise

More flexible "researcher" roles

More survey types

Improved navigation

Outcome focused training and customer support

AVIAN KNOWLEDGE NETWORK

Program Enterprise

- **Problem statement**
  - Data collection, sharing, & analysis fixed to project levels
    - Sharing parts of projects and multi-project sharing is limited
    - Analysis including multiple projects must be done manually outside of the AKN

- **Objectives**
  - Integrate projects into an “enterprise” framework
    - Facilitate sharing, access, and basic analysis within AKN
    - Automate multi-project data outputs for custom summary and analysis tool using APIs
    - Inform conservation outcomes by promoting adaptive management across multiple scales and jurisdictions

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Conservation science for a healthy planet.

Klamath Bird Observatory

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Flexible Researcher Role

- **Problem statement**
  - Only two "researcher" roles currently available
    - "Biologist": Can only enter and QA/QC data
    - "Project Leader": Has full access to all data in the project, sets sharing levels, grants project access to others, set up sampling units, protocols

- **Objectives**
  - Bring in new roles providing more flexibility to project access
    - Program leader: Full access to all data within a program
    - Contractor role: Access to limited data within a project to serve specific needs (i.e. enter data collected this season)
    - Analyst role: Provide limited access to data within a program or project to do analyses only

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More survey types

- **Problem statement**
  - Only a subset of survey types are currently supported
    - Point Count, Area Search, Linear Transect, Secretive Marshbird, other specialty survey types
- **Objectives**
  - Support other common survey types
    - Banding, Nests, Colonies
    - Automated sensors (ARU's etc)

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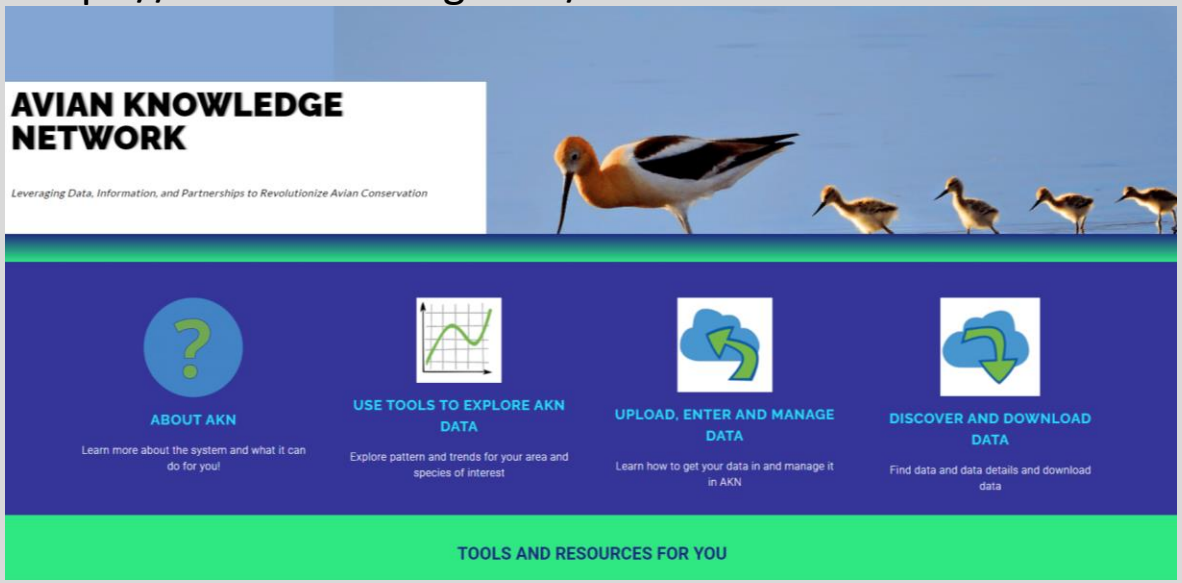
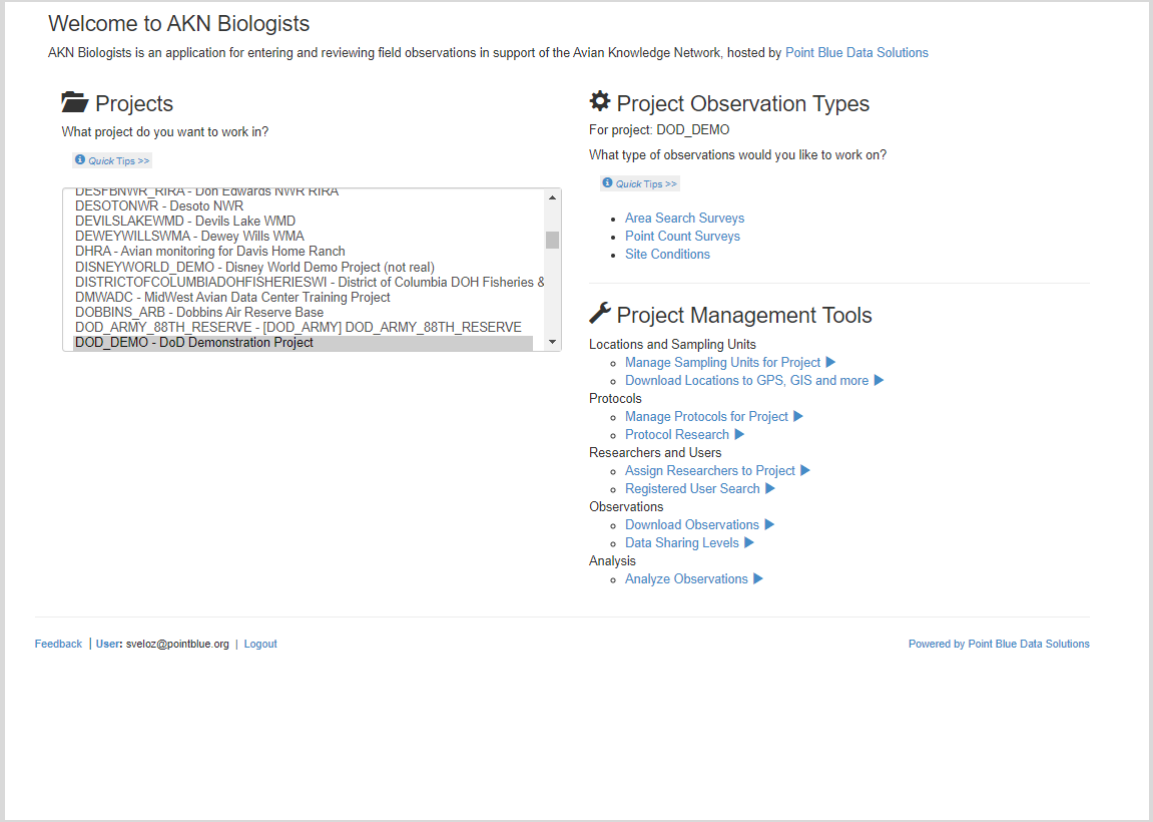
Improved Navigation

https://avianknowledge.net/





AVIAN KNOWLEDGE NETWORK

Outcome focused training and customer support

- Heavy investment in training
  - 200 DoD and partner staff trained in the past 24 months
  - Monthly office hours for user support
  - You tube channel with training videos @avianknowledgenetworkakn8439
- **In the last quarter the amount of DoD records increased by 53%.**

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Klamath Bird Observatory

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

AVIAN KNOWLEDGE NETWORK

DOD MISSION-SENSITIVE SPECIES

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

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

Both field methods posted on DoD AKN Portal

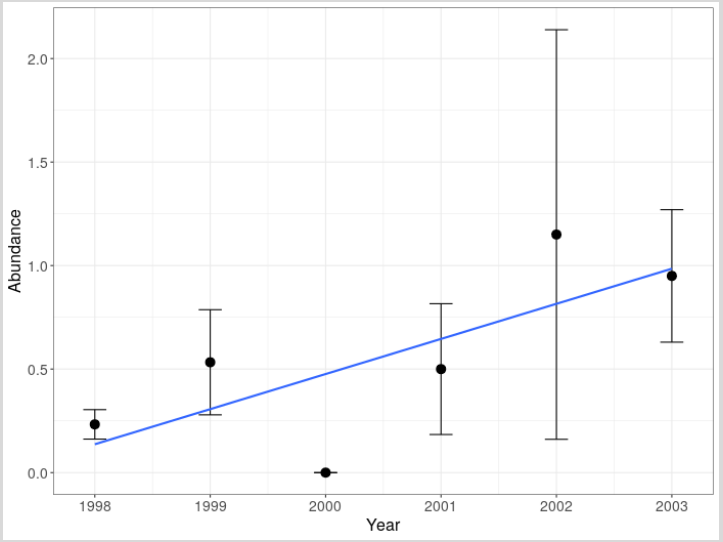
Area Search survey based on 2.5km grids, available in AKN

Road-based point count protocol, available in AKN

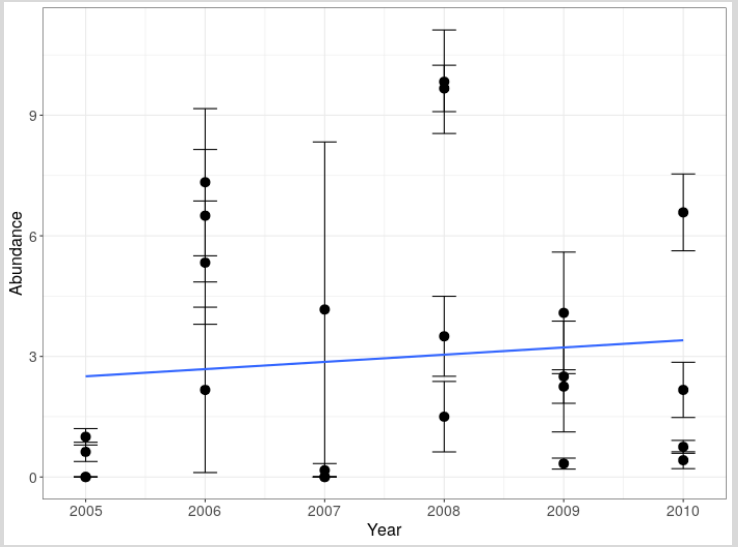
https://www.dodakn.org/resources/mss/#MSS_PIJA

AVIAN KNOWLEDGE NETWORK

Pinyon Jay Analytics in the AKN



Transect level analysis



Study area level analysis:
4 transects, 16 points

Existing AKN Projects

- 33 projects with point count protocols, 4,269 observations
- 11 projects with area search protocols, 1,452 observations
- Many observations are <u>non-detections</u>

AVIAN KNOWLEDGE NETWORK

Photo: Elizabeth Neipert

What's next?

- Helping network partners plan, collect, and organize field data
- Improving systems and tools to analyze data
- Providing a secure environment to curate the data for the future and enabling the sharing of knowledge throughout the network
- Creating the foundation for data to **increase the pace & scale of climate-smart conservation** at continental scales
- Enabling efficient use of conservation resources

AVIAN KNOWLEDGE NETWORK

Questions?

Please direct any questions about **AKN** to:

Elizabeth.S.Neipert@erdc.dren.mil

and the Point Blue Science Cloud to

sveloz@pointblue.org

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