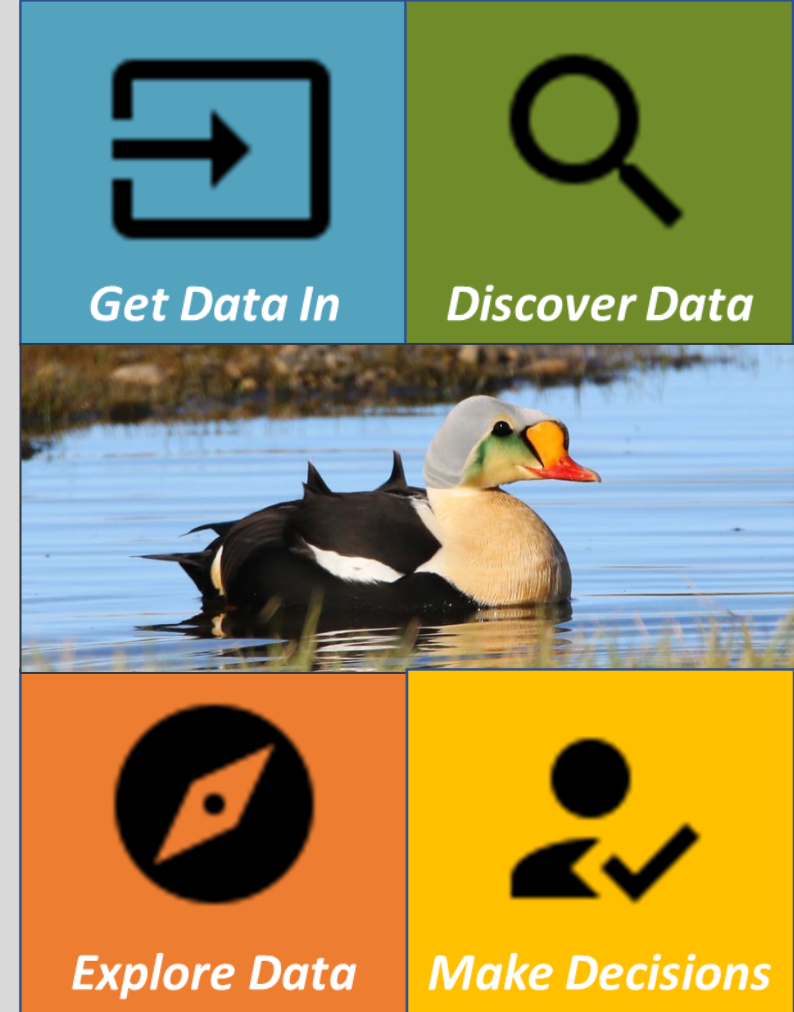


Avian Knowledge Network Update



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

Bird
management
agencies
&
AKN

?

WHY?

?

DATA ISSUES

- (1) Inefficient access to data for regulatory requirements, environmental analyses, planning and research
- (2) Lack of visibility on avian species population trends and management across jurisdictions and broader landscapes
- (3) Lack of a centralized, secure data repository resulting in data loss during personnel turnover

Bird
management
agencies
&
AKN

?

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WHAT?

AKN DATA SOLUTIONS

- (1) Allowing efficient access to data for regulatory requirements, environmental analyses, planning and research
- (2) Creating visibility on avian species population trends and management across jurisdictions and broader landscapes and
- (3) Offering secure, centralized data repository and archive

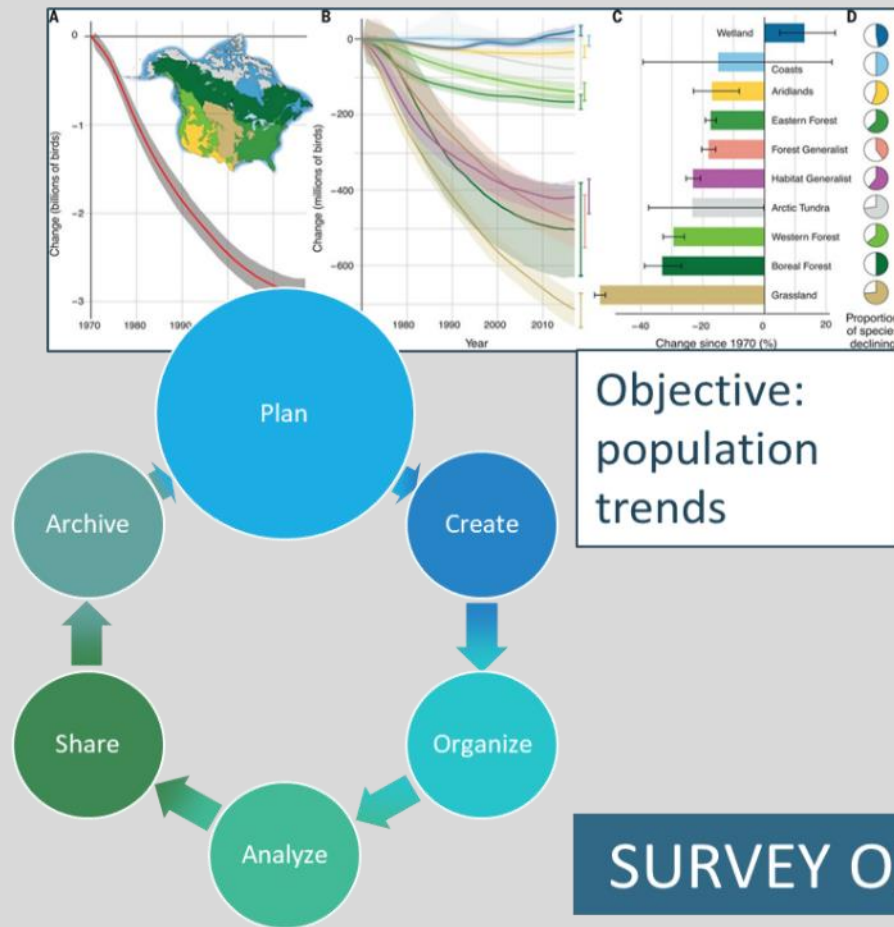
**FULL
AVIAN
DATA
LIFE
CYCLE**



FULL AVIAN DATA LIFE CYCLE

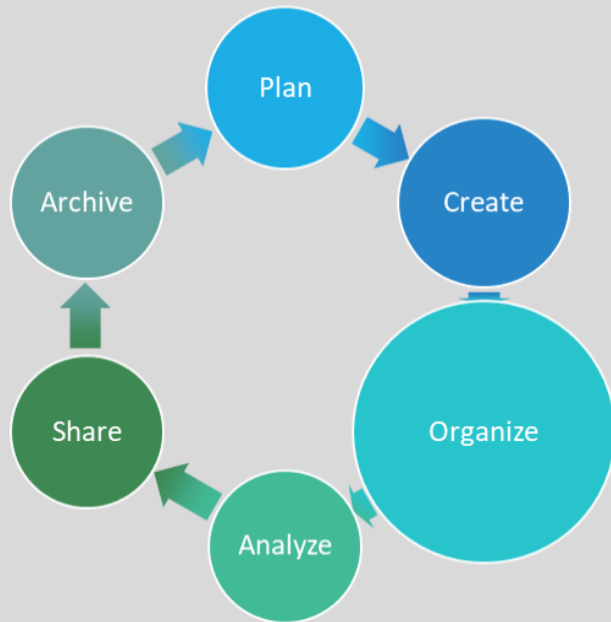


FULL AVIAN DATA LIFE CYCLE



SURVEY OBJECTIVES

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

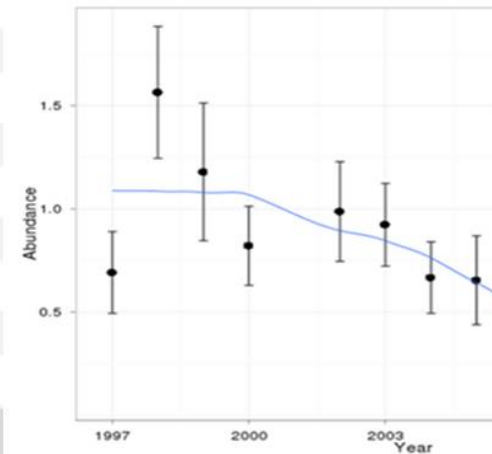
ANALYSIS

Total Number of Observations of each Species by Year

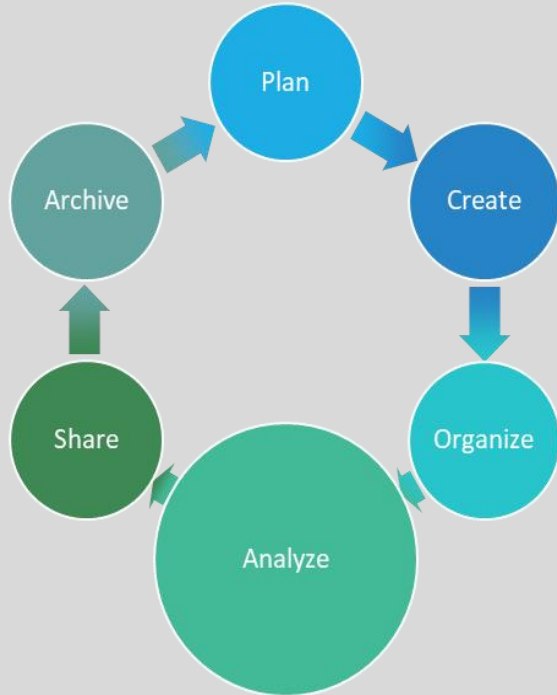
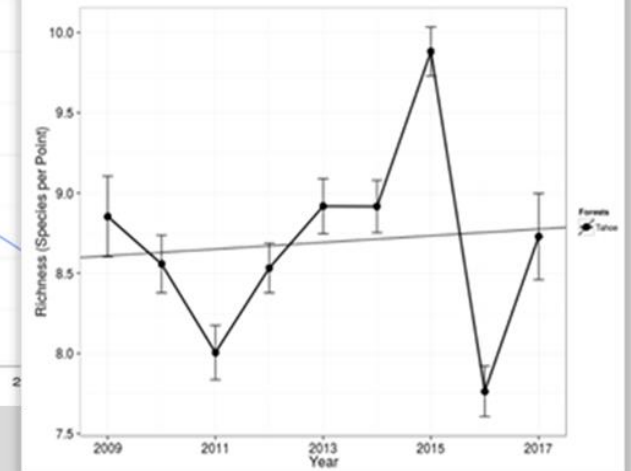
copy table to: [CSV](#) [HTML](#) [DOC](#) [PDF](#)

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										

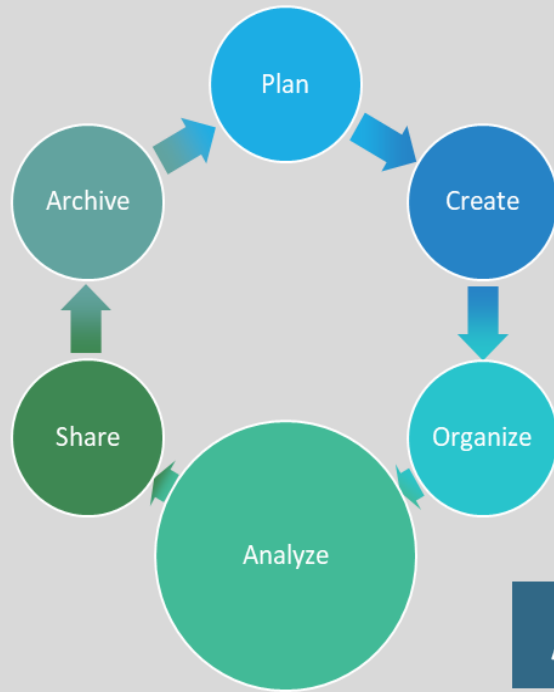
Trend in Abundance over Year Collected. Generalized additive trend estimate of Abundance by Year with locally weighed (loess) smoother. Estimate for Species = Song Sparrow Using Locally Weighed (loess) Smoother



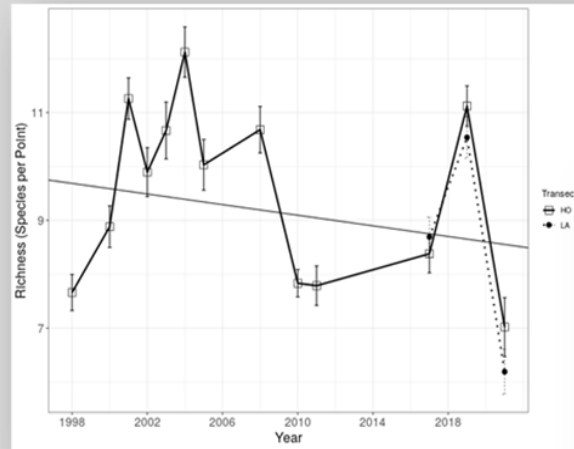
Simple linear trend estimate of Richness (Species per Point) by Year



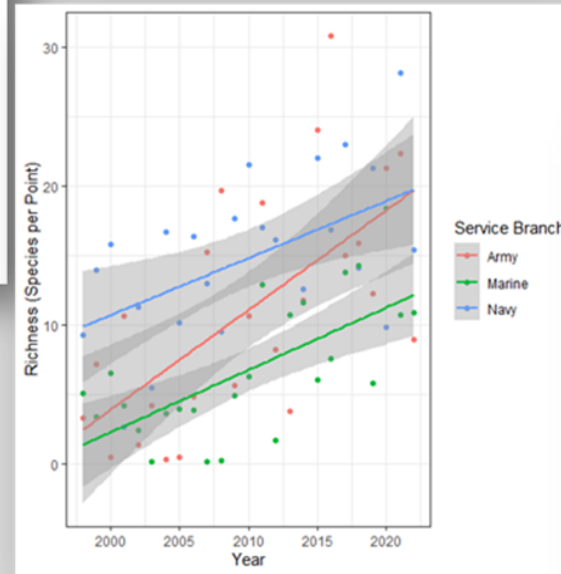
FULL AVIAN DATA LIFE CYCLE



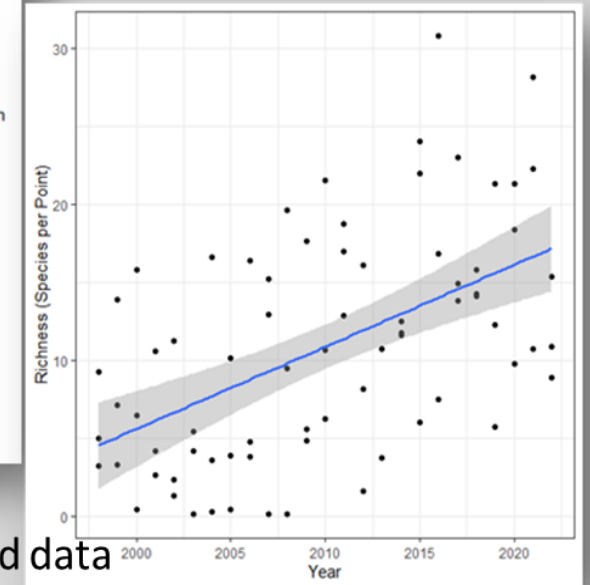
Vandenberg Space Force Base
Project Riparian Richness



Service Branch Program
Riparian Bird Richness



DoD Program
Riparian Bird Richness

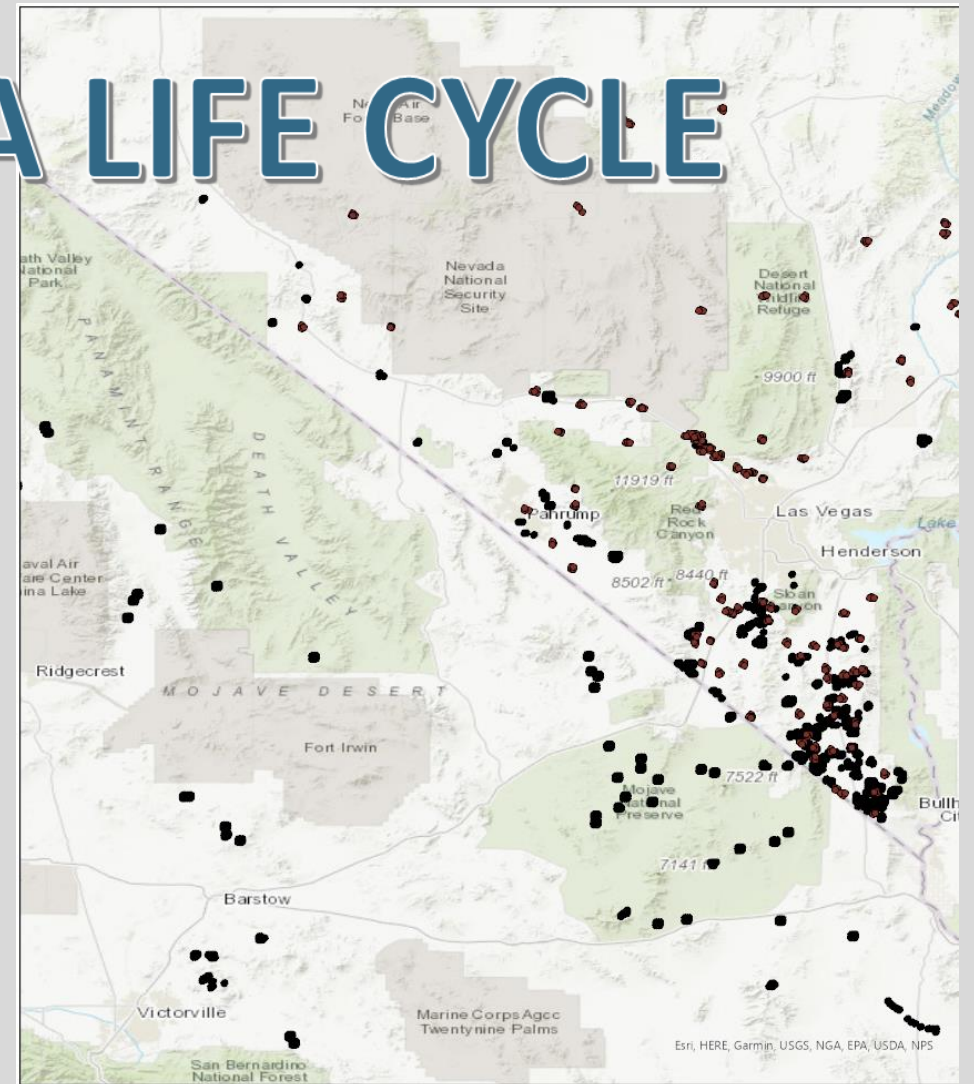
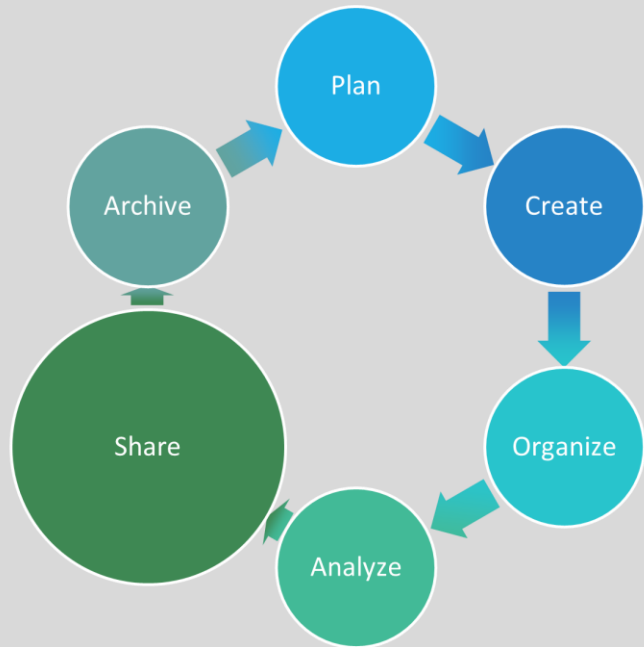


ANALYSIS AT MULTIPLE SCALES

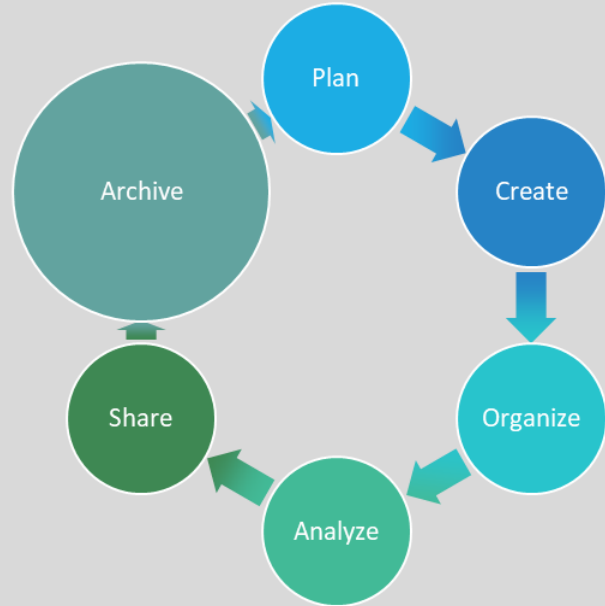
*Simulated data

FULL AVIAN DATA LIFE CYCLE

DATA IN LARGER CONTEXT & FILLING DATA GAPS



FULL AVIAN DATA LIFE CYCLE



Field Observations - Download

FORT_CARSON - [DOD_ARMY] Fort Carson Point Counts [open new project](#)

Selecting Sampling Units: Check all of the Sampling Units you want to select by clicking on each one. Open any part of the tree to get to more Sampling Units. To uncheck a Sampling Unit, click on it again. If you check or uncheck a Sampling Unit that contains other Sampling Units, the entire set of Sampling Units will be checked or unchecked. Click *Select All* to select and *Clear All* to unselect everything in the tree.

1. Select sampling units from the tree below.

[select all](#) [clear all](#)

- FORT_CARSON - [DOD_ARMY] Fort Carson Point Counts
 - Fort Carson Marshbird (FC_MB)
 - Fort Carson Point Count (CARSON_PC)
 - Bird Farm (Grassland) (GB_BF)
 - TA 08 (Grassland) (GB_TA08)
 - TA 10 (Grassland) (GB_TA10)
 - TA 15 (Grassland) (GB_TA15)
 - TA 24 (Grassland) (GB_TA24)
 - TA 28 (P.) (PJ_TA28)

2. Download observation data from selected Sampling Units into:

Filter by Date (or leave blank for all records):
 From To

• Point Count [CSV \(Excel\) file](#) [HTML file](#)

• Point Count [CSV \(Excel\) file](#) [HTML file](#)

Project Protocols

[open new project](#) FORT_CARSON - [DOD_ARMY] Fort Carson Point Counts

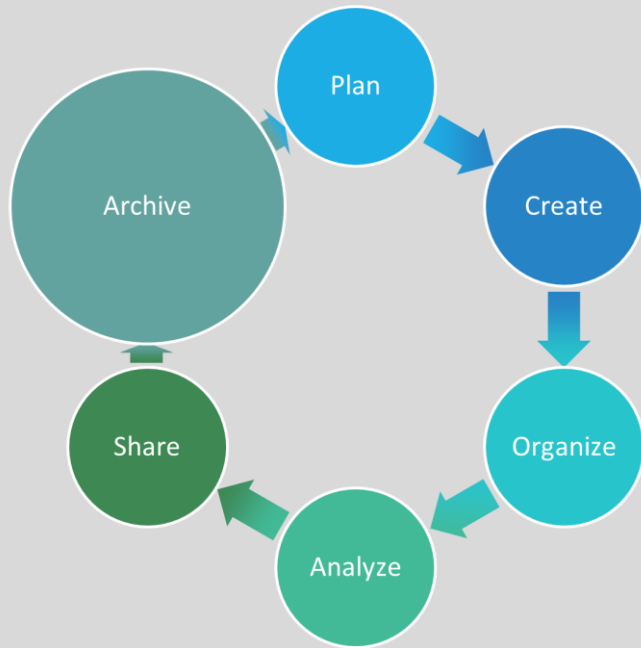
[add one](#) copy table to: [CSV](#) [HTML](#) [DOC](#) [PDF](#)

Protocol Id	Protocol Name	Protocol Type	
Bl_S_V_BI	BLRA,SORA,VIRA,BLTA	SecretiveMarshBirdCount	✗
IMBCR_VRPC	Bird Conservancy of the Rockies IMBCR 6 min count	PointCount	✗
SiteConditions_FORT_CARSON	Site conditions temperature, wind, sky, noise	SiteConditions	✗
VRPC__10min_2TB	Variable radius point count with detection cues lasting 10 minutes with 2 timebin and sex	PointCount	✗

4 rows

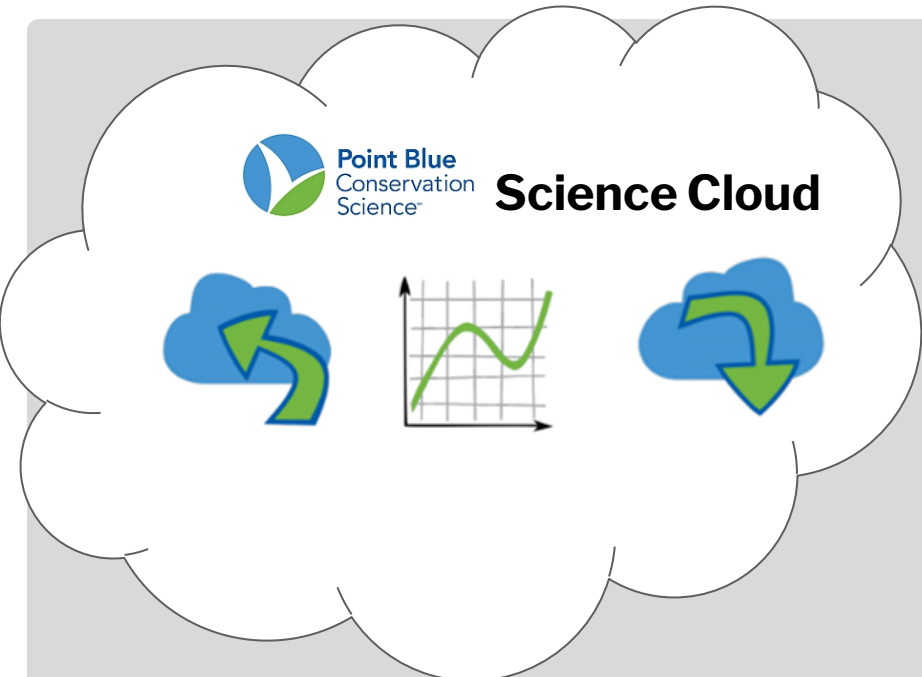
PERMANENT STORAGE & ACCESS

FULL AVIAN DATA LIFE CYCLE



The screenshot shows the FedRAMP Marketplace website. The header includes the FedRAMP logo, a search bar, and navigation links for ABOUT US, PARTNERS, GET AUTHORIZED, RESOURCES, BLOG, and MARKETPLACE. The main content area displays a list of authorized services with the following details:

Service Name	Product	Model	Control Level	Authorization Status	Count 1	Count 2
Perceptyx	Perceptyx Insights Platform	SaaS	Moderate	FedRAMP Authorized	1	0
]pexip[Pexip Government Cloud (PGC)	SaaS	Moderate	FedRAMP Authorized	1	0
PingIdentity	PingOne for Government	SaaS	Moderate	FedRAMP Authorized	1	0
pitney bowes	SendPro 360	SaaS	Moderate	FedRAMP Authorized	4	3
Point Blue Conservation Science	Point Blue Science Cloud	SaaS	LI-SaaS	FedRAMP Authorized	1	0
PowerTrain	USALearning Federal Learning Enclave - SaaS	SaaS	Moderate	FedRAMP Authorized	20	19
PROJECT HOSTS	GSS One - Azure	PaaS	Moderate	FedRAMP Authorized	9	26



Using data to support better conservation



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



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





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





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

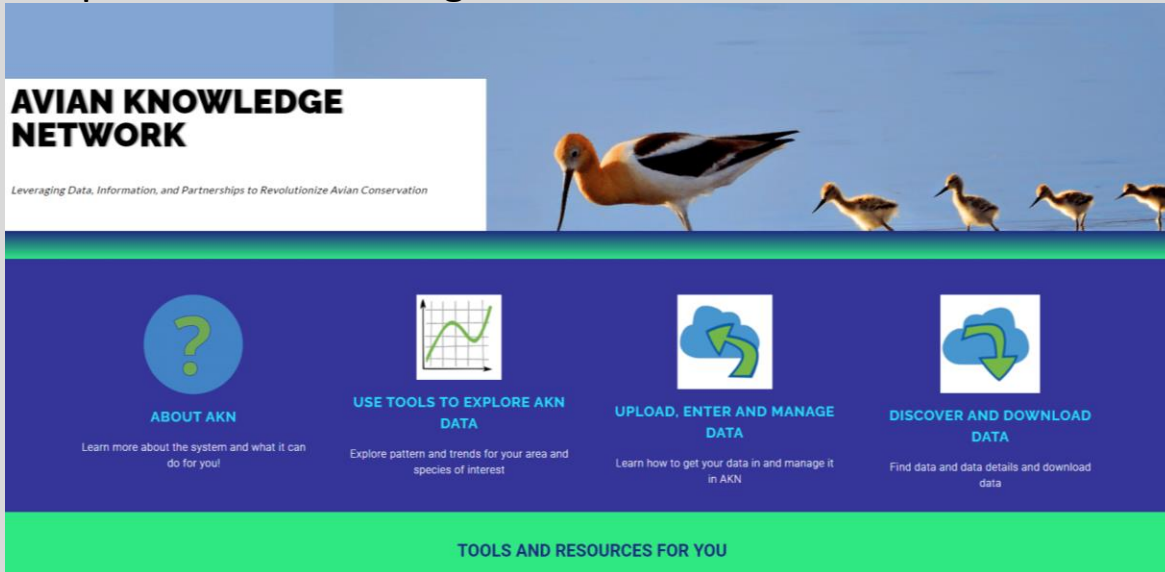
- Support other common survey types

- ▶ Banding, Nests, Colonies
- ▶ Automated sensors (ARU's etc)




Improved Navigation

<https://avianknowledge.net/>



AVIAN KNOWLEDGE NETWORK
Leveraging Data, Information, and Partnerships to Revolutionize Avian Conservation



ABOUT AKN
Learn more about the system and what it can do for you!

USE TOOLS TO EXPLORE AKN DATA
Explore pattern and trends for your area and species of interest

UPLOAD, ENTER AND MANAGE DATA
Learn how to get your data in and manage it in AKN

DISCOVER AND DOWNLOAD DATA
Find data and data details and download data

TOOLS AND RESOURCES FOR YOU

Welcome to AKN Biologists

AKN Biologists is an application for entering and reviewing field observations in support of the Avian Knowledge Network, hosted by [Point Blue Data Solutions](#)

Projects

What project do you want to work in?

[Quick Tips >>](#)

- DESOTONWR - Desoto NWR
- DEVILSLAKEWMD - Devils Lake WMD
- DEWEYWILLSWMA - Dewey Wills WMA
- DHRA - Avian monitoring for Davis Home Ranch
- DISNEYWORLD_DEMO - Disney World Demo Project (not real)
- DISTRICTOFCOLUMBIADOFHISHERIESWI - District of Columbia DOH Fisheries & DMWADC - MidWest Avian Data Center Training Project
- DOBBINS_ARB - Dobbins Air Reserve Base
- DOD_ARMY_88TH_RESERVE - [DOD_ARMY] DOD_ARMY_88TH_RESERVE
- DOD_DEMO - DoD Demonstration Project

Project Observation Types

For project: DOD_DEMO

What type of observations would you like to work on?

[Quick Tips >>](#)

- [Area Search Surveys](#)
- [Point Count Surveys](#)
- [Site Conditions](#)

Project Management Tools

Locations and Sampling Units

- [Manage Sampling Units for Project ▶](#)
- [Download Locations to GPS, GIS and more ▶](#)

Protocols

- [Manage Protocols for Project ▶](#)
- [Protocol Research ▶](#)

Researchers and Users

- [Assign Researchers to Project ▶](#)
- [Registered User Search ▶](#)

Observations

- [Download Observations ▶](#)
- [Data Sharing Levels ▶](#)

Analysis

- [Analyze Observations ▶](#)

[Feedback](#) | [User: sveioz@pointblue.org](#) | [Logout](#)

Powered by [Point Blue Data Solutions](#)

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
@avianknowledgenetwor
kkn8439
- In the last quarter the amount of DoD records increased by 53%.





DoD Mission Sensitive Species (MSS)



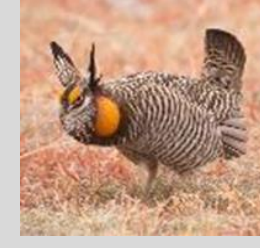
Northern Bobwhite



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

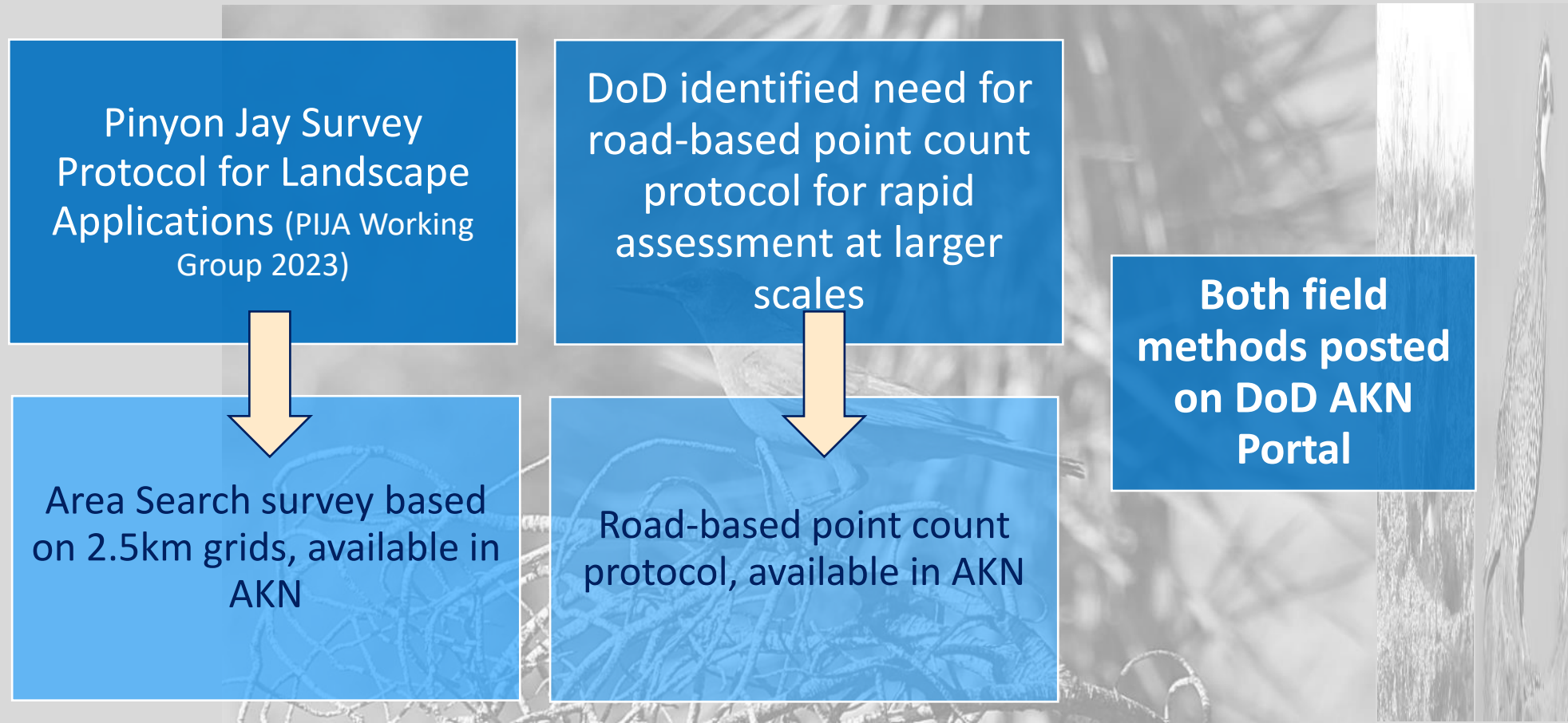


Tricolored Blackbird



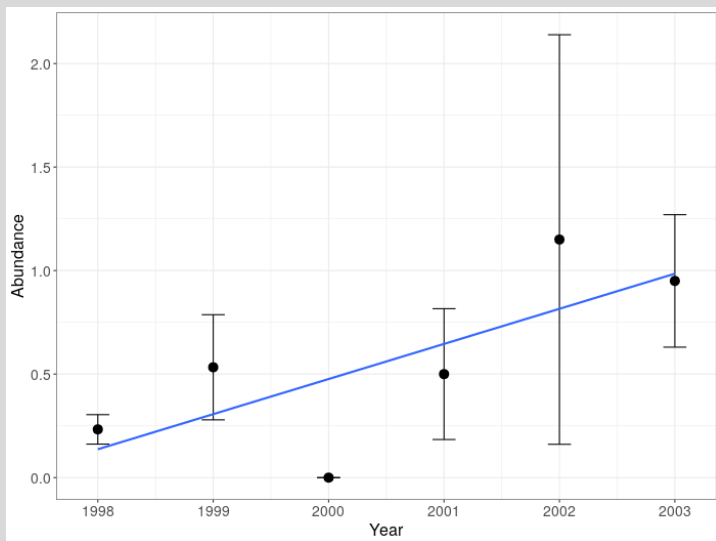
Bachman's Sparrow

DOD MISSION-SENSITIVE SPECIES

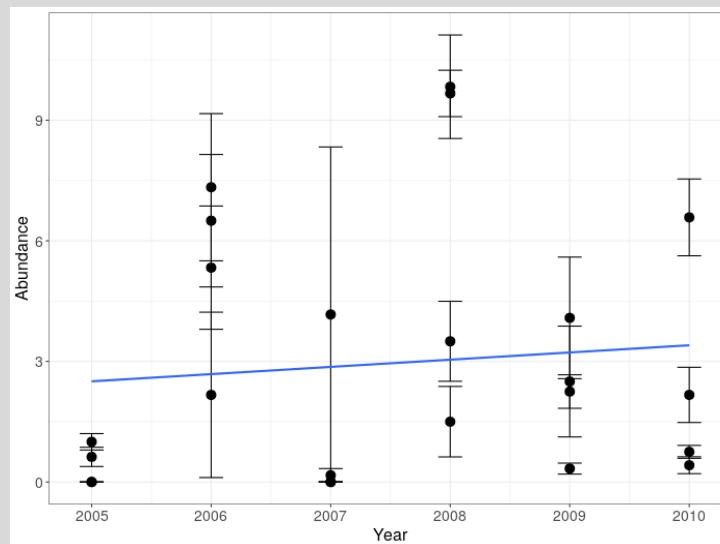


https://www.dodakn.org/resources/mss/#MSS_PIJA

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 non-detections



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

Questions?

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

Elizabeth.S.Neipert@erdc.dren.mil

and the Point Blue Science Cloud to

sveloz@pointblue.org