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

DoD AKN Guidance

In this document:

Avian Knowledge Network Data Sharing Guidelines

The Avian Knowledge Network (AKN) is comprised of partnerships, data, and technology working together to improve bird conservation, management, and research across organizational boundaries and spatial scales. The sharing of data is the core function of the Avian Knowledge Network partnership. The AKN continues to develop and refine procedures and tools that facilitate data sharing, including tools for metadata documentation and data entry, upload, verification, summary, backup, discovery, and download.

Contributing data to AKN improves data use and longevity by preserving datasets and their metadata and increasing access to and use of data. This document outlines AKN policies and terms for data sharing.

The AKN acknowledges that ecological data are highly valuable and must be properly preserved for the purposes originally intended, but also for other purposes that were not necessarily anticipated by the data collector. A guiding principle of this policy is that the investments in time, money, and intellect that are committed to collection and curation of a dataset entitle a "Data Owner" to the fundamental benefits of the work. This policy recognizes the Data Owner(s) as the investigator(s) and institution(s) responsible for data collection and compilation. The AKN is committed to ensuring that data sharing and access are done openly and collaboratively, with the provision that Data Owner(s) ultimately have the discretion to approve or disapprove use of their data.

DATA SHARING

It is the intention of the AKN that data be shared whenever possible, while carefully considering the tradeoffs between widespread distribution of datasets, the need to ensure data quality and validity, the privacy rights of land owners, and the intentions of the Data Owner(s).

AKN Data Sharing Levels:

The following are the Avian Knowledge Network's Data Sharing Levels. These are applicable to each and every event in the network individually, so that different records may have different sharing levels. Data

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published under one of the five Data Sharing Levels below are stored in the AKN's primary data warehouses. The warehouses serve as the primary archives of all AKN data. Data owners can specify how their data can be used in the data views, with the option that their data are fully hidden/restricted (not exposed at all).

RAW – Data initially input into the AKN that has not been reviewed for accuracy i.e. Proofing page was not completed during data entry. This data cannot be used in any analysis and is not available in the AKN Data Warehouse for download or the Data Catalog. Data are waiting for either Biologist or Project Leader approval to be elevated to CLEAN. Only the contributing institution has access to data at this level.

CLEAN – Data input into the AKN was reviewed for accuracy and accepted as valid. The data will be copied into the AKN Data Warehouse for download by those affiliated with the project via the Data Downloader. The data are also available for use by the AKN Analyst Tool. The data are waiting Project Leader approval for elevation to higher sharing levels. Only project members have access to data at this level.

APPROVED – Data are available for use by the contributing institution (those associated with a project at the Biologist and Project Leader roles). Data are copied into the AKN Data Warehouse for download by those affiliated with the project.

RESTRICTED – Information about the project associated with the records is made available in the Data Catalog. However, information about restricted records is not shared with the Data Catalog or any other AKN tools. Only the contributing institution has access to data at this level.

LEVEL 1 – Metadata about Level 1 records are made available in the Data Catalog, including contact information, locations, survey methods, species surveyed. However, records are not used in any other AKN tools. Only project members have access to data at this level.

LEVEL 2 – Same as Level 1 with the following addition: data can be used in certain publicly available, predefined visualizations (i.e. maps and graphs), but direct access to the data is restricted.

LEVEL 3 – Data are used in publicly available, predefined visualizations (i.e. maps and graphs). Additionally, the complete BMDE data set is available upon request, subject to approval from the original data provider.

LEVEL 5 – Full public accessibility. Metadata are made available in the Data Catalog, including contact information, locations, survey methods, species surveyed. Data are used in online publicly available tools (Observations Map and node-specific mapping tools, Phenology Tool, and IPaC). Common data fields from all observation types and protocols are available for download via the AKN Data Downloader without permission. Data at this level can be acquired without restriction by researchers requiring data to perform analyses.

The AKN encourages its partners to anticipate that most data collected will eventually become part of the public domain. We encourage Data Owners to share data 10 years old or older without restrictions

(Level 5). However, the AKN ensures that their data and tools are secure and that access is controlled based on Data Owner intent.

For DoD AKN users, the preferred recommended sharing level is **Level 2**. This sharing level slows for data to be utilized in AKN data visualization tools, however direct access to the raw data is restricted.

A project leader can change the sharing levels for all data within their project or by individual records [here.](https://data.pointblue.org/apps/authentication/pb_login.php?returnURL=https://data.pointblue.org/science/projectleaders/&app=Point+Blue+Application)
https://data.pointblue.org/apps/authentication/pb_login.php?returnURL=https://data.pointblue.org/science/projectleaders/&app=Point+Blue+Application

METADATA

Metadata are a critical component of data preservation. Metadata provide complete documentation of methods, location, and effort used in collecting the data. Metadata also document specific definitions for data fields and dictionaries for each field's domain. Data sharing levels are also documented as part of a dataset's metadata. Metadata are needed to ensure the data can be properly understood and their quality and potential usefulness assessed. Data for which there are no associated metadata have limited utility.

DATA USE AND TERMS

The AKN encourages and facilitates the ethical and courteous use of data among collaborators. All cooperators who contribute to and/or access data from the Avian Knowledge Network are required to explicitly agree to these data sharing terms and policies.

The use of data, and the publication of results derived directly from those data, are the primary responsibility and privilege of the Data Owner. This privilege is extended to third parties as a contribution by the Data Owner. Data Owners should always be acknowledged in publications and reports.

Requests for the use of data should be made in writing (via email). The written request should have clearly defined objectives, and should explicitly spell out the terms, conditions, and parameters of the data requested and how they will be used. Data Owners may set individual terms and conditions for allowable use of their data (e.g., acknowledgement, co-authorship in publications) that may be specified in a Data Sharing Agreement. A suggested general guideline is that, when 20% or more of the data for a publication or report come from one Data Owner, that Owner should be given the opportunity for authorship on the publication or report.

Describing Sampling Protocol Definition for AKN Compatible Projects

Background:

The first step in creating a new sampling protocol in the AKN is to define what type of sampling protocol your data are structured in. The main types of protocols in the AKN system include:

Point Count - A stationary survey conducted at specific points that are part of a collection (or transect) of points for a predetermined amount time at each point within a specified distance, exhaustively collecting species that are in your list of survey species (we assume all species not recorded were absent), and individual animals counted once.

Area Search - Survey within a predefined boundary for a recorded amount of time, exhaustively collecting all survey species that are detected in that boundary, and individual animals counted once.

Linear Transect - Survey while moving along a path on foot or by vehicle (boat, ship, plane, other) for a recorded amount of time, exhaustively collecting all survey species, and individual animals counted once.

Secretive Marshbird - Point count with tape playback where focal species are recorded every minute they are detected in a predetermined sequence of calls played in a fixed amount of time. Other non-focal species may also be collected using Point Count methods.

Have a data type that does not fit into one of these categories? Use this key on the DoD AKN Portal to see which data types are currently supported in the AKN: [AKN Supported Data Types Key](#).

Step 1: Check existing Sampling Protocols in the AKN

● Go to the Protocol Search portal at https://data.pointblue.org/science/projectmanager/protocol_search. You'll have to log in as a project leader to use this portal. If you do not have an AKN account you can either create one now by going here https://www.dodakn.org/new-users/, or if you will not be making an AKN account you can skip to step 2. If you do not have an AKN account you can still browse available Sampling Protocol Definitions at https://data.pointblue.org/science/biologists/php/protocolsearch.php
● Use the drop down menus and filter features to search through existing sampling protocols in the AKN to see if the protocol you are using fits into an existing sampling protocols in the AKN.
● If the protocol you are using closely matches one of the existing AKN sampling protocols but needs a few things adjusted, it may be useful to use that sampling protocol as a starting point for describing your Sampling Protocol Definition in step 2.

Step 2: Fill out a Sampling Protocol Definition spreadsheet to describe each of the fields in your dataset

- Use "DoD AKN Standards: Generic Sampling Protocol Definition Template" to provide the field names, descriptions, and acceptable domain values for each field in the sampling protocols on the Field Description tab.
- Specify whether the field is a Sampling Event field or an Observation field.
  - Sampling Event fields are fields that describe the entire survey (e.g., date, observer, weather). Many of these are ultimately stored in the AKN in "site condition" tables.
  - Observation Event fields are fields that pertain to unique observations within the survey (e.g., detection time, species, distance)
- An example is provided in Sampling Protocol Definition Template.

Download the Sampling Protocol Definition Template HERE

Attach the provided Excel Spreadsheet template with the following columns describing your sampling protocol:

A) **FIELD NAME**: Name of Field
B) **EVENT or OBSERVATION field:** SAMPLING EVENT fields describe aspects of the entire survey event and are held in custom "site condition" tables. OBSERVATION fields are either required or extended field in the observations table.
C) **FIELD DEFINITION:** Brief Description
D) **DOMAIN VALUE:** Acceptable Values or Codes for this Field
E) **DOMAIN VALUE DEFINITION:** Definitions for Acceptable Values or Codes

An example is provided below:

FIELD NAME	EVENT or OBSERVATION field	FIELD DEFINITION	DOMAIN VALUE	DOMAIN VALUE DEFINITION
Date	SAMPLING EVENT	Survey date	Date	Date format (MM/DD/YYYY)
StartTime	SAMPLING EVENT	Survey start time	Time	Time Format, 24-hour clock (HH:MM)
PrimaryObserver	SAMPLING EVENT	Primary observer name	From Observer Table	From Observer Table
Species	OBSERVATION	Bird species observed	Species 4-letter Code	From Species Table
Count	OBSERVATION	In-the-field count of units	Numeric Value (Integer)	Numeric value (Integer)
Time Bin	OBSERVATION	1-minute time bin when the species was recorded	-1	Time Bin not recorded on datasheet
			1	1st minute
			2	2nd minute
			3	3rd minute
			4	4th minute
			5	5th minute
Distance	OBSERVATION	Exact distance (meters) of bird away from observer	Numeric Value (Integer) between 1 and 999	Numeric Value (Integer) between 1 and 998 meters
			-1	No distance recorded on datasheet
			999	Distance is beyond 1000 meters
Detection Type	OBSERVATION	The cue that the observer used to detect the bird	-1	Detection type not recorded on datasheet
			S	Song
			C	Call
			D	Drumming
			F	Flyover
			V	Visual
			O	Other

FIELD NAME	EVENT or OBSERVATION field	FIELD DEFINITION	DOMAIN VALUE	DOMAIN VALUE DEFINITION
Sex	OBSERVATION	The sex of the individual observed	U	Unknown
			F	Female
			M	Male
			J	Juvenile
Temperature	SAMPLING EVENT	Temperature in degrees Celsius	Numeric Value (Integer)	Numeric Value (Integer) in degrees Celsius
Cloud Cover	SAMPLING EVENT	Percent Cloud Cover	Numeric Value (Integer)	Numeric Value (Integer) representing percent cloud cover
Wind	SAMPLING EVENT	Beaufort scale wind categories	-9	Not recorded on datasheet
			0	Calm
			1	Light Air
			2	Light Breeze
			3	Gentle Breeze
			4	Moderate Breeze
			5	Too Windy to Survey
Cover Type	SAMPLING EVENT	Primary vegetation cover	WL	Wetland
			FR	Forest
			GR	Grassland
			AG	Agriculture
			SH	Shrubland
			DV	Developed
			RI	Riparian
			OT	Other
Tree Cover	SAMPLING EVENT	Percent Tree Cover	Numeric Value (Integer)	Numeric Value (Integer) representing percent tree cover

Describing Field Methods and Sampling Design

Thoroughly describing field methods prior to submitting data to the Avian Knowledge Network ensures that we maintain a rigorous standard of high-quality data that can be used for analysis and decision support tools. The following standards for describing field methods are designed as guidance for biologists submitting data to the AKN using a protocol that has not already been described within the AKN. Details about field methods will be incorporated into the AKN Catalog entry and will be accessible to AKN users that have access to the data.

AKN Questionnaire for New Projects

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

If you know the AKN Sampling Protocol Definition(s) that you will use for your data entry, please provide that information here.

Have you identified Sampling Protocol Definition(s) that are close to your field methodologies, but don't fit exactly? If so, please provide that information here. (If you don't know, leave this blank.)

Briefly describe your field methods. List the citation of the field methodologies used and a URL link if available. Provide your written field protocol or standard operating procedure if it is not available online. Attach a copy of your field form.

How do you select your sampling locations? Briefly describe your study design.

Are you surveying for specific species, if so what? Please specify whether these the only species you record on your surveys or whether you record all species you observe.

What is the date range (month and years) your surveys took/or will take place?

Creating AKN Compatible Sampling Units

Background:

- **Sampling units** are field locations where research or a survey is conducted and samples (observations) are collected (i.e. location data).
- Sampling units are structured in a hierarchy, and always start with a **Study Area**. A Study Area is where one or more types of sampling events take place.
- Study Areas can contain multiple types of sampling units, including Point Count Transects, Area Search Plots, Fixed Transect, and many other types of sampling units, as well as other Study Areas.
- Every sampling unit in the hierarchy has a Short Name, a Long Name, a Type (e.g. Point Count Point), and an optional GIS feature that can describe the location. The combination of Short Name and Long Name must be unique within your entire Project
- The Short Name will be seen the most throughout the tools, and is the shorthand name for a sampling location. The Long Name can be the same as the Short Name or can be made more descriptive, if that is useful.
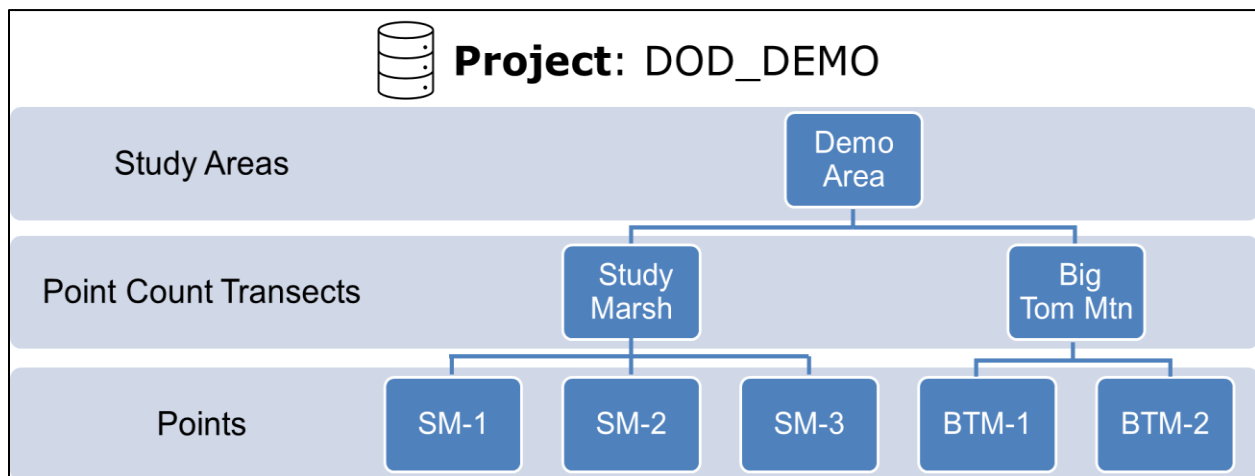
Example Sampling Unit organization.

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

Example Sampling Unit long and short names. All rows are acceptable ways to name Sampling Units.

Below are options for uploading sampling units into the AKN, depending on your experience with the AKN and the terms of your contract or agreement.

Option 1: Providing Sampling Units in AKN Format ready for bulk uploading by AKN support staff

If you do not have an AKN account or do not have Project Leader status, AKN support staff can load formatted sampling unit configurations for you. A step-by-step guide to prepare your data can be found here:

Step 1: Provide a Spreadsheet with Locations and Sampling Unit Hierarchy

See "Sampling Unit Bulk Upload Templates"

- There will be columns to populate the study area name so the tool knows where to put the sampling units, you can choose to place all of your sampling units into one study area or create multiple, depending on your project.
- Build out your sampling unit hierarchy nested appropriately for the AKN. For example, if you are uploading point counts locations they should be nested as follows:
a) Project
    i) Study Area
        (1) Point Count Transect
            (a) Point Count Point
- If points are individually sampled and not as a whole route then they should be set up where each point is nested under a unique transect.

Step 2: Create a shapefile or KML file with sampling units

- The geospatial file should include only data for locations for where surveys look place, i.e. points for point counts, polygons for area search plots, or lines for linear transects.
- Must use a WGS-84 geographic coordinate system (EPSG:4326)
- Attribute table should contain:
    o Sampling Unit Short Name
    o Sampling Unit Long Name
    o Latitude
    o Longitude

Option 2: Uploading sampling unit through Project Leader

You must have an AKN account and Project Leader access to upload sampling units. The current Project Leader can assist you in getting access, or you can send an email to support@pointbluehelp.zendesk.com to get assistance if needed. A step by step guide to use Project Leader to upload sampling units can be found here:

1) To upload sampling units through the Project Leader application first log in.

2) Under Sampling Units select Create and Manage.
3) Select your project.
4) You can either upload sampling units one at a time through the "Online Form" or multiple sampling units at once with the same sampling unit type (e.g. study area or point count transect) with a zipped shapefile or KML file. If you are uploading more than a few it is suggested to do this with a shapefile or KML, note that they will need to use the WGS-84 geographic coordinate system (EPSG:4326). Click on the sampling unit where you would like to nest more sampling units under, it will highlight that one in yellow, if there are no sampling units in your project you will select the project name.
5) Select how you will be uploading sampling units (e.g. online form, SHP file) and select the sampling type you will first upload and click "enter". If using the online form, enter the name of the sampling unit and you can use the "Digitize Location" tool to enter a location. If uploading locations through a shapefile select the sampling type and then on the next page those locations.
6) Continue this process by building out your sampling unit hierarchy and uploading different types of sampling units. For example, if you are uploading point counts locations they should be nested as follows:
   a) Project
      i) Study Area
         (1) Point Count Transect
            (a) Point Count Point

Option 3: Uploading Sampling Units Through the Bulk Uploading Tool

You must have an AKN account to use the Bulk Uploading tool and Project Leader access to the project you wish to upload sampling units to.

Go to the Bulk Uploader (https://data.pointblue.org/science/projectmanager/bulk_uploader), select your project (you will only see projects that you have access to).

Sampling units are defined in a hierarchy, with each level having 2 names: a short name (a brief, upper case identifier with no spaces) and a long name (a longer, descriptive name that can be the same as short name or contain more detail). The combination of short name and long name must be unique in your project. The standard hierarchy for Point Count is Study Area → Point Count Transect → Point Count Point. Study areas are how you organize your data for analysis or management. Some projects simply create a single study area the entire project. There must be at least one study area in every project. Transects are collections of points that get analyzed as statistical replicates.

To use the tool to upload Point Count Sampling Units:
1. Choose the Add Sampling Units tab and select "Point Count".
2. Populate a csv file with the following fields. A template is available for download by selecting "Get a blank Template to Fill out."
   a. *Study Area Short Name* (short name, required, no spaces)

  b. *Study Area Name*
     - a longer, descriptive name that can be the same as short name or contain more detail
     - not required but will ensure your sampling unit loads properly
     - must be unique to the project when in combination with the short name
  c. *Point Count Transect Short Name* (short name, required, no spaces)
  d. *Point Count Transect Name*
     - a longer, descriptive name that can be the same as short name or contain more detail
     - not required but will ensure your sampling unit loads properly
     - must be unique to the project when in combination with the short name
  e. *Point Count Point Short Name* (short name, required, no spaces)
  f. *Point Count Point Name*
     - a longer, descriptive name that can be the same as short name or contain more detail
     - not required but will ensure your sampling unit loads properly
     - must be unique to the project when in combination with the short name
  g. *Latitude* (in decimal degrees, WGS 84 datum)
  h. *Longitude* (in decimal degrees, WGS 84 datum)

3. Choose the csv file to upload; after successfully selecting a file, the name of the file will appear on the screen.
4. If you have a GIS file ready that defines the area of your sampling unit, that can be uploaded as well. This can also be added later.
5. Click the Process Sampling Units button. Errors, successes, and information about the batch run will be shown.

If there were problems with the file, they will be identified in the error messaging.

To verify that the points uploaded correctly, go to Project Leaders (https://data.pointblue.org/apps/projectleaders), Sampling Units > Download, select the project, and open up the tree control – this should reflect the organization you just created. If you added latitude / longitude values, select all and download GIS data to either ESRI Shape file or Google Earth (KML) and open the file in a GIS tool to make sure they are located and labeled correctly.

6. To review previous batch loads for your project, select Batches, then click on an individual batch to expand the details.

Sampling Unit Bulk Upload Templates

Following the guidance in Creating AKN Compatible Sampling Units, please submit an excel spreadsheet or csv with the names and locations of your sampling units using the following templates appropriate for your sampling protocol.

Download the Sampling Unit Bulk Upload Template HERE

AKN Data Access, Entry, and Analysis

AKN Access Levels and Applications

Biologist - Users granted access to this application are able to enter, edit, and review field observations.

Project Leader - Users granted access to this application are able to manage projects through creating and managing sampling units, assigning researchers and protocols, assigning Biologist role to other people, manage data sharing levels, and download data and metadata. A Project Leader will also automatically have access to the Biologist and Analyst applications.

Setting up an AKN Account

1. To register to become an AKN user follow the steps on the New User page on the DoD AKN portal: https://www.dodakn.org/new-users. You can contact the AKN staff with this or other questions by emailing the help desk at support@pointbluehelp.zendesk.com.
2. Complete all the steps on the form.
3. You will receive an email from AKN (datasolutions@pointblue.org) notifying your account is ready to use along with a link to the log-in page where you will be asked to set up your log-in account. Once you are logged in, follow the instructions below to access the data.
4. If you wish to access another project, go to https://data.pointblue.org//apps/public/?page=project-request and enter another project code.

Downloading Data

Data stored in the AKN can be downloaded in two ways, both of which require an AKN account.

1. If you have Project Leader access, you may use the Project Leader application to retrieve data (https://data.pointblue.org//apps/projectleaders/). The Project Leader application allows a user to download data from one project at a time. These data will include all fields described in the sampling protocol.
   a. Click on Field Observations tab then on "Download"
   b. Select the project you would like to download data for in the "Select your project" box, and then click on "enter".
   c. Select the sampling units you would like to download data for or click on the "Select All" box.
   d. You have the option to filter by date (year-month-day) or leave blank for all records under "2. Download observation data from selected Sampling Units into"
   e. Select the type of data you would like to download (e.g. point count observations, area search observations) and click on CVS (excel) file.
2. The Data Downloader tool can be used by anyone with an AKN account, and can be used to download any data that is stored and accessible at sharing level 5

(https://data.pointblue.org/apps/downloader/). The Data Downloader tool allows you to search for data based on specific criteria such as protocol, project name, species, date, or region. The data downloaded through the Data Downloader tool will only include core fields; it will not include any custom fields that have been created for the protocol. Instructions for using Data Downloader can be found here:

a. Log into your AKN account at the Data Downloader tool here: https://data.pointblue.org/apps/downloader/
b. Select the observation type and filter for the data you wish to download
c. Click "Search" and then "Download" to download a CSV of the filter data

Downloading data through the Project Leader application

1. Log in as a project leader here: https://data.pointblue.org/apps/projectleaders/
2. Click on Field Observations tab then on "Download"
3. Select the project you would like to download data for in the "Select your project" box, and then click on "enter".
4. Select the sampling units you would like to download data for or click on the "Select All" box.
5. You have the option to filter by date (year-month-day) or leave blank for all records under "2. Download observation data from selected Sampling Units into"
6. Select the type of data you would like to download (e.g. point count observations, area search observations) and click on CVS (excel) file.

Downloading data though the Data Downloader tool (This tool only provides access to data shared at level 5)

1. Log into your AKN account at the Data Downloader tool here: https://data.pointblue.org/apps/downloader/
2. Select the observation type and filter for the data you wish to download
3. Click "Search" and then "Download" to download a CSV of the filter data

Data Entry

1. Go to the Biologist application here https://data.pointblue.org/science/biologists/index.php
2. Select the project which you want to enter data for.
3. Under "Project Observation Type" select the type of data you are entering.
4. Select the sampling unit you are entering data for (e.g. the point count transect or area search plot).
5. Use the drop-down under "Observation protocol" to select the protocol you are using, if there are multiple and you are unsure check with a Project Leader as the protocol selected will change which data you can enter.
6. There may or may not be a site condition protocol to select as well.
7. Click Start.

8. The data entry will vary depending on the protocol used but you will want to fill out each field and click "Save All"
9. The database is structured to flag errors, if errors pop up edit the referenced data and try to save again, once all errors are fixed the data can be saved.
10. After the data are saved you will be taken to the "Proofing page", here you should review what you entered. Any field with a small vertical blue line can be edited right there, just double click, edit the field, and it will automatically update. Once the data have been reviewed select "Proofing Complete".
11. You can now move onto the next location you wish to enter data for.

Analyst tool

1. You must have an AKN account and have been granted access as a Project Leader to use this tool. It is also important to note that data must be saved higher than sharing level CLEAN to be used in the Analyst tool.
2. Log into the AKN as an Analyst. https://data.pointblue.org/apps/analysts/
3. Select the type of data you will be analyzing.
4. Select the project(s) you want to analyze data for, you can analyze data for multiple projects at once.
5. At the top you will see "Groups", this likely does not apply to your project and can be left blank.
6. Under Step 2, select the sampling units you would like to analyze. If the project contains a large amount of data not all tools will run, if this occurs you can limit your data by selecting a lower level of sampling unit (or changing other criteria).
7. Step 3 choose the criteria such as date range for the data you would like to analyze. Distance is automatically set to be within 50 meters and Flyovers are set to be excluded, both of these settings can be changed.
8. You can leave the Select Groups blank unless this pertains to your project.
9. Select either All Species or the species you would like to analyze, you can select more than one by holding the Shift key.
10. Select the type of Analysis you would like to run.

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Types of Analyses

Summary Information

This is a great way to quickly summarize data and effort. This analysis provides tables for the number of visits, observations, and species by month and year. As well as provides a table of richness, diversity, dominance and evenness indices for all locations selected.

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

Example of number of observations of species by year.

Diversity and Abundance

This tool summarizes density estimates by transect in a graph and table format, as well as provides a simple linear trend analysis on density and a trend analysis on abundance.

This tool works best with limit species selected, it starts to run slowly with too much data.
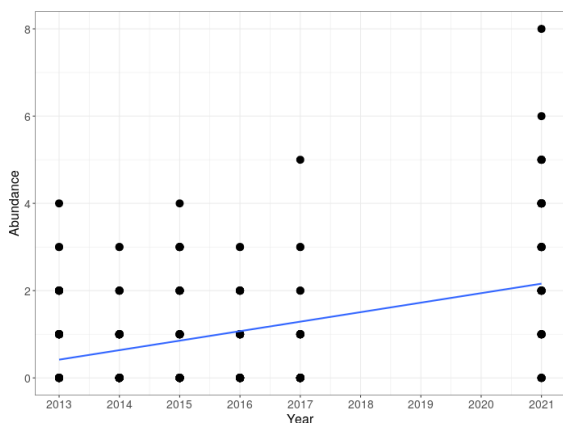
Example of trends in abundance over years.
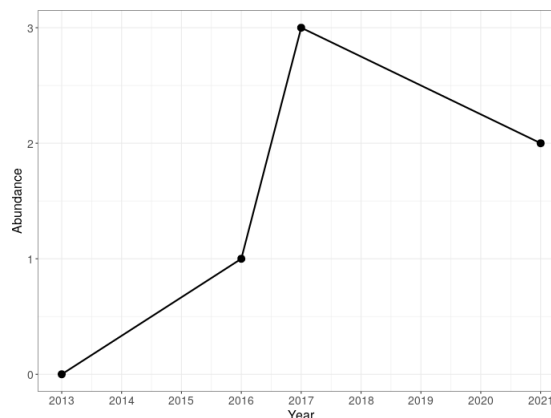
Example point level estimate of abundance for AMCR.

Species Richness

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This analysis provides point-level mean species richness estimate for each transect in the table and graph format as well as a linear trend analysis on point-level mean species richness estimate by year.

Preparing Data to Submit for Bulk Uploading for AKN Compatible Projects

Option 1: Providing data in AKN Format ready for bulk uploading by AKN support staff

Step 1: Prepare appropriate metadata tables

- Before observation data can be uploaded, a sampling protocol definition should be established for the data structure and sampling units should be uploaded into the project. Use "DoD AKN Guidance: Creating AKN Compatible Sampling Units" and "DoD AKN Guidance: Describing Sampling Protocol Definition" to complete these steps before preparing observation data.
- Once your Sampling Protocol Definition has been created AKN staff will provide a blank CSV template for how your data should be structured.
- A separate CSV should be submitted with the researchers names, first name should be in column A and last name should be in column B. A CSV template can be provided as well.

Step 2: Proof and format your data

- In your data management program (e.g., Access), make sure to identify and clean up any errors prior to submitting your data. Make sure that each value recorded matches the domains outlined in the Sampling Protocol Definition, an error will be triggered if values outside of the sampling definition are used and the data will not upload.
- A template will be provided that all clean observation and event data should be formatted to
- Clean up common mistakes (e.g. text entered into numeric fields).
- All dates and times should be in a single format.
- Observer names should match the exact spelling in the list submitted and should all be in the same format (e.g. first, last).
- Make sure the sampling unit names are written exactly the same as the sampling unit names uploaded.

Option 2: Format and bulk upload data

You must have an AKN account and Project Leader access to bulk upload data.

Step 1: Prepare appropriate metadata tables

- Before observation data can be uploaded a sampling protocol definition should be established for the data structure and sampling units must be uploaded into the project. Use "DoD AKN Standards: Format for AKN Compatible Sampling Units" and "DoD AKN Guidance: Describing Sampling Protocol Definition" to complete these steps before preparing observation data.
- You will also need to upload the researchers names, this includes any name listed as an observer in the database.
    - o Log into the Bulk Uploading tool here https://data.pointblue.org/science/projectmanager/bulk_uploader
    - o Select your project in the drop-down menu and click "Add Researcher"
    - o Select "Get a blank template to fill out", download it then populate and save the CSV
    - o Select "Bulk upload this datafile", choose your saves CSV, and select "Process Researchers"

     ○ If errors pop up, edit your CSV appropriately and try again

Step 2: Proof and format your data

- Make sure that each value recorded matches the domains outlined in the Sampling Protocol Definition, if values outside of the sampling definition are used they will error and not upload.
- You will need to format your dataset into a template customized for the sampling protocol definitions used in your project. All data, both event and observation will be uploaded in a single CSV.
- Download the template in the Bulk Uploading tool under "Add Observations", "Get a blank template to fill out". There you will select your data type and sampling protocols used and download the CSV.
- Structure your dataset to match this template and carefully proof the dataset.
  - Make sure the sampling unit names are written exactly the same as the sampling unit names uploaded
  - Observer names should match the exact spelling in the CSV of uploaded researchers and should all be in the same format (e.g. first, last).

Step 3: Upload data

- The Bulk Uploader tool uses YAML language to map the data, you will need to download and save the YAML script specific to the sampling protocol you are using. In the tool under, "Add Observations", "Get Blank Template", make sure to select the correct sampling protocols then select "Download YAML Template". As long as all of the field names match the data template this YAML script should not need to be edited.
- Select "Bulk Upload Dataset", select the populated data template and the YAML script you just downloaded and select "Process Observations".
- It is possible that some data will upload and some will error, if an error message comes up fix the associated data and try to reprocess.