



***Arizona Important Bird Areas Program,
Protocols for IBA Avian Surveys-
A guide for citizen IBA Bird Survey Teams in Arizona
Video explaining this protocol at www.aziba.org under Resources tab
(Version 4.7, 2018 slight update, AZ IBA Avian Science Program)***

The intent of this guide is to provide citizen bird surveyors the information to form Important Bird Area (IBA) Bird Survey Teams. It will introduce them to the appropriate bird survey types to use, the number of surveys to perform, and details on how to conduct each survey type. IBA Bird Survey Teams are a critical component of the IBA Program as they provide the field personnel to collect essential avian data. This is information we can use to recognize these sites as IBAs, and to work with land managers in providing them with information for the conservation, enhancement, and protection of these sites over the long term. Participation in an IBA Team is an ideal way for birders to become citizen researchers and IBA site stewards. It allows birders to work for the conservation of birds, while doing what they enjoy, birding in our great Arizona habitats!

This guide incorporates 10+ years of field experience by IBA Teams. It is designed to broaden participation in IBA monitoring and promote standardized data collection. The protocol now incorporates slight changes to standardize data collection at IBAs, or potential IBAs, so as to incorporate avian data in our statewide Arizona IBA Bird Survey Database, and to share this data with Arizona Game and Fish statewide Coordinated Bird Monitoring program. The protocol calls for collecting data by each observation, thus allowing more species specific data to be collected. It also facilitates simplified data entry, and allows greater flexibility in data analysis. The major emphasis of the IBA inventory and monitoring is to use trained volunteers who follow basic standard bird survey methods to obtain accurate species composition, breeding status, and abundance information by habitat type(s) at a particular site. Technical surveys, such as point counts are included, in a simplified form, to employ a widely used standard technique to obtain more precise abundance data for bird species within specific habitat types within a site. This survey type requires more advanced training, notably bird identification by ear (song, call, tapping). It also assumes that survey markers can be maintained, and that the additional effort and time to mark points through the use of a GPS (Global Positioning System) or map can be met by the IBA Team. Also, IBA is now planning on getting data submitted to eBird so your data collection efforts will be as effective for large sweeping conservation studies.

Goals:

The IBA Program's IBA Bird Survey Teams will pursue the following goals at potential or already identified IBAs within their region.

1. Provide an inventory of birds using the site by habitat, and document breeding status.
2. Monitor change in composition of the avian community at the site.
3. Document changes in abundance of particular species at the site.

Our objectives are to:

- A. Use science-based ornithological standard data collection methods for flexibility of data analysis and improved data sharing capability. We want to collect the same data at IBAs across Arizona, and include them in our AZ IBA Bird Survey Database and GIS for analysis and map display.
- B. Focus on documenting avian community composition (species occurrence), and changes in composition, with a secondary goal of documenting abundance, rather than a strict focus on density.
- C. Focus on documenting breeding birds and surveying all habitats at survey location.
- D. Stratify surveys by habitat type, to tie bird surveys to habitat types at IBAs, and compare similar habitats across sites.
- E. Provide methods that can be completed year round at a site, adding more intensive surveys, as more volunteers and more skilled birders become available through training.
- F. Use standard bird monitoring protocols for IBA Teams that follow accepted ornithological field methods. Work to improve the efficiency and ease of use of these methods. Adapt to advances and requests for changes to ornithological monitoring methods and programs.
- G. Engage more birders. Simplify design. Simplify instructions. Record all birds. Record all observations. Allow birders to “bird”, with a minimum of constraints, while still providing quality data. Make surveys appealing and fun.

We will use this information as we work with land management agencies, to document the importance of sites, prioritize projects, assess management actions, and initiate on-the-ground conservation actions. Additionally, our data will be used by the Arizona IBA Scientific Committee to evaluate potential IBAs for recognition through Audubon’s IBA Program.

Organization of this statewide IBA avian science initiative will be through a collaborative relationship between the Arizona IBA Avian Science Program (led by Tucson Audubon & Audubon Arizona) and chapter conservation chairpersons, chapter IBA coordinators, or citizen IBA Team leaders. Data will be shared over the internet accessed through a website at www.aziba.org.

To Begin:

Attend an IBA Bird Monitoring Workshop

Attending an IBA Bird Monitoring Workshop is the best way to learn about various survey techniques, data collection protocol, and how to fill out the datasheets we use for different survey types.

Select an Area: On the Arizona IBA web site www.tucsonaudubon.org/azibaprogram you can view identified and potential IBAs in Arizona. We will work with you on a selecting a survey location at a potential IBA or at an existing IBA that best helps our present monitoring needs, your preferences and personal constraints.

We will assign you a user name and password to enter and edit your data. There is public access to query reports of all our stored IBA bird survey data.

Build a Team: We desire a team approach to our survey efforts at IBAs. This is important for survey performance, coverage during sickness or vacations, for safety reasons, and continuity of survey coverage. We want to share responsibilities, so that time spent in the field is most efficient at collecting needed bird data. We want to ensure continuous survey support as different members come and go. We want to build broad birder support, increase site knowledge, and increase the capacity of birder’s skills in citizen science survey techniques for wildlife and habitat, data collection, and reporting.

IBA Bird Survey Teams should be 2 to 4 people. Two-person teams, working together, and alternating roles (a primary observer and a data recorder/observer), work best. If you include an extra person on a team, particularly someone learning their birds, it will have long-term benefits to the program. A team of 4 people may also split in two groups, and cover different transects or area search plots within the site. We will work with your team to design a standardized survey effort, so that observer bias does not significantly affect the monitoring results. Special nest-census surveys may have up to 8 people.

Plan Bird Surveys: Designing the survey route, habitat to be covered, and survey method is carried out in collaboration with Arizona IBA staff and IBA Team leader. This will include development of a survey plan (i.e., how many surveys), data reporting, and data exchange. Sometimes the land manager of the survey location will also be part of the survey design process.

Why there are different survey methods and what is each used for?

In brief: Different survey methods are meant to provide repeatable and efficient data collection methods, depending on the species of interest, habitats of interest, regional geographic and local landscape configuration of habitat, and desired biological parameter (numbers of breeding birds, roosting birds, passage birds, or over-wintering birds). More intensive surveys can assess territory numbers and locations, productivity, territory occupancy over time, annual survival, and recruitment.

Summary of survey types and the habitat for which they are best suited:

Line Transect : Line Transect (and Area Search) survey methods are ideal for sampling the bird composition (and for observing breeding behavior) along a trail through a mostly constant habitat type.

Linear Woodland or Riparian habitat
Desert scrub or Grassland
Canyon or Habitat with very steep terrain
Long River or Large Lake (from watercraft)

Area Search: Forest Tract or small habitat patch

Point Counts Point counts are a technical survey that is added to the above surveys. This survey requires an advanced (trained) team to provide a more technical standard of avian monitoring. It is designed to document breeding season abundance of certain species and to detect changes in species abundance related to management. {Additionally, a more intensive point count method involving variable distance sampling can be used to provide better data for density information, a method not described in this document}. Point counts are used during the breeding seasons (periods) of species of interest and are best suited for:

Census: A Census Survey is used when it is reasonable to assume we can count almost all individuals (>95%) of the species group of interest (e.g., waterfowl, wading birds, medium/large shorebirds, etc.) at an area (lake, pond, or wetland).

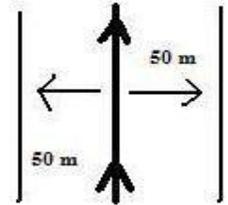
The Protocols:

Descriptions of Survey Types:

Line Transect Survey Information * (This is the main survey type!) *****

(Same methods for an "Area Search," except for differences noted).

A Line Transect Survey involves traversing a set route with pre-determined zones of a set survey distance (**perpendicular** distance) on either side of the traversed route, where birds are counted that are either seen or heard. Begin by positioning a walking "line transect," (a trail you follow) through a particular habitat that you intend to survey. A survey is one route, with a beginning point and an ending point all within one habitat type. Multiple surveys may be possible in the same day.



Line Transect Surveys begin and end with recognizable fixed boundaries (habitat or human boundaries) or geo-physical breaks (river crossings, etc.). Transects should typically be less than 2 km (1.24 miles), typically 1 km, but distances will vary.

Surveys should be started within a 2 hours of sunrise, and should be complete by late morning (preferably within 4 hours of starting and be sure to end early enough to avoid heat concerns).

Know your truncation distance. This is the distance, measured perpendicularly away from the transect line, within which you will record all bird observations on either side of your transect line. Truncation distance in riparian areas will typically be 50 or 100 meters (depending on habitat thickness), and in grasslands or low shrubs it will typically be 150 meters. There may be exceptions for certain sites, and we will set that up beforehand. The distance though does not vary during a survey.

Begin walking. Do not record birds behind your starting point. One kilometer of distance should be completed in 100 minutes. Use this as your guide for pace, and to set your total survey time for your particular transect.

Time your survey. Use this time recorded as the "standard" for your survey. Try to stay within ± 10 minutes of your survey time each time you run the survey. If you need to "stop the clock" for a difficult bird identification, you may do so. You may then extend your survey time correspondingly.

Record an "observation" each time you encounter one or more individuals of a given species. **Each bird observation gets its own data line on the datasheet (important!).**

A. Universal Cover Sheet.

Fill this out for each new transect surveyed in that day (except for the observer information).

1. Transect name or number will be assigned by the Arizona IBA staff.
2. Fill out time begin and time end (put p.m. for 12:00 noon and after). Record the total survey time.
3. Estimate the transect length.
4. Distance of truncation should be set with Arizona IBA staff ahead of time.
5. Direction of travel should be in $\frac{1}{4}$ cardinal directions, and written as follows: NE-SW.
6. Weather data should be recorded at the beginning, middle, and end, and recorded on the Survey Coversheet.

B. Transect Data Sheet.

Write the location (name of the site, i.e., "Page Springs"), Date, Sheet number, Transect Name/no. (i.e., T1), Primary habitat (by code), and Secondary habitat (by code). Please record Observers and Recorder (with 3 letter initials) in this top section of the datasheet. If the Recorder is an observer, their initials go on both lines.

1. SPECIES CODE. Species is the first data field you fill in for each observation. You may use standard 4-letter alpha bird banding codes (we will provide), common names, or short hand names, as long as the species identified is unambiguous. Be careful here, there are some species that are very similar or confusing. Cactus Wren v Canyon Wren, when in doubt write more of the name down.

2. DETECTION CODE. Record whether the bird was detected by *Audio* or *Visual* methods by the IBA Team (write “A” or “V” or “B” for both). Auditory detections are those detections that you only hear the bird(s). Note point count methods for recording this data differ.

3. COUNT. Record the number of birds (of a species) you see together for each observation. This goes under the data field “count” on the datasheet.

4. ESTIMATE. If the “count” is an estimate, then check the “Est.?” box. Most of the time you will not be checking this box. In fact, most of your counts will be 1 (a single bird alone) or 2 (a pair of birds together- essentially in the same “spot”, e.g., same branch, tree, shrub, etc.). In cases where a large flock of birds, e.g., Lark Bunting, flushes in front of you and you never are able to get a count, but instead take a quick estimate of “300” (or you do a size grouping number estimate to give you a rough count e.g., 50-100-150-200-250-300 without actually counting) then you would check “estimate.” Also, if you have a flock moving through and you estimate the number in each little sub-group, and then added them up, that would also be an estimate.

5. DISTANCE ZONES. The distance recorded is the distance from the line (path of travel) to the **first location an individual was observed** (place a check in the appropriate column, 0-50 m, 50-100 m, or 100-150 m), regardless of its behavior. If the bird subsequently moves (or is moving), do not change the original distance recorded. If a bird is flying (but not “flying over” – see below), or perched high in a tree, the distance recorded is to the point at which a plumb line would hit the ground if hung from the point at which the bird was first observed (i.e., straight line horizontal distance).

Distance needs to be recorded on ALL detections, even auditory only where you never see the bird, estimate the distance if you need to.

If the bird is in active flight when first detected, and then it stops, “lands”, in your active survey zone (within your overall truncation distance), then use this distance (where it first stops), thus where it “lands” and uses the physical habitat. If the bird just continues to fly through your area (but not a true “Fly-over”), then use the distance where you first detected it (in active flight). For auditory detections of a stationary (singing/calling) bird, use this first detection distance. For aerial foraging, use this first detection distance (regardless of a later “landing” in the habitat).

Same for a bird that starts out outside your truncation distance (a potential “Supplemental”), but then flies into your active survey area. Use the distance (distance zone) where it first enters the survey zone, except if later lands in the habitat after active flight, then use the distance to the “landed” spot.

Record the original distance of any bird that subsequently flies away (transect or point count). At a point count, any bird you flush on your arrival may be counted, and recorded at its original position within the distance zone. Write “flushed before” in the Comments.

Summary: Most often use the Distance Zone in which a bird was first detected in your survey area, unless it is in active flight when first detected and then it “lands” in the habitat, then use this more accurate distance of habitat use by the bird. Do not change the original distance recorded with later movement. The IBA bird survey protocol is correct, we are just clarifying it.

6. SUPPLEMENTAL. If a “flyover” is observed (a bird or birds, flying significantly over the highest habitat feature within the truncation zone or area search boundaries- in route across the landscape and not foraging) during a

Transect or Area Search, it is considered a Supplemental, and a count is recorded and the Supplemental column on the datasheet is "checked". "FO" may be written in the Comments, as well. Interesting birds observed outside the truncation zone or area search boundaries, are recorded as "Supplemental". This also applies to birds seen before or after the official survey. Supplementals are important to record as they add to the overall recorded species diversity of the area.

If birds are observed flying above the habitat (or outside the truncated zone) upon initial observation, but then subsequently fly into the habitat (tree canopy level and below) within the truncated zone, they are then not considered "supplemental birds." Foraging birds above the habitat, within the truncated distance zone, such as swallows, raptors, vultures, and other birds, are also not considered "supplemental birds." We assume they are actively using the habitat (i.e., the aerial space associated with the habitat) to forage for prey. * See: More on "Supplementals" on Page 19.

7. MALE #/FEMALE #. Record number of males and females where discernable.

8. JUVENAL #. Record the number of juvenile birds when "young of the year" are encountered. "Young of the year" refers to young born in the current calendar (not born the previous year).

"Nestlings" (young birds still in the nest not able to fly) or "Branchers" (young birds out of the nest but still not able to flying, i.e., not fledged from the immediate nest vicinity) are not counted as Juvenals, they are instead noted as such in the Comments of a particular data line on the data sheet. For example: Species: BCHU (Black-chinned Humming) Total: 1... Female: 1...Comment: Nestlings 3. If no adult was present but nestlings could still be identified (e.g., Great Horned Owl nestlings), then the data line would be written: GHOW (Great Horned Owl) Total: 0...Comment: Nestlings 2.

9. SUB-ADULT #. Record the number of sub-adults when they are distinguishable. Juveniles become Sub-adults on January 1 by standard convention. Sub-adults will be primarily used for raptors, and should not be used for passerines.

10. OTHER HABITAT CODE. Record the habitat type for the bird observation if it is not in either of the primary or secondary habitats listed above on the data sheet. Use the habitat codes provided.

11. BREEDING BEHAVIOR CODE. Record breeding behavior, use codes provided. This is especially important to discern correctly. Note "territory display" behavior is recorded as "T" (from the AZ Breeding Bird Atlas codes). Some commonly used codes are "S" for singing and "P" for a pair observed in suitable habitat during the breeding season. It is VERY important to also check the "territorial pair" box to the right of this column if you believe you are observing two birds that are a pair.

12. NEST SEEN. If a nest is seen in relation to the encounter/observation, then record a "check" in this column..

13. TERRITORIAL PAIR. If a male and female are seen in close proximity and apparently associated to each other (e.g., if one bird moves, the other then joins it, or feeding together, or exhibiting any of the breeding behaviors with the opposite sex bird present), then record a "check" in this column. This is very important as data analysis can be impacted if this is not recorded correctly.

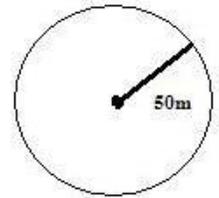
14. COMMENT. Use for any comments. If an active nest is found, particularly a raptor nest or a nest of a species of conservation concern, we recommend that a GPS receiver is used to its UTM coordinates (assuming a GPS is available). For consistency, set GPS receivers "map datum" setting to UTM NAD83

*We encourage you to also record signs of other wildlife (e.g., tracks, scat, etc.), and record this information on the data sheet wherever space exists or on the site comment box on the cover sheet. These observations will be put in a companion database for the site.

* There are many non-bird animals that can be recorded directly into the data sheet on their own line. Large (“larger than a brad box”) animals such as rattlesnakes, deer, ringtails, javalina, squirrels, etc. go into the data. Smaller animals such as insects and small lizards can be entered as a site comment on the cover sheet.

Point Count Survey Information ****Much less common now* but very standard**

*Coordinate with the IBA Conservation Biologist on the design set-up of this survey type.



These were typically done twice to three times a year during the breeding seasons, to catch early, mid, and late nesting species. Point counts typically are used for territory holding species, and do not work well when birds are clumped and transitory (in foraging flocks) as during migration or in winter. They are not used in regular IBA surveys now, but is a very common survey method that we do use in nocturnal surveys and may use in special cases.

These surveys typically require permanent markers in the field. They are set up through a random sampling design, with a spacing rule of no points closer than 300 meters to each other. In linear habitats, points can be regularly spaced, with a random first point placement, and then regularly spaced at 250 meters from then on.

The truncation distance limit is typically set at 100 or 150 meters, but in some cases is set at a lesser distance in very thick vegetated habitat.

Point counts require that surveyors are able to estimate distance of the detection from the point count station. In this Basic Point Count we use only broad distance zones, 0-50 m (Code=1), 50 –100 m (Code=2), 100 to 150 m (Code=3). Intensive point counts can require much smaller multiple distance zones, or exact distance recorded.

Birds flying over the habitat, i.e., significantly above the highest habitat feature (e.g., tree canopy level) that are within the truncation zone, are recorded as “**flyovers**” (Code “FO”). **They are NOT supplementals**, they count and their distance zone is literally entered as “FO.”

Birds flying through the habitat or “actively foraging” over the habitat are recorded as normal to their appropriate distance zone.

Birds observed beyond the pre-set truncation limit, are recorded and marked as “Supplementals” by checking the Supplemental column.

Point counts require surveyors to be able to identify birds by song and by call. Surveyors record the data for the observation, and then they have to remember the direction the detection came from, and keeping track of these individuals in case they move during the point count time period to avoid double counting.

A specific survey route is walked for efficiency of travel, but the point counts are where surveys are actually conducted. Route direction should be alternated (if feasible) when multiple surveys are conducted in a season. Typically 7 - 15 counts (of 5 minutes each) can be completed in a morning. Sometimes 10-minute counts are used. It is important that you only record birds as part of the data set if they are detected within the 5 or 10 minute time frame. Any birds detected before or after are supplementals and should be recorded this way by drawing a line on the data sheet when the time is up and the supplementals under the line.

We will decide the duration of the point count with individual teams. They are usually 10 minutes can be 5 minutes.

Upon arrival at a point count “station” we require surveyors to wait at least 30 seconds up to a minute, in order for their disturbance affects on the bird community to subside. This is a good time to take quick weather data.

Surveys should be started within a ½ hour of sunrise, and should be complete by late morning (preferably within 4 hours or before 11:00 am in winter).

An observation is an encounter with one or more individuals of a species and each observation gets its own data line on the datasheet.

*It is very important to not double count birds that may be seen at another point count station along a route. Bird surveyors need to be especially vigilant about avoiding double counting birds when routes are convoluted, and larger birds may easily be observed from more than one point count station.

*Point counts require surveyors be able to identify birds by song and by call. Surveyors record the data for the observation, and then they have to remember the direction the detection came from, and keeping track of these individuals in case they move during the point count time period to avoid double counting.

POINT COUNT SURVEYS

A. Universal Cover Sheet.

Fill this out for each new transect surveyed in that day (except for the observer information).

1. Point count route name should be standardized with Arizona IBA staff.
2. Fill out time begin and time end (put p.m. for 12:00 noon and after) for the total point count route. Record the total survey time of the point count route.
3. Record distance of truncation for point count observations. This distance should be set with Arizona IBA staff ahead of time.
4. Direction of travel should be in ¼ cardinal directions, and written as follows: NE-SW.
5. Survey length should be estimated.
6. Record point count spacing distance (in meters). This distance should be set with Arizona IBA staff ahead of time.
7. Weather data is taken for each point count (preferably) or at least for the beginning, middle, and last point count. If weather (particularly wind) changes then weather data should be updated before the next point count is begun. Be sure to record the time of each weather data recording on the cover sheet.

B. Point Count Data Sheet.

Write location (name of the site, i.e., "Cienega Creek"), Date, Sheet number, Point Name/No. (usually this will be a number). Record time begin and time end of point count. Record truncation distance. Lastly, record Primary habitat (by code), and Secondary habitat (by code) for that particular point count station/stop. Please record Observers and Recorder (with 3 letter initials) in this top section of the datasheet. It is very important to use one Point Count datasheet per point count. Very important! Primary and Secondary habitat then go on each sheet, specific to that particular point count station as well as the start and stop time for each point count.

1. SPECIES Code. "Species" is the first data field filled in for each observation. You may use standard 4-letter alpha bird banding codes (we will provide), common names, or short hand names, as long as the species identified is unambiguous..
2. DETECTION CODE. Record whether the bird was first detected by *Audio* or *Visual* methods by the IBA Team (write "A" or "V"). Do not record both codes, only how you first detected the bird.
3. COUNT. Record the number of birds (of a species) you see together for each observation. This goes under the data field "count" on the datasheet.
4. ESTIMATE. If the "count" is an estimate, then check the "Est.?" box. Most of the time you will not be checking this box.

5. DISTANCE ZONES. Record the distance zone (by code) that your bird observation was first made in. These distance zone codes are listed at the top of the Point Count Data Sheet. Note birds flying through the habitat are given a different code. Additionally, “flyover” birds (within the truncation distance) are counted and coded “FO”, unlike in Transect surveys where they are considered “Supplemental”. Here they count and their distance zone is recorded as “FO” right in the distance zone box.

6. SUPPLEMENTAL. Check the Supplemental box for birds seen beyond the truncation distance. If birds are observed flying outside the truncated zone upon initial observation, but then subsequently fly within the truncated zone within the survey time (i.e., 5 or 10 minutes), then they are not considered “supplemental”, they are counted, and given a distance zone code, or noted as “flyovers” (Code=FO).

7. MALE #/FEMALE #Record number of males and females where discernable.

8. JUVENAL #. Record the number of juvenile birds when young of the year are encountered. “Young of the year” refers to young born in the current calendar (not born the previous year).

Do not record “Nestlings” (young birds still in the nest not able to fly) or “Branchers” (young birds out of the nest but still not able to flying, i.e., not fledged from the immediate nest vicinity) as Juvenals. These dependent young are instead noted as such in the Comments of a particular data line on the data sheet, e.g., Comment: Nestlings 2.

9. SUB-ADULT #. Record the number of sub-adults when they are distinguishable. Juveniles become Sub-adults on January 1 by standard convention. Sub-adults will be primarily used for raptors, and should not be used for passerines.

10. OTHER HABITAT CODE. Record the habitat type of the bird observation if it is not in either the primary or secondary habitats listed above on the data sheet. Use the habitat codes provided.

11. SNAG. On snag. Check this column if the observed bird(s) was using (perched in, foraging on, etc.) a dead tree, a “snag.” These trees tend to be important to birds therefore we record this data.

12. SINGING. Check this column if the bird was “singing”

13. CALLING. Check this column if the bird was “calling”

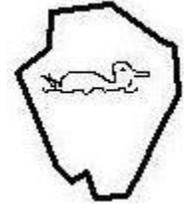
14. TERRITORIAL PAIR. Check this column if territorial pair is deduced for a specific observation. A territorial pair is deduce when a male and female are seen in close proximity and apparently associated to each other (e.g., if one bird moves, the other then joins it, or feeding together, or exhibiting any of the breeding behaviors with the opposite sex bird present).

15. WHEN DETECTED. 5 to 10 minutes. Draw a line down this column for all bird observations made during the second 5 minutes of a 10-minute count.

16. COMMENT. Use for any comments. If you can record the vegetation species the bird or birds were using (if visible) during your observation, you may record that vegetation species information in the comments column.

Breeding behavior (codes) can also be recorded in this column if such a behavior is detected for a bird observation. Additionally, if an active nest is found (i.e., between counts), particularly a raptor nest or a nest of a species of conservation concern, we recommend that a GPS receiver is used to its UTM coordinates (assuming a GPS is available). For consistency, set GPS receivers “map datum” setting to NAD83 CONUS.

Census Surveys This is generally used for waterfowl, not common in SE AZ



Background: It is assumed the majority (>95%) of the individual birds of the species groups of interest can be accurately counted when using this method. This survey is often a stationary survey when attempting to survey wetland-associated birds. But, multiple vantage points can also be used when doing this provides the most accurate count. Care should be taken not to disturb congregating birds. A census survey is often used at “open” lakes, ponds, wetlands, and mudflats, or for large raptor nests in trees or on cliffs.

Census Survey Details:

This type of survey is particularly amenable to a “large team” surveys (up to 8 people). IBA Bird Survey Teams should plan surveys during the time of year when species of interest are most numerous at the site. Teams may or may not decide to divide their study area between team members. If teams do divide up to cover the survey area, they need to take special care so sub-teams do not survey into each other areas, and that birds moving between zones are noted with time and direction of movement recorded. Surveys of sub-areas should be simultaneous. Different site names are recorded to datasheets in the above instance.

Teams may find that numerous “vantage points” may be necessary to use in order to fully cover the survey area (e.g., for convoluted wetlands or lakes). Special care must be taken to avoid double counting birds that may have moved within the survey area during your counts from vantage points.

For migration sites, at least three surveys should be conducted during the peak period of migrant species occurrence (ideally separated by one week). For surveys of larger nesting species one survey will usually be sufficient, and minimize disturbance.

For wetland-site surveys, both spotting scopes and binoculars are advised for sub-teams. Surveys should be conducted at a time of day when birds are most visible. Total time spent surveying will vary with size of the area, habitat cover present, and species flock complexity, but should be dutifully recorded, with a set-time used for subsequent surveys. This allows the data to be interpreted as an index, rather than a definitive complete count for less conspicuous species. During the period when birds are advertising/defending territories, surveys should be completed between sunrise and noon.

For large-species surveys, such as raptors, we recommend no more that 15 minutes be spent in the immediate vicinity of a nest in an occupied territory; less time would be preferable whenever possible. If adult birds flush from a nest, surveyors should spend 5 or fewer minutes in the vicinity of the nest, i.e., your departure should cease agitation calling by the adult birds within 5 minutes. During nestling period the time spent at the nest territory can be up to 30 minutes. If parent birds are present and defensive, this time should be minimized to the extent possible.

Summary Table for Census Surveys:

Area Types (or other)	No. Visits	No. Observers	Pros	Cons
Open wetlands	At least 3 during peak migration, spaced a week apart	2-8	Numbers easy to interpret and track for a site	May miss some individuals hiding in cover, no way to estimate
Large nest survey	1 during pre-incubation period	2-8	Efficient when area is hard to get to or the area to survey is broad	Possibility of missing late nesters

CENSUS DATA SHEETS

A. Universal Cover Sheet.

Fill this out for each new sub-area or waterbody surveyed in that day (except for the observer information). Weather should be recorded at the beginning of the survey, but can be recorded at multiple points if the survey is prolonged (over 30 minutes), or if weather conditions (particularly wind) change during the time period of the survey. Other information requested is self-explanatory.

B. Census Data Sheet.

Write the location (name of the site, i.e., "Anderson Mesa"), Date, Sheet number, Area Name/no. (i.e., "Hay Lake" or Hay Lake VP1), Primary habitat (by code), and Secondary habitat (by code). Please record Observers and Recorder in this top section of the datasheet.

1. SPECIES. Species is the first data field you fill. You may use standard alpha codes (we will provide), common names, or short hand names, as long as the species identified is unambiguous.
2. COUNT. Record the total number of birds you observe of a particular species. This is unlike the method of data recording used for Transects and Point Counts surveys, which record data by each bird(s) observation or encounter.
3. ESTIMATE. If the "count" is an estimate, then check the "Est.?" box. In cases where a large flock of birds (e.g., shorebirds), flushes and you never are able to get a count, but instead take a quick estimate of "300" (or you do a size grouping number estimate to give you a rough count e.g., 50-100-150-200-250-300 without actually counting) then you would check "estimate." Also, if you have a flock moving through and you estimate the number in each little sub-group, and then added them up, that would also be an estimate.
4. SUPPLEMENTAL. Check this box if the bird(s) observation was a supplemental observation, for example a bird observation made outside of the surveyed wetland in more upland habitat surrounding the wetland.

During a Census survey, "flyovers" (a bird or birds, flying significantly over the highest habitat feature) within the census area are recorded as "FO" in the General Behavior box of the Census datasheet). These "flyovers" are not marked as supplemental in "Supplemental" column.

5. SINGLES. Record the count of birds that are not part of a flock or a mated pair.
6. PAIRS. Record the number of "Pairs," i.e., the number of mated male/female birds. This is not the total number of birds paired, but the number of pairs.
7. No. in a GROUP/FLOCK. Record the total number of birds in groups. This may be a summation of birds of a particular species in multiple groups/flocks.
8. OTHER HABITAT CODE. Record the habitat type for the bird observation if it is not in either of the primary or secondary habitats listed above on the data sheet. Use the habitat codes provided.
9. BREEDING BEHAVIOR CODE. Record breeding behavior by using the codes provided. This is especially important to discern correctly.
10. GENERAL BEHAVIOR CODE. Record general behavior by using the codes provided. Remember, any "flyover" birds noted are coded "FO" in this General Behavior column on the datasheet.
11. COMMENT. Use for any comments.

“Flyovers” Summarized:

If a “flyover” is observed (a bird or birds, flying significantly over the highest habitat feature within the truncation zone or area search boundaries) during a Transect or Area Search, it is considered a Supplemental, and a count is recorded and the Supplemental column on the datasheet is “checked”. “FO” may be written in the Comments, as well. Interesting birds observed outside the truncation zone or area search boundaries, are recorded as “Supplemental”. This also applies to birds seen before or after the official survey.

During a Point Count survey or Census survey “flyovers” (a bird or birds, flying significantly over the highest habitat feature) within the truncation zone or census area are recorded as “FO” in the “Distance Zone” column (or for Census the “FO” code is put in the General Behavior box of the Census datasheet). For these survey types “flyovers” are not marked as Supplemental in “Supplemental” column.

If a particular bird(s) is observed outside the truncation zone or census area, then that observation is marked as a Supplemental (the Supplemental column is “checked”).

More on “Supplementals”:

The goal of Supplementals (in order of value):

1. Complete the species list for the site on that particular day (thus catching the rarities).
2. Potentially to assess the total abundance of a few low abundance and large species, such as raptors, owls, woodpeckers, cuckoos, herons, egrets, and a few other species (notably “Species of Conservation Status”).
3. Note unusual bird happenings, such as massive species flocks just outside the truncation distance or flying overhead.
4. Record the Flyovers as Supplementals, in order to capture that a particular species was mostly seen only "Flying Over", and not actually using the site as its habitat, such as many occurrences of blackbirds as Flyovers (in route to somewhere else), so that we detect that the site is an area where birds cross going to somewhere else, or follow above the corridor in route to somewhere else.

Additional Specialized Surveys (optional):

*****Nocturnal Surveys***** These often happen on backcountry surveys when we camp

Nocturnal surveys are done to document breeding nocturnal species such as owls, poorwills, nighthawks, and nightjars. They are best completed through nighttime where passive listening can be used to gain supplemental species through the night.

We recommend one of three methods: 1) if camped, **establish a nocturnal point count at your campsite and conduct two 20 min. point counts**, or 2) conduct a line transect survey at nightfall either walking down a road or within a wash through your study area, or 3) conduct multiple point counts separated by at least 300 m, within your study area would (point counts may be 5 minutes or 10 minutes duration, depending on the number and spacing you are employing). All three methods may be employed if desired.

Record distance zone of detection when the bird(s) is first detected. Record distance of direction of detection by 1/8 cardinal directions, i.e., N, NE, E, SE, S, SW, W, and NW. In all methods truncation distance would be unlimited. Habitat stratification may or may not be possible.

Campsite Protocol: Begin 20 min. point count at complete darkness. A second 20 min. point count can be conducted approximately 2 hours or later after darkness. This second survey should be conducted independent of the first. The database will be used to sum the maximum count for a given species from the two surveys conducted on that night. Other birds heard throughout the night (not during point counts) will be recorded as “Supplementals” for the survey location and date of the start of the night.

A Universal Cover Sheet and a Nocturnal Data Sheet may be used for stationary campsite point counts. The nocturnal point count datasheet is very similar to the point count datasheet and detailed instructions on filling out these forms are not repeated here.

******Protocol for the Playback surveys we will conduct in the Lower San Pedro******

Datasheets are formatted for two nocturnal point counts on each sheet. Record Primary and Secondary habitats at each point count. E.g. Primary: DS/DS, Secondary: MB/MB. Thus, both points on this datasheet had the same Primary and Secondary habitats.

- Take weather data at the beginning (first point) and end (last point).

Once you have parked and settled in and everyone is quiet, the first step is 5 minutes of passive listening. Any birds heard and recorded during this period should have a "PL" (Passive Listening) in the comment to indicate that they occurred during passive listening.

NOTE: If a species calls during the Passive Listening time period, DO NOT play their call later. This is to avoid stressing them unnecessarily. (i.e. if you hear an ELOW during this time, skip playing their call in the next step).

NOTE: if you hear a Great Horned Owl nearby, **do not play the calls of these small owls!** This may increase their chance of predation. Instead listen passively for the entire time. Be sure to note this on the data sheet

NOTE: listen for the male and female response for a "pair", record Total: 2, and mark Male: 1, Female: 1, and check Territorial Pair.

NOTE: Only record a (a specific individual) bird once, even if you hear it multiple times.

Judgment: Regarding way far away calling owls (Great Horned Owl), you may judge it to be safe to proceed with the small owls. Or if you have a species heard far away during the passive listening, you may play it again if you were not sure (if you get it to species during the passive period, leave it alone). Also, if you have "something" you hear during digital playback of another owl species, you may play the owl (species specific) call to your suspected owl again to determine the number of territories you have around your point.

Other species: You may record nightjars (Common Poorwill, Whip-poor-will, Lesser Nighthawk, Songbirds (e.g. Northern Mockingbird), other birds, and even Coyote, all right into the data lines. Something between points like Javelina heard in the bushes can go in the Site Comments for your route.

After the passive listening phase is complete, play the male territorial call of the male **Elf Owl** ("laughing call") for 30 seconds. Be sure to alternate where the iPod speaker is pointed so that the call is broadcasted over all 4 cardinal directions.

Then listen for 1 minute. If a bird is detected at this point enter an "AL" (Active Listening) in the comment because the bird was detected in the "active listening portion." If a bird is calling during the active listening period of another species (i.e. WHSO calls during ELOW active listing period) please indicate that in comments.

After the active listening minute is up, play the male territorial call of the **Cactus-ferruginous Pygmy Owl** for 30 seconds in the same manner as before.

-Listen for 1 minute as before.

Now play **Western Screech-Owl** male territorial call ("bouncing ball") as before for 30 seconds.

- Listen for 1 minute as before.

**If there was a species that you thought you heard, but are not sure, you can at this point play that species again for 30 seconds and listen for 1 minute to see if it calls back.

Survey Timing/Effort:

Survey Time Periods and General Dates:

The All-Year IBA Survey Schedule (one year commitment):

(These dates may be shifted later for higher elevation or more northern sites in Arizona, and winter dates may not be used at all, both upon consultation with the IBA Avian Science Office in Tucson)

- 1) Early April – Spring Migration and early breeders focus
- 2) Late May/Early June – Pre-summer Breeding Focus
- 3) Late July – Summer Breeding Focus
- 4) Late August/Early September – Fall Migration Focus

Optional Additional Surveys

- 5) Optional: November (mid) - Resident/Early winter species focus

* In non-riparian habitats (or in high elevation riparian, > 4000 ft. elev.), in these lower bird density habitats, line transect survey methodology may be used all year long, please consult with the IBA Avian Science Office in Tucson.

We will also be conducting Backcountry surveys in the Lower San Pedro River, Pinaleno Mountains, Patagonia Mountains, San Rafael Valley and possibly the Chiricahua Mountains. These surveys will be scheduled for individual dates that participants can sign up for on an individual basis.

If you take any particularly nice photos of an area or IBA you are surveying or nice photos of team members conducting photos, we would love to have them for the website! Also, if you have a cool incident or an eventful survey, we encourage you to post a blog entry on the www.aziba.org blog!

If you have any questions please feel free to contact me!

Jennie MacFarland

Arizona IBA Coordinating Biologist

(520) 209-1804

jmacfarland@tucsonaudubon.org

A Note about Data Entry into the Database

Many of our volunteers enter their own data into the database online, here are a few things to keep in mind.

1. We will provide you with a username and password to access this part of the site if you would like to enter data. Start thinking of your favorite bird, that will be the password!
2. It is best to enter a survey in one sitting. Don't start a data entry "site survey entry" and then plan on coming back later and entering the birds. This can get very confusing later. It is much better to do it all at one time – trust me!
3. Before entering data, highlight your supplementals on your data sheet with a bright color. This prevents you from accidentally entering them as data.
4. How entering a survey works is you go to the data entry page on the database.
 - Cover Sheet info: As soon as you log in, it takes you to the Main Survey Data Entry/Edit Page, fill out this info and pull down the correct survey location. When done click the "Save Survey Record" button. Then on the left side bar of the web page click on "Enter/Edit Observers & Weather" and use the pulldown menu to select the right location and select the correct survey you set-up in the last step. You have to click "insert" after you select each observer. If one of your observers is not showing up, I have to fix it for you. Feel free to go on, I can fix it later, but you NEED to let me know about it. Also be sure to click the "Recorder" box on the person who filled out the data sheets.
 - Data Sheet info: Once all the info from the cover sheet is entered, we move onto the datasheets. On the left side bar of the webpage, click the Enter Data for Transect (or whichever one is appropriate). Then you have to again pull down the correct survey area and click on the survey you have just setup. Each bird observation (each line on the data sheet) is entered separately. You select the species (you can pull it down and zoom to the right species by typing the 4 letter code) and select if the species was Audio or Visual, select the distance zone, the spaces such as # of males, other habitat etc. are optional and should only be entered only if they are filled out in the datasheet. After all the info is entered, click the "insert" button and then do the next species. Be sure to only enter birds that were "in" on the survey and not the supplementals.
5. After you have entered all your data, you need to make a separate survey in the database but this time XXX_SUP with the same date as the original survey. You go through the same steps as before in creating a survey, but don't worry about entering the weather or observers, the most important part is the location and the date. If multiple surveys have happened in the same area and the same date, the supplementals from the different surveys can be entered on the same supplemental list, just be sure to put in the comment box which survey the bird occurred on.
6. Always enter bird data in the order they are listed on the datasheet which should be the order in which they were detected.
7. Don't enter anything into the database that is not on the datasheet. If you remember something or realize a mistake was made (i.e. A "P" in breeding behavior, but "territorial pair" not checked) make sure you fix it on the datasheet as well.
8. Please be sure to log off when not using the database.
9. Be sure to get the original (not copies) of the datasheets to us after you have entered them. Also please be sure to sign and date the line on the upper right corner of the cover sheet indicating that you have already entered the data. This prevents us from entering it again.
10. If you do make a mistake, such as start a survey twice or double enter a bird, please email us to let us know. We can fix almost anything if we know about it. Please don't be embarrassed to tell us about a mistake! I have had some doosies! There are things that I can easily fix from the back end that you could never change through the website.