

Vancouver Avian Research Centre

Stimulating your interest in wild birds and nature



Banding Station Protocol Colony Farm



**Above all else,
the well being of *every* bird
is the top priority at *all* times!**

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Vancouver Avian Research Centre – Colony Farm

Introduction

The Vancouver Avian Research Centre

The Vancouver Avian Research Centre is a not for profit society dedicated to avian research and conservation. It conducts bird monitoring and bird banding programs at several locations in the lower mainland. VARC also hosts Bird Identification and Bird Banding Workshops for the public to explore and learn more about the birds and habitats of the Vancouver Area.

The Colony Farm Banding Station (CFBS) is located in Coquitlam on the banks of the Fraser River at the Colony Farm Regional Park. The station was established in the spring of 2009, following the establishment of bird banding stations at Burnaby Lake, Grouse Mountain and on Vancouver's north shore in previous years. A need was identified to monitor the migration of landbirds along the mainland of the Pacific coast of British Columbia, as well as to provide an educational facility for the public to interact with and learn more about birds of the Vancouver area.

During banding sessions wild birds are mist-netted; identified to species, banded and measured, under permit and according to procedures prescribed by the federal Bird Banding Laboratory, held for short periods and released unharmed.

Data collected during these banding sessions is maintained and becomes part of the centre's permanent research database, and is also submitted to the federal Bird Banding Laboratory in Ottawa.

All personnel involved at the station are required to study the protocol (see Volunteer section) as it provides an overview of how the station operates and outlines the formalities and etiquettes of the banding operation.

Purpose

Millions of birds of hundreds of species migrate between breeding areas in temperate North America and wintering areas at more southerly latitudes. These birds undertake numerous flights in their travels between breeding and wintering grounds, and require adequate stopover areas in order to rest and refuel between migratory flights.

The primary research program at CFBS focuses on studying landbirds during these temporal breaks in migration.

The purpose of migration monitoring is to obtain data on neotropical migrant and other landbird species in a scientifically rigorous manner to contribute to continent wide monitoring efforts. Some of our aims will be to determine what species use CFBO as a stopover location, how long their stopovers last, migratory timelines, and to help determine population indexes and other vital rates for migrant birds.

Staffing

The station is run by at least two people, one of which is a licensed bird bander and is capable of acting as bander in charge (BIC). The BIC is responsible for the daily operation of the station and to ensure that the welfare of every bird is always the top priority. In addition the BIC oversees the daily tasks of banding, coordinating volunteers, interacting with the public and the other tasks associated with the position.

All station personnel must be capable of identifying most of the birds expected in the Vancouver region and to this end volunteers are encouraged to attend one of Vancouver Avian Research Centre's (VARC) Bird Identification Workshops. This is to ensure that accurate data is recorded for the daily census (see Census).

VARC has developed a structured, graduated training program for volunteers who want to assist at the banding station. All volunteers who wish to handle birds must either attend VARC's Bird Monitoring and Banding Workshop and net extraction training program or be evaluated by one of the senior training staff and signed off before assisting at the station.

This is to ensure they have the necessary skills to accurately age and sex North American landbirds in the hand.

Volunteers who wish to be involved with the banding operation must then be supervised by the BIC until they have developed their net extraction and bird handling and processing skills.

Vancouver Avian Research Centre - General

Dates of operation:

VARC operates a year round banding operation:

- a) Migration seasons (April through May; August through November): During the peak spring and fall migration seasons, weather permitting, we operate a full set of nets (up to 20 depending on conditions)
- b) Breeding season (June through July): We avoid possible disturbance to nesting birds and their young by banding at weekends only (2 days per week) during the breeding season.
- c) Winter season (December through March): Up to 6 meter nets and a number of ground traps baited with seed are used for capturing birds at the feeder stations. The station is in operation at weekends only during the winter season.

Opening Procedures

- a) Except during the winter season, nets are opened starting at about half an hour before local sunrise.
- b) Due to the nature of site and especially during spring 'run off' at the Burnaby Lake station, the bottom trammels of the nets are kept about a foot off the ground to prevent birds caught in the bottom shelf from sagging into wet grass or surface water.
- c) Mist net poles are positioned on rebar inserted in to cross pieces of wood to provide a stable base for the poles and to avoid poles sinking in to marshy areas. The top trammel loops are opened to near the top of the poles, to a height of about 2.5 meters (using a stick if necessary). The vertical shelf strings are never stretched taut. We visually inspect every net at opening, and throughout the day, to ensure there is adequate pocketing along each net shelf, trammel lines are evenly spaced, and that netting is not snagged on loop ends or doubled over itself.

Mist Net Types

VARC operates up to 45 or more polyester nets for spring and fall migration banding – During winter banding VARC operates up to 6 12-metre nets adjacent to feeder stations and a number of wire ground traps positioned below the feeders.

Polyester nets are used as they shed water better and retain their tensile strength longer than nylon nets.

Weather Conditions

- a. In general, nets are not operated under the following conditions:
 - i. Temperatures in direct sun above 75-80°, as birds easily become overheated or hypothermic
 - ii. Temperatures well below freezing
 - iii. Steady rain heavier than a light mist/drizzle
 - iv. Sustained strong winds or intermittent gusty winds that repeatedly blow the nets into nearby brush

Net Checks

- a. Ideally, two or more people will check nets each round, starting at opposite ends of the net circuit and always meeting somewhere along the way (this insures that if one person has a lot of birds or a difficult extraction, help from another bander is always on the way). Each person continues to walk along the circuit until meeting up with the other net checker. After all nets are cleared, checkers return directly to the banding table together to assist, where needed, in the banding and processing of birds.
- b. Net runs are begun every 30-40 minutes or more frequently (every 20 minutes) depending on the weather conditions (i.e. wind, rain, heat, cold). If need be, birds not yet banded and processed from a previous round will be left in cloth bags at the banding table while a net round is made. Birds generally are not held for more than about one hour beyond the round in which they were gathered. With few exceptions birds are processed in the order in which they were caught.
- c. Net checkers are required to report changes in weather conditions (see above) throughout the day to the bander in charge so decisions can be made about doing more frequent net checks or closing nets if necessary.
- d. Net checkers MUST walk the full extent of every net and check each net carefully, paying special attention to the bottom shelf. Even with nets set rather high off the ground, it is easy to pass by a bird lying still and hidden in the grass. To avoid this, net checkers should lift the bottom trammel of every net they check.

Net Extractions

- a. When approaching a net to extract birds, net checkers are instructed to always look down the length of the net or line of nets to see if one bird appears to require more immediate attention (e.g., a tongued bird or a bird caught by one leg or one wing). Always work to extract these birds first, even if it means passing up "good" or easier birds.
- b. At VARC, we use the "body grab" method of extraction in >95% of cases and rarely need to actively disentangle feet and toes. When the net is freed from around their wings and head, most birds actually will "let go" of netting that may, at first glance, appear to be badly tangled around their feet and toes! This has proven to be (by far) the quickest, most efficient, and safest method of extraction, as is also pointed out in Ralph (2005).

In extracting birds, we are extremely careful to not unnecessarily damage or disarrange the bird's plumage, (i.e., we take care to not bend flight feather

shafts to the breaking point and are especially careful of growing pin feathers on molting birds which can cause extensive bleeding if broken). In general, we strive to extract every bird with little or no feather loss. This is simply a good practice for protecting the welfare of each bird and also because birds are frequently photographed.

- c. A trained net checker should not spend more than about a minute extracting any bird—excessive handling, especially during net extraction, and especially when progress is not being made for freeing the bird quickly, leads to physiological stress that can weaken birds. As stated at the outset, the well being of every bird is the top priority at all times. With nets being checked at appropriately frequent intervals by well-trained net checkers, extractions ordinarily will take no more than about 10-15 seconds each. It is our experience and observation that too much time spent handling birds both during extraction and during processing (i.e., when banders are trying to determine the species, age, and sex of birds in hand; see below) are the primary sources of physiological stress for birds caught for banding purposes.

Of course, occasional birds will be much more entangled in the nets, requiring far more than the minimum amount of time to extract, so if a net checker is having trouble extracting a bird, he or she should never hesitate to ask for help—more experienced banders are always nearby. One option is to leave the bird in the net, if this can be done safely, and go quickly for help. Walkie-talkies are always available allowing net checkers to communicate with the Bander-in-charge at the banding table, and these naturally should be used right away to call for help. Unless real progress at an extraction is being made, it is better for the net checker to simply wait with the bird (keeping the net slack, if necessary, but not handling the bird further) until another person arrives. Continual handling of a badly caught bird when no real progress is being made with the extraction is stressful for that bird—again, it is **always** better to wait for a more experienced bander to take over.

As a last resort (and something that should not be necessary more than once in several hundred or more extractions), it always is permissible to simply carefully cut or snip one or a few strands of a net in order to free a bird that appears to be stressing rapidly. Individuals who are having persistent difficulty in extracting birds from nets should request guidance from one of the station's principal banders in order to improve their extraction skills.

- d. Especially on busy days, recently banded birds (still with what we call "shiny" bands) that have been recaptured within the same day, or within a very few days, are released at the nets and not brought back to the banding table for repeated processing. This is especially true for still dependent locally hatched young birds (i.e., birds in full juvenal plumage and/or in active heavy first prebasic molt) and nesting adults (i.e. individuals with an active brood patch). Band numbers can be written down or remembered at the net and written on the recapture sheet with "released at net" in the comments.
- e. Each net at each VARC station is numbered and correspondingly numbered pegs are attached to the mistnet anchor ropes. A numbered peg is attached to each bird bag and the net from which a bird is extracted is then recorded on the data sheets.

Bird Bags

We use medium-sized soft cloth bags to carry the birds from the nets to the banding table for processing.

Bags are used for one day only and are discarded throughout the day as needed. After the first net round of the day, whenever possible we reuse bags from previous rounds, before using new ones, so the number of bags used daily is kept to a minimum.

- a. Bags are closed with draw strings that are looped around the neck of the bag to ensure that birds do not escape while being transported back to the banding table or while waiting for processing.
- b. As mentioned above numbered clothes pegs are used to identify the exact net that each bird is extracted from and these are attached to the draw string of each bag.
- c. Some non-aggressive birds may be temporarily double-bagged (more than one bird per bag of the same species), for example, most warblers, goldfinches - we do not mix different species. In these cases, double bagged birds are usually separated upon return to the banding table. Many birds **are** aggressive and should NEVER be double-bagged (even temporarily), for example, chickadees, vireos and strong-billed finches.

At the Banding Table

- a. Banding priority is given to hummingbirds or other small birds (because of their higher per gram metabolic demand compared to larger species), recaptures, and recently fledged young and females with brood patches. The last two are always returned as soon as possible to the nets where they were extracted.
- b. Ideally, there are three people involved in the banding process: a Bander, a Processor, and a Recorder. At VARC the roles of Bander and Processor are often combined.
 - i. The Bander
 - Sorts out all recaptures and puts them in line (still in the bag) for immediate processing.
 - Is responsible for removing birds from cloth bags, selecting and attaching the proper band size to each bird, being careful to insure a good fit (e.g., correct "spiraled" or overlapping bands; sand down any sharp projections). All species are fitted with aluminum bands
 - Must be aware of and careful of the possibility of occasional double-bagged birds (careful not to let a remaining bird escape from the bag while the first is being banded; careful to be sure that birds are never left in bags).
 - The Bander should try to band birds in order of priority, as stated above, generally working from small insectivores (0 and 0A size bands) up. Whenever possible, the bander should also sort the birds by species and band all individuals of like species in sequential order so data collection, recording, and subsequent computer data entry are more efficient.
 - After removing a bird for banding, the Bander should inspect each bag and discard for washing any that are heavily soiled.
 - ii. The Processor (a.k.a. The Hot Seat!)
 - Only one bird is processed at any given time. At VARC, this job always is done by the Bander-in-charge, or under his watchful eye!
 - The Processor is responsible for identifying the species, efficiently and accurately ageing/sexing all birds, and taking all necessary measurements, which are dictated to the Recorder. The entire processing procedure takes no more than a minute, except in cases where additional data or notes are being taken.
 - First, the Processor calls out the band size (so the recorder can pull up the

appropriate data sheet), identifies the species to the recorder, and then double checks the band number with the recorder (it is best to double check band numbers every time, but it is critical to do this at least every few birds). He/she also should periodically check/correct the fit of the bands and make recommendations to the Bander as needed.

- The Processor gives the data for each bird in the following order: age, sex, wing length, tail length, fat score, and weight, corresponding to the VARC field data sheets.
- It is also the responsibility of the Processor to carefully examine each bird for noteworthy plumage variations, molt, breeding condition, deformities, etc. and to dictate comments as appropriate to the Recorder. All adult birds in summer and early fall are examined for wing molt.

iii. The Recorder

- The recorder arguably may have the most important job of all! Scribing data without error for dozens of birds in a day, often in the face of distractions of many kinds (e.g., visitors), can be a real challenge. Recording is not a spectator sport. The recorder must ensure data is recorded otherwise its scientific value is compromised. To some extent, it is the processor's responsibility to also keep an eye on data being scribed by the Recorder. A good Recorder is worth his/her weight in warblers!
- The recorder must check band numbers with the processor frequently (every bird is not too often!). When there is agreement about the band number, the recorder should place a small check mark at the beginning of that record line (this helps when the inevitable mistake does occur, giving a stopping point for resolving mistakes with the last band number that was "double checked" and confirmed correct).
- When more than one individual of the same species is processed in series, then ditto marks are used in the species field on the data sheet instead of rewriting the alpha code again.
- The entire nine-digit band number is written down at the beginning and end of every band string, at the top of every data sheet, and every time band series switch on a single data sheet.
- The recorder should ask for any data the processor has forgotten to announce, and it is the recorder's responsibility to write down the weight of each bird by watching the readout from the digital scale (unlike the other data, the processor usually does not call out the weight).
- When only two people are involved in the banding process, the processor will band the birds themselves and the second person will record.

After processing, birds are promptly released.

Census

The purpose of the census is to obtain the best standardized estimate of the number of species and individuals present in the count area on a daily basis over the migratory period

The census overrides all other activities at the station (except bird safety) and must be completed by a level one observer (see Volunteers). The census starts at one hour after sunrise and should take one hour to complete. The census may be delayed up to one hour due to inclement weather, and may be delayed indefinitely in the case of a severe storm. The census will follow a set route (Figure 1-to be determined) and the observer should follow this route at an even pace, so extra time is not spent at a particular location. In

addition the observer may step off the route briefly and not more than a step or two. The observer may not engage in pishing or any other activity that will attract birds. The observer will write down all birds observed or heard from the census route. At the start of the census the observer will record the weather details.

a) General Observations

Volunteers will be asked to record all the birds that they seen or hear within the count area over the seven hour count period. Ideally all birds should be recorded in a personal notebook, failing that sightings should immediately be passed on to another volunteer with a notebook. If a volunteer will be leaving before the end of the count period it is asked that they leave their list with the BIC.

b) Daily Estimated Totals

At the end of every day of monitoring, all volunteers present will gather to participate in the daily estimated total (DET) of the number of individuals and species present within the count area that day. The production of the DET must remain consistent according to the protocol as this is one of the most important pieces of data from the migration monitoring program.

Before volunteers go over their sightings, all bandings, recaptures, census sightings, weather, volunteer and coverage codes must be entered. Following this the person in charge of tallying the DET, usually the BIC, will call out each species in order and each person will call out how many they have seen. The person tallying will use their best judgment to estimate the number of birds present from each persons list, the census and birds caught, if there are questions about double counting birds there should be a discussion about the bird(s) in question. The tally should always take a conservative view on the number of birds present to avoid duplication. It should also be noted that birds that volunteers 'know' are in the area, but were not seen are not tallied. A coverage code will be assigned to each DET according to how much coverage the station received that day. A coverage code of five indicates no coverage, a four indicates only a census was done, a three is a census, general observations and three hours or less of banding, a two is a census, general observations, and more than three hours of banding, and a one a census, general observations, and six hours of banding.

c) Count Area

An established route confined to an area within Colony Farm Regional Park on the east side of the river.

d) Daily Count Period

The daily count period will begin 30 minutes before sunrise and concludes seven hours later, or 6.5 hours after sunrise. Birds observed or banded after the count period will not be included in the daily estimated total (see Daily Estimated Totals).

Banding Data

Band number – prefix and suffix of the band recorded at the start of each data page.

- a. Species – Alpha Code is written out.
- b. Age – The most precise and accurate (95% reliable) banding age codes (i.e. HY, AHY, SY, ASY, TY, ATY) are assigned based on degree of skull pneumatization, plumage or soft part coloration, and/or wing molt limits.
- c. Sex – M or F based on physical evidence or reliable (95% confidence) plumage and/or wing length criteria, U (undetermined) is used for cases of overlap and

for monomorphic species.

For both age and sex, we sometimes note "leaning towards" our age or sex determination, which translate on our banding schedules as a less precise or undetermined category. We do this when we have ~90% or greater confidence in age or sex determinations that may not be currently acceptable to the Bird Banding Lab, but which we find useful to retain in our own database – especially if the bird is retrapped at a later date and the age and/or sex can then be determined.

d. Wing length – length of the longest primary on the unflattened folded right wing, to the nearest half millimeter. Factors affecting the length of the primaries, which would ultimately underestimate the wing length, (e.g. wear, active molt of the feathers, or bent tips of feathers), are taken into consideration and, when appropriate, the words "worn," "bent," or "molt" are written in place of a numerical value.

e. Fat score – rated on a scale of 0-5

f. Body Mass – read from a digital scale tared to directly display the body mass of the bird.

g. Additional comments: Any physical abnormalities or other optional data. Rare species and unusual or interesting characteristics are photographed both for documentation. Birds are held no longer than a couple minutes after processing for photographs.

h. Additional Information recorded on separate data sheet for each day:
- All personnel or visitors involved in any part of the banding process that day.
- Number of nets operated.
- Net hours = number of nets multiplied by number of hours nets were operated.

Recaptures

Birds banded or recaptured on the same day are to be released without being processed. If the extractor knows from the band number that the bird was captured that day it may be released at the net, all other recaptures will be brought back to the lab for processing. Recaptures will be entered onto the recapture data sheet, which is similar to the banding data sheet except it has an entry space for the full band number for each bird. All of the same data recorded for banded birds should be recorded for recaptures.

Closing Procedures

a. Nets are operated usually as long as weather allows, and depending on the catch and the availability of help (i.e., VARC stations are not "constant effort" banding stations).

b. Nets are left on the poles each day and furled tightly closed on the last net round of the day.

c. When nets are left closed on the poles for more than a couple of days they are clamped shut in three or four places along the length of the net with broad plastic pegs.

Volunteers

There are many roles for **both trained and untrained** volunteers at the Vancouver Avian Research Centre and getting involved is simple. All you need is enthusiasm, some time and a willingness to learn and work with others.

Trained Volunteers

The Vancouver Avian Research Centre (VARC) has developed a structured, graduated training program for volunteers who want to assist at the banding station.

Our [Bird Monitoring and Banding Workshops](#) and [Bird Identification Workshops](#) provide the technical foundations for volunteers wishing to assist with the banding program or weekly bird census.

For those wishing to handle birds at the banding station VARC has developed a graduated Volunteer Level Assessment training program which includes net extraction training and ongoing development of ageing and sexing skills.

The purpose of the training program is to ensure that all visitors and volunteers are fully trained and evaluated before handling birds and that the welfare of the birds is always the top priority.

Any visitors or volunteers who wish to help at the banding station should consult the Volunteer Levels Assessment document below in addition to the Banding Station Protocol.

[Volunteer Levels Assessment](#)

[Banding Station Protocol](#)

Untrained Volunteers

There are a variety of tasks that require the support of dedicated volunteers that don't require any special skills or knowledge.

- Each spring and fall VARC needs able bodied volunteers to help clear net lanes in preparation for migration banding.
- Some people help by regularly filling the feeders and traps during the winter banding program.
- Others help by clearing and maintaining net lanes throughout the year
- People with carpentry skills are particularly welcome as we evolve the sites adding boardwalks and basic infrastructure.
- Capable birders are always needed to report bird sightings to the Centre's database
- Photographers are always welcome in order to help us build our photographic library for both education and research projects.
- Others simply provide moral support and coffee and tea!

If volunteering interests you please complete the volunteer sign-up sheet by clicking on the link below indicating the areas you are interested in helping in.

Volunteer sign up form

This can be emailed or faxed back to us or by simply calling to discuss volunteer opportunities in more detail – See contact information below.

Visitation Policy

VARC stations operate with a wide open door policy regarding public visitation but all public visits must be scheduled in advance. This is to address potential liability issues in the areas in which we are banding. Members of the public that visit the stations uninvited and unannounced should be politely told that public visits are scheduled in advance and handed a brochure or card kept at each location providing them with a telephone number and contact information.

When visiting the stations visitors are **not** permitted to walk the net lanes, unless invited and attended by the station Bander-in-charge. Visitors often are invited to walk the net lanes during net checks, but only on a case by case basis, depending on the volume of birds, people, and weather conditions. At the banding table, all visitors are invited to observe the banding procedures, view the birds close at hand, take photographs, and ask questions. Large group visits are typically scheduled well in advance.

Contact Information:

Vancouver Avian Research Centre

Telephone: (604) 218-1191

Fax: (604) 985-0887

Email: infoATbirdvancouver.com (Remember to replace AT with @)