

Field Protocol For Migration Monitoring
at
Rocky Point Bird Observatory



Ver. 2.0
March, 2008.

NOTE: You may wish to download a PDF version (1 mb) for printing purposes.

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Michael Shepard and Rhonda Millikin created a preliminary protocol for migration monitoring at Rocky Point in 1994. This current protocol version expands upon and further standardizes procedures developed in their document. Seabrooke Leckie reorganized and updated the document in March 2008.

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Protocol Version History

This section records all significant revisions made to the RPBO monitoring protocol. All significant changes must be noted in this section, and the version number on the title page and within the footer must be revised to reflect the new version number. The RPBO program coordinator will provide the latest revised protocol.

Version	Date of Revision	Major Changes
1.0	November 1999	Initial review draft prepared by Daniel Derbyshire
1.1	20 February, 2000	Grammar, organization. Electronic data entry section added. Priority species revised to reflect most recent CMMN agreement.
1.2	1 August, 2000	Procedural revisions and grammar by Daniel Derbyshire
1.3	December 2000	Procedural revisions by Daniel Derbyshire
1.4	April, 2003	Clarification and procedural revisions by the RPBO Board
1.41	October, 2004	Revision of Census Time
1.42	August, 2005	Revision of Census Time
2.0	March, 2008	Update of safety procedures, data forms and maps, elaboration of details in text, reorganization of subsections and text, addition of appendices

Questions

Questions regarding the BC Migration Monitoring Program should be directed to Wendy Easton (landbird biologist) at the Canadian Wildlife Service's Pacific Wildlife Research Centre at (604) 940-4673. Please contact the Rocky Point Bird Observatory Board regarding questions on this protocol.

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The Bander's Code of Ethics

(adapted from the North American Banding Council 2001a)

Banding is a Privilege

1. ***Banders are primarily responsible for the safety and welfare of the birds they study so that stress and risks of injury or death are minimized. Some basic rules:***
 - handle each bird carefully, gently, quietly, with respect, and in minimum time
 - capture and process only as many birds as you can safely handle
 - close traps or nets when there are known predators in the area
 - do not band in inclement weather
 - frequently assess the condition of traps and nets and repair them quickly
 - trainees must be properly trained and supervised
 - check nets as frequently as conditions dictate
 - check traps as often as is recommended for each trap type
 - properly close all traps and nets at the end of the banding
 - do not leave traps or nets set and untended
 - use bird bags only once before washing to prevent the spread of disease
 - use the correct band size and banding pliers for each bird
 - treat all bird injuries in the most humane way

2. ***Continually assess your own work to ensure that it is beyond reproach***
 - reassess methods if an injury or mortality occurs
 - ask for and accept constructive criticism from other banders

3. ***Offer honest and constructive assessment of the work of others to help maintain the highest standards possible***
 - publish innovations in banding, capture and handling techniques
 - educate prospective banders and trainers
 - report any mishandling of birds to the bander
 - if no improvement occurs, file a report with the Banding Office

4. ***Ensure that your data are accurate and complete***

5. ***Obtain prior permission to band on private property and on public lands where authorization is required***

6. ***Obtain all necessary banding permits***
 - ensure you have the appropriate permissions on your banding permit (including net type, species, adding additional markers beyond metal band).
 - obtain provincial or territorial permits to band provincial species.
 - obtain federal scientific permits to take samples from birds or tag with more markers.
 - obtain federal Species at Risk permits to work on federally-listed species.
 - ensure you have permission and the appropriate permits to sample on private property.

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1. Introduction

Rocky Point Bird Observatory (RPBO) is located on Canadian Forces Ammunitions Depot (CFAD) Department of National Defense (DND) lands to the southwest of Victoria, B.C., on the Strait of Juan De Fuca (geographical coordinates: 48 19' 13.97" N, -123 32' 49.59" W).

The station was established in 1994 by the Canadian Wildlife Service (CWS) to represent western Canada in the recently-formed Canadian Migration Monitoring Network (CMMN). RPBO is the westernmost member of the CMMN, and one of four such stations in British Columbia. It is currently the only station located on the Pacific coast of Canada, and as such provides important information on western and coastal migrant birds in Canada. A priority list of species to be monitored at Rocky Point was established by CWS in 1998 (see Appendix 1).

In the fall of 1998 the CWS launched an effort to standardize protocol and effort at RPBO. Funding was secured to hire a full-time bander to run fall operations on a daily basis, as prior to this banding had been done as personnel were available. Following this season a formal, expanded protocol was developed outlining details such that data from subsequent years of monitoring would be collected in a manner that would allow strong trend analysis between years. A board of directors was formed in 2000 in order to oversee and guide the future of RPBO.

In 2003, two new monitoring projects were introduced at RPBO: Northern Saw-whet Owl banding and Monitoring Avian Productivity and Survivorship (MAPS). MAPS is also conducted at a second DND site at Royal Roads University and is governed by the protocol established by the Institute for Bird Populations (IPB).

RPBO is almost entirely a volunteer organization, with the bander in charge (BIC) currently being the only paid staff. As such, there is a fair amount of personnel change, although many of the volunteers have been working with RPBO for more than 10 years. As a "visitor" on Department of National Defense lands, RPBO is also subject to revisions in military requirements. This environment necessitates training and retraining of RPBO personnel and is a primary reason for the development of a standardized protocol.

This protocol is intended to outline field procedures for migration monitoring at Rocky Point Bird Observatory required to ensure that field procedures at RPBO are understood and adhered to in a consistent and standardized fashion by volunteers and staff. Standardized protocols are essential to ensuring that data are collected in a manner that allows them to be directly comparable from one year to the next. Any deviations in protocol may result in the data being incomparable, such that trend analysis cannot be performed. Any future changes to this protocol must be fully recorded in order for any potentially negative effects of this to be considered at later analysis stages.

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All volunteers should review this document at least annually to become informed of the current requirements and responsibilities at the site.

2. Goals and Objectives

The primary objectives for avian monitoring at RPBO are:

1. To produce annual indices of populations of migrant birds using and passing through Rocky Point annually, through participation in the CMMN. These indices may include numbers, demographics, species composition, and timing, and will be used both to monitor bird populations for adverse and positive trends, and to advise on conservation issues facing these species.
2. To develop a better understanding of migration and stopover ecology of migratory birds using Rocky Point, and use this information to advise on conservation measures at this and nearby sites.
3. To contribute to scientific research through partnerships with academic, government and research organizations, such as Monitoring Avian Productivity and Survivorship (MAPS) with the Institute of Bird Populations, DNA Barcoding, West Nile Virus research, and others projects compatible with the operations of Rocky Point Bird Observatory.
4. To develop relationships within the community by providing training to volunteers and students interested in learning field techniques and increasing awareness of conservation issues within the community, military, and other groups.

We achieve these goals by working:

- To identify and count individuals (observed and captured) of each species or subspecies, new and recaptures, daily during the monitoring period,
- To determine the age and sex composition of captured birds and collect other morphometric data.
- To produce annual reports summarizing the season, containing numbers and composition of captures and recaptures, comments on habitat changes, weather conditions and other factors that may have affected the capture of birds locally.
- To reduce, where possible, biases in sampling by improving survey protocols and skills of observers, maintaining local vegetation structure and composition, and supporting consistency of the surrounding landscape
- To follow a standard protocol that meets the scientific requirements of CWS and the Canadian Migration Monitoring Network. In return, CWS will support annual trend analyses and produce regular analyses and interpretation of data, placing observations in the context of local and regional landscapes, regional weather conditions, population surveys and studies, and other environmental factors.

The ultimate purpose of RPBO is to collect field data of excellent quality that can be used for future research or monitoring analyses, both as part of the CMMN and for

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independent research. Quality data is collected by establishing and following a set protocol that controls for potential variables.

Because of the location of RPBO at Rocky Point, there is the potential to observe and enjoy rare birds, but while it is good to be able to document their occurrence for submission to records committees, the completion of regular operations takes first priority. Likewise, although it is exciting to break records (e.g. season banding total), the integrity of the data should not be compromised by deviating from standard protocol (e.g. by raising nets, pushing birds into nets) for the purpose of doing so. Such "records" are less meaningful than a record-breaking season achieved through strict adherence to protocol standards.

1. Study Area

The habitat at the site consists of old growth Douglas and Grand fir stands, tidal flats, endangered Garry Oak forests, open meadow and riparian habitats. Lying at the extreme southern tip of Vancouver Island, Rocky Point concentrates migrant passerines, raptors, and seabirds. The most common species banded during fall migration include: Wilson's Warbler, Pacific-slope Flycatcher, Orange-crowned Warbler, Lincoln's Sparrow, Savannah Sparrow and Ruby-crowned Kinglet. As of the fall of 2006, 299 bird species had been recorded, 87 of which are confirmed or suspected to breed at the site. The potential for bird studies here is considerable. Rocky Point is particularly suited for migration monitoring since human disturbance is minimal.

1.1. Count Area

The count area refers to the area in which birds may be counted and included in the daily totals. Birds are considered "countable" only if the observer is inside this count zone (regardless of the location of the bird). Therefore, anything visibly or audibly detected by an observer inside the boundaries can be counted. Any miscellaneous observations made outside the zone are still worthy of mention in the narrative on the back of the daily log.

Prior to 2001, given the large size of the count area, there were substantial areas of habitat rarely visited during regular operations. It was therefore determined following the 2000 fall season that the area should be scaled back to its current boundaries.

In order to reduce the effects of these changes, the smaller count area was designed to include specific areas that are visited most often and that are of significance for concentrations of migrants. Essentially, the new count area is a smaller "loop" around the mistnetting area. The smaller count area was employed starting in fall 2001 for the standard count period only. Anything outside of these new boundaries is considered non-standard and applicable only to the non-standard count period.

The current count area boundaries are illustrated in Appendix 2.

1.2. Census Route

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A standardized census route has been established within the current count area. The purpose of this route is to create a standardized set of observations that can be used for year-to-year data analysis. The current route is illustrated in Appendix 2. This route should only be changed in cases of long-term landscape (e.g. erosion of current route) or DND operational changes in order to maintain the integrity of the long-term data set by removing potential variables.

1.3. Net Lanes

There are currently 13 nets in standard use. Net layout and numbering schemes are shown in Appendices 2 and 3. Nets are numbered sequentially from 1 to 13, beginning with net 1 at the perimeter road. The locations of these nets have been selected to maximize capture rates while simultaneously sampling a variety of the habitats present at the site. The addition of new nets, and/or changing the location of current nets should only be done in cases of long-term landscape or DND operational changes, as with the census route.

Prior to 2000, ten net lanes were operated in the habitat between Perimeter Road and the area around the banding shelter. In July of 2000, 3 additional nets were set-up in the "tunnel" area northwest of the existing net array. It was determined that these nets had the potential to catch large numbers of birds as well as species not commonly encountered by the standard 10 net set-up already in use. These nets, numbered 11, 12 and 13, were operated on alternating days in 2000 and 2001. This alternate day pattern is intended to account for data fluctuations caused by the introduction of more nets. Any birds caught from these nets in the interim were not recorded as non-standard band but rather were included with the rest of the captures on the banding and ET forms. Starting in 2002, the back nets were run every day with nets 1-10.

2. Operation of the Monitoring Station

2.1. Pre-season preparations

Before monitoring begins there are a number of necessary preparations. Winter duties include: repairing nets, sewing bird bags, ordering bands, updating data forms and species lists, ordering equipment, reviewing bird tapes and advertising for banders and volunteers.

Any serious pruning that needs to be done on net lanes should be done in the spring allowing time for the vegetation to come back before fall banding starts. Large vegetation removal must be done by Formation Environment. Maintenance of and trailers should be done during the winter and spring.

During the week immediately before banding commences the net lanes and trails should be checked to see if any additional maintenance needs to be done.

The protocol, including completion of data forms, should be reviewed with the volunteers and banders at or prior to the beginning of the season.

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2.2. Health and safety of personnel

All banding station personnel should be informed about various bird diseases and the potential to pass diseases from bird to bird and/or bird to human. The North American Banding Council Banders' Study Guide (North American Banding Council 2001a) outlines many of the diseases and disorders that can potentially be transferred from birds to humans.

The Public Health Agency of Canada is the best website for information on risk of any disease to human safety (<http://www.phac-aspc.gc.ca/id-mi/index.html>), including avian influenza (http://www.phac-aspc.gc.ca/influenza/avian_e.html).

CWS works with the Canadian Cooperative Wildlife Health Centre (http://wildlife1.usask.ca/en/CCWHC_home.php) to monitor West Nile virus (http://wildlife1.usask.ca/en/west_nile_virus/wnv_home.php) and avian influenza (<http://wildlife1.usask.ca/en/aiv/index.php>).

The Canadian Cooperative Wildlife Health Centre also provides additional information on wildlife disease (e.g. salmonella http://www.nr.gov.nl.ca/agric/animal_diseases/wildlife/pdf/salmonell04.pdf).

BIRDNET also offers information to banders, including about West Nile virus (<http://www.nmnh.si.edu/BIRDNET/WNV.html>) and avian influenza (<http://www.nmnh.si.edu/BIRDNET/OC/avianinfluenza.html>).

Maintaining good hygiene is the best defense against contracting any viral or bacterial diseases from birds.

- ALWAYS wash your hands after handling birds.
- Use each bird bag only once and wash afterwards.
- Keep banding instruments, banding table and lab clean with the antiseptic spray provided.

The banding station has a cell phone for emergency use. Please be aware that RPBO is on the limits of cell phone range and you will often need to go to the perimeter road to make the connection. More often than not, the cell tower that will receive the call is in Port Angeles and long-distance and roaming charges may be applied.

There are short-distance walkie-talkies for individuals to use. Volunteers should carry one of these at all times. Be aware, however, that there are dead zones around the site where radio communication is limited.

There is a first aid kit at the station. Please do not leave food or garbage outside as it will attract scavengers or possibly larger animals such as bears. Garbage must be taken with you when you leave the site.

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2.3. Permits for operation

2.3.1. Site

Access to the site by RPBO is granted by the Department of National Defense Environmental Science Advisory Committee (ESAC). Personnel may only access the site for the purposes specified in the permit. Only those personnel scheduled to be on site may access the site. For more information, refer to the ESAC permit at the station and Appendices 10 and 11 of this document.

2.3.2. Banding

Banding is conducted under the master permit of the Rocky Point Bird Observatory c/o David Allinson # 10781 for birds covered by the Migratory Birds Convention Act (1994) and under a permit issued under the British Columbia Wildlife Act for all other birds. The banders must have the appropriate banding permits/sub-permits highlighting whether they can band passerines, near passerines, hummingbirds, raptors, shorebirds, waterfowl, waterbirds, and use mist nets. There must also be additional authorizations on the banding permit for other additional auxiliary markers and tags, including colour bands.

2.3.3. Other

Additional CWS Scientific Permits will be obtained for projects which require sampling feathers and blood, using radio tags, etc. (Contact Gloria White at gloria.white@ec.gc.ca for federal permits and the BC Permit and Authorization Service Bureau (<http://www.env.gov.bc.ca/pasb/>) for provincial permits.

3. Daily Operations

3.1. Personnel

Personnel at Rocky Point Bird Observatory typically consists of a Bander in Charge (BIC) and volunteers. In some circumstances, an Assistant Bander in Charge may also be appointed. With specific permission of DND, visitors may be permitted on the site. However, under normal circumstances, visitors are not permitted.

3.1.1. Minimum personnel

Daily migration monitoring at RPBO is to be conducted by at least three experienced people. At least one of those persons must be a licensed and experienced bander with excellent bird identification skills (Class 1 observer; see table 3), who acts as the bander-in-charge (BIC) on a daily basis. The BIC is ultimately responsible for ensuring that all aspects of fieldwork are completed in a manner which agrees with this document. However, all personnel participating in the fieldwork are expected to read, understand, and follow this protocol. Safe and efficient field work is the daily goal and is achieved when skilled individuals are on hand to assist the BIC.

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A second individual with good identification skills (Class 1 observer) must be present who is capable of identifying and counting all birds while conducting the 90 minute long census route (see section 3.6). A third skilled individual is required to assist with bird extraction and/or bird banding (good identification skills are not required for extraction, but are a must for banding).

On occasions when there is a lack of skilled staff available, the daily program is to be scaled down as necessary. Conducting the daily census is priority, while banding and general observations are 2nd and 3rd priorities, respectively.

Table 1. Observer classification codes.

Observer Class	Description
1	Can correctly identify 75% of birds or greater at Rocky Point.
2	Can correctly identify 50%-75% of birds at Rocky Point.
3	Can correctly identify <50% of birds at Rocky Point.

3.1.2. Site access

All volunteers must contact the RPBO volunteer coordinator to sign up to come out. Volunteer access is controlled through a register list at the main guardroom, at the entrance to the site. Volunteers who are not on this list, or who are not listed for that day/period, will not be granted access to the site. Volunteers should plan on being at the station at least 5 minutes prior to net opening.

3.1.3. Training

Individuals who are new to RPBO, with little or no training elsewhere, should approach the BIC about training procedures. Inexperienced volunteers can expect to read through this protocol, walk the census route, get familiarized with the count area and assist banders through scribing during their initial introductory period. Training will be made available as time and personnel permit. New volunteers can expect to receive no or little training on especially busy days, as regular operations take priority. Volunteers should be aware that training may be discontinued for persons who demonstrate poor dexterity, eyesight, or aptitude for extraction or banding, at the discretion of the BIC, as the safety of the birds comes first.

3.1.4. Volunteer responsibilities

The BIC will delegate responsibilities and tasks based upon the abilities and experience of all personnel available. Volunteers wishing not to participate with banding or extraction can still be of great help by making observations, censusing, scribing, and data entry. It is recommended that all volunteers familiarize themselves with the American

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Ornithologist's Union's (AOU) 4-letter codes for all species likely to be encountered at Rocky Point, as this makes data recording procedures much more efficient. Only those individuals authorized by the BIC are allowed to extract birds. Inexperienced personnel must be supervised by the BIC or by a person designated by the BIC at all times during the extraction process. Birds waiting in bags must be safely hung up and not left on the ground.

3.2. Authority for RPBO Conduct

All decisions made by the BIC are final. Persons not willing to co-operate with the BIC or follow procedures outlined in this protocol, or those who act in a manner which may hold RPBO in disfavoured with DND, should not expect to remain either on site or on the register list at the main guardroom. Those with complaints or comments regarding the decisions or conduct of the BIC should contact the RPBO President.

3.3. Standard Count Period

The standard count period begins 30 minutes before sunrise and runs for 7 hours (to 6.5 hours after sunrise). The purpose of this count period is to develop a standard timeframe over which all surveys and observations can be compared from one year to the next. A breakdown of the components within the standard count period is provided in Table 2.

The non-standard count period begins after the standard count period ends (that is, 6.5 hours after sunrise) and covers all hours not contained within the standard count period. Observations during the late afternoon, evening or overnight would be included in the non-standard count period.

Table 2. Daily monitoring schedule example for October 8.

Event	Start Time	Finish Time	Duration	
General Observations	half hour before sunrise 6:50AM	12:50PM	7 hours	Standard Count Period 650-1250
Standard Banding Period	half hour before sunrise 6:50AM	11:50AM	6 hours	
Census	1 hour after sunrise 8:20AM	9:50AM	90 minutes	
General Observations*	After Standard Count Period Ends 12:50PM	Next day start 6:50AM	17 hours	Non-Standard Count Period 12:50pm-6:50am
Seawatch	Any time after Standard Count Period Ends 4:00PM	4:30-6:00PM	.5-2 hours	

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* Note that activities during the non-standard count period are not mandatory. Nor do General Observations have to be continuous for the entire non-standard count period.

3.4. Standard Banding

Standard banding consists of using thirteen mist nets for six hours beginning one-half hour before sunrise on a daily basis during migration, weather permitting. Closing time may be extended to eight hours after sunrise to make up time lost earlier in the morning due to poor weather. Times of net openings and closings are noted on the Daily Log sheets.

Sunrise times are posted at the banding station and are available on the RPBO website. Volunteers should plan on being on site at least 5 minutes prior to net opening.

3.4.1. Net Specifications

Between 1994 and 2002, 70 denier/2-ply, 12 x 2.6 meters mist nets, made of nylon, with 30 mm mesh and 4 shelves, were used at RPBO, in 2003, damaged nets were replaced by Spidertech nets with similar specifications (12 x 3 meters, 30 mm mesh, 110 denier/2ply), and from 2004 to 2006, the Spidertech nets were used for all 13 standard banding nets., and will continue to be used from 2008 forward. Although the nets were nominally similar, the Spidertech nets had deeper pockets and tended to stretch more than the Avinet nets.

It is generally recommended to replace old, destroyed or faded nets with identical new nets in order to minimize capture bias due to net specifications. Longer nets will naturally catch more birds because they have a larger capture “window”, as will nets by manufacturers that build them with deeper pockets. Denier will affect the visibility of the net to birds, and also how much the bird will get caught in the netting. Mesh size will affect which bird species are most effectively captured. Any changes in net specifications (for instance, if the manufacturer goes out of business) must be documented, and replacement nets match the old specifications as closely as possible to reduce any potential variation in capture.

Nets are set so that the top shelf loop is 3 or 4 inches from the top of the net pole and the lowest shelf string is at knee height. Some adjustment may be required depending on landscape topography. These rules are in place to standardize the capture “window” of a net from one year to the next, and are designed to maximize the selection of birds captured while simultaneously ensuring the safety of birds in the nets. For instance, lower net panels may capture more ground foragers such as sparrows, higher panels may capture more mid-height foragers such as warblers, so adjusting height or alignment may bias capture composition. Changes to net set up, such as permanently raising or lowering net height, should be avoided except in cases of landscape changes, such as flooding. Nets must be properly furled and tied when closed.

3.4.2. Net operations

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Mist nets 1-13, operated in the standard count period, comprise the standard banding effort. These nets are to be run from a half hour before sunrise for 6 hours, closing 5.5 hours after sunrise.

Nets are checked at least every 20-30 minutes. Situations in which birds may be at greater risk of injury, such as with potential presence of predators or threat of rain, require that nets be checked more frequently, if not closed altogether. If bird capture volume is too high, or staff availability too low, to maintain a minimum 30 minute net check schedule, some nets should be closed until capture volume decreases or more staff are available. Nets should be closed in reverse numerical order, with nets 11-13 closed first in cases where a reduced subset of nets is necessary.

As bird welfare is paramount, the BIC should not hesitate to either raise or shut down nets if birds are at risk. Nets must not be operated in overly wet conditions (rain, showers, drizzle or heavy fog). Banders should be aware of unusually hot days in which birds may experience heat stress if left in the nets or hanging in bags for too long. Rocky Point is also home to feral cats, raccoons, mink, deer, and hawks in migration. Sightings of these potential predators around the nets should be reported to the BIC. If these predators appear to pose a threat to captured birds (i.e. they have not left the netting area), nets should be checked more frequently, raised, or closed altogether.

Nets 1, 2 and 3 closest to the water are frequently closed due to high winds, and represent the only situation where a subset of nets may be closed out of order. These nets should be closed for the safety of birds when winds are gusting at 20 mph (45 km/h) or higher (Beaufort 5 or higher).

While it generally takes 15-20 minutes to close all the nets, personnel should pay close attention to the time each net was opened. Because the nets are set-up in a line, rather than a loop, there is a 15-20 minute difference in time of operation between the first and last nets when one person opens but two people split up to close (or vice versa). For instance, in this situation nets 1-5 may have been operated for 6 hours while nets 6-13 were open for 5.5 hours (because the second person could begin closing right away). To ensure all nets are operated for the full 6 hours, nets should be opened and closed in the same order as they were opened.

3.4.3. Extraction

People removing birds from nets must have apprenticed under an experienced person and have the approval of the bander-in-charge or trainer. "Extractors" should always carry a walkie-talkie on net rounds for emergencies or assistance. The banders or experienced volunteers will accompany new volunteers on net rounds to give the new volunteer more learning opportunities and provide information on handling of different species. Helping new volunteers to learn in a safe, respectful and enjoyable manner is a priority during the daily operation of the station.

A clean bird bag should always be used. Extractors should carry enough clean bags with them to accommodate the birds on the net round. If more bags are needed, the extractor

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should radio the station and request more bags or return to the station rather than doubling up or carrying birds back to the station without bags.

Extractors must notify the bander when they return to the station with young birds with pin feathers, hummingbirds, injured or stressed birds, or any others designated by the BIC so these can be processed in order of priority.

Stressed birds

Birds can be stressed by heat, cold and even just handling. Be aware of what birds are more susceptible to stress and know how to deal with them (North American Banding Council. 2001)

Local young

For any young with pin feathers, ensure they are released in the area where they were captured. Release the young birds with their accompanying adult if they are caught together.

Hummingbirds

Banders and extractors should also be aware of the abundance of Rufous Hummingbirds at RPBO. In 1999, field workers extracted over 140 hummingbirds from the nets. Cold, wet or windy days in July-August mean that nets should be checked more frequently as hummingbirds are very sensitive to these conditions while in the nets. Any hummingbird showing signs of torpor can be resuscitated with sugar water (located in storage bins at station), by blowing warm air on the bird, and/or gently rubbing the throat.

3.4.4. New captures

Stressed birds are to be processed first, followed by hummingbirds, local young, new birds and recaptures. The BIC may designate other species or categories (e.g. birds in molt) for priority handling.

Only individuals of known species can be banded. Use Pyle et al (1997) to identify species and sub-species, as well as for aging and sexing passerines. Other helpful guides are: for identifying warblers (Curson et al. 1994, Dunn and Garrett 1997), sparrows (Byers et al. 1995, Rising and Beadle 1996), waders (Prater et al. 1987) and difficult species (Kaufmann 1990). Sibley (2000), Kaufmann (2000) and National Geographic Society (2002) are useful guides for all birds.

The following information is recorded for all new captures: species, band number, age and sex, wing cord, fat deposition, weight, date and time of net round, and bander initials. Codes to be used for each of these items will be determined by the software in use to record the data (i.e. the codes are different in Bandit, BandManager and MAPSPROG). A printed sheet of the appropriate codes will be present at the station.

Ageing and sexing at RPBO is primarily based on Peter Pyle's An Identification Guide to North American Birds, with some usage of North American Banding Techniques. Volunteers with little or no familiarity with these manuals should read the introduction in Pyle, which includes excellent descriptions of moult processes, measurement techniques and sexing criteria.

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Additional information, such as skull ossification, breeding condition, etc, should be recorded when it is checked or observed. For reasons of bird welfare, RPBO does not allow "wet skulling" if the temperature is at 4 degrees C or below. Any deformities or old injuries should also be recorded with the band record.

When time permits, banders should attempt to identify birds to sub-species. Prior banding experience at the site has demonstrated that several forms of a given species (e.g. Song Sparrow) can be encountered (sometimes on the same day). Banders lacking experience with the different subspecies may use the descriptions in Pyle as an indicator. Recording subspecies provides a greater amount of information on the populations of birds migrating through Rocky Point.

It is also recommended that moult cards be filled out when possible in June, July and August. Resident Wilson's Warbler and Common Yellowthroat are instructive examples, as cards have been filled out tracing the entire prebasic moult of single individuals. This information may be useful for future research studies.

Banders should be aware of after-hatch-year (AHY) birds, such as Pacific-slope Flycatchers, from June-August with breeding evidence (CP or BP) and worn plumage, but showing skull ossification levels of 2 or 3. Such individuals are adult birds who have not yet finished breeding and undergone their prebasic moult. Some species retain "windows" in their skull through adulthood.

3.4.5. Recaptures

Recaptured birds banded or recaptured earlier on the same day are to be released without being processed. If the extractor knows from the band number that a bird was banded that day they may release it at the net. This can be ascertained by radio if time permits.

Recaptures used to be recorded at RPBO using the "retrap card" system used by Long Point Bird Observatory. In this system each recaptured bird has its own corresponding card, which details a recapture history. While this method allowed for a quick one-look view of the bird's recapture history at the site, and also allowed a double-check to ensure the band number was correct, it is time-consuming and cumbersome when dealing with large numbers of birds. The card system was developed early in Long Point's history, before computers were commonplace. Because the Bird Banding Office's electronic data entry program produces the entire recapture history of the bird when the band number is entered, it is, strictly speaking, no longer necessary to have a retrap card system.

RPBO currently uses the same method to record recaptured birds as to record new bands. Where possible, data should be entered directly into the computer. Otherwise, recapture data sheets are identical to those for new bands, except that the space for band number is 9-digits long. As with new bands, each band size has its own sheet. Recaptured birds are processed with the same information as newly banded birds.

It is essential that banders and scribes pay close attention to the reading and recording of the band number, as this number is the most important piece of information from the

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recapture record. An incorrectly read number renders the entire recapture record useless. The scribe should read back the number to the bander to ensure accuracy.

Returns (i.e. birds banded in previous seasons) and foreign recaptures are of special interest and should be noted in the narrative of the Daily Log

3.4.6. Captures unbanded

Any birds which were captured but managed to escape, or were released without a band, are recorded on the incidental observations clipboard under the heading of "captures unbanded." This data is also factored into the ET process (see 7.1). Birds included under this heading are those where a person has touched or handled the bird before escape or release. Therefore, birds that escaped from a net (for instance, upon approach) but were not touched are counted as a general observation rather than "captures unbanded". Birds with injuries should generally be released unbanded unless the injury is minor. Severe injuries may require that the bird be humanely euthanized. Birds that are predated or otherwise die in the nets or during the banding process should also be included in this category, with a note of explanation in the daily narrative.

3.5. Non-Standard Banding

Non-Standard Banding refers to either: **a)** nets or traps which are run outside of the standard count period or **b)** nets and traps run during the standard count period, but which are not part of the standard 13-net array. Such banding is strongly discouraged unless associated with educational or similar events or specific research. Birds banded during non-standard banding cannot be included during standard data analysis, and provide little information of value on their own. Furthermore, these non-standard bands complicate analysis of capture volume and recaptures (as the bird may have been captured the next day during standard banding operations, but is now counted as a recapture rather than a new band).

Personnel should avoid attempting to flush or "pish" birds into the nets. Likewise, personnel should resist the temptation to try to capture rare or unusual birds that show up on site simply for the excitement of banding a rare species. Occasionally, these situations are unavoidable. Such non-standard situations of capture are recorded on the banding sheets with NSB (Non-Standard Band) in the comments. Both the daily log and ET sheets have sections where these banded birds can be recorded.

3.6. Census

Census is conducted on a daily basis, barring extreme weather conditions or military activities. The daily census must begin one hour after sunrise and run for 90 minutes. This "window" for census is significant as suitable light levels and high bird activity generally occurs at this time. The route is illustrated in Appendix 2. Special conditions for which census may be delayed or aborted include electrical storm, heavy rain, extremely high winds or military activities.

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The following time intervals are provided to assist in keeping the timing of progress along the route consistent: large Garry oak by banding shelter at 0 minutes, 20-25 minutes to Upper Ponds (UP), the T-junction with Perimeter Road (JU) at 35 minutes, Cape Calver (CU) at 45-50 minutes, Edye Point at 60-65 minutes, Glover Pond at 80-85 minutes, and banding shelter at 90 minutes. Census takers are encouraged to keep moving and not dwell in any one area for too long, so that the whole route receives even coverage. This is true even if the censuser must leave a flock of birds partially unidentified due to time constraints (unidentified birds can be recorded as “unidentified warbler”, etc, if species group is known). If the observer feels that he or she cannot complete the census in the time allotted then they should abstain.

The census person must be a Class 1 observer (Table 3). Observer classification is intended to account for variation in skill level of personnel for analysis purposes. The identification percentage refers to all birds encountered, either visually or audibly. New volunteers can assign themselves a code based on the criteria detailed below. Personnel are encouraged to be honest and accurate in assessments of abilities, as inaccurate representation may lead to compromised data quality (not to mention uncomfortable situations). While Class 2 and 3 observers cannot do the census, their observations are still valuable.

If a censuser is unable to identify a bird to species, but is able to determine its family or species group, it can be recorded as such in the daily log. For instance, a sandpiper that is too far to see field marks for, but is obviously a *Calidris* species, can be recorded as “unidentified *Calidris*”. Similarly, a group of blackbirds that flies overhead but cannot be specifically identified can be recorded as “unidentified blackbirds”. These birds are recorded in the log in parentheses to acknowledge that they should not be counted as a full species. For instance, if Red-winged Blackbirds were also identified during the day, the flyovers may or may not also have been Red-wings (as their identity is uncertain), so they should be counted as one species, not two. However, if no other *Calidris* sandpipers were observed during the day, this bird does count as a separate species, and would not receive parentheses.

Census observers must record start and finish times as well as the total number of individuals of each species observed on the census route. All birds seen or heard can be counted, regardless of distance from the observer, provided that the observer is positioned on the census path. The observer is allowed to stray off the main path to a maximum distance of 10 metres for the purpose of confirming identification. Any new birds flushed or detected while off the path cannot be counted unless it is clear they would have been seen while on the path. It is also important that the census not be stopped or delayed to chase down a rare bird! Collecting data of excellent quality is the first priority of RPBO, and the chance to observe rarities is a side benefit.

The censuser must use binoculars and record observations promptly with pencil and notebook so that data is accurate and complete. Use of spotting scopes is not allowed. "Pishing" may be used during census, except when near the mist nets (i.e., <10 m) where there is the potential to draw birds into the nets, but censusers are encouraged to keep its use to a minimum when possible.

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Effort must be made to avoid double-counting birds where possible, so the censuser should make careful observations of bird locations and movements during the census. For example, 3 Evening Grosbeaks observed flying over Upper Ponds and 3 observed flying over Cape Calver are likely the same birds and therefore should be counted only once. By the same token, the birds found caught in the mist nets are not counted during the census, as they will be included in the day's data under banding captures.

As a member station of the CMMN, RPBO's main focus is migrant passerines and near-passerines. Waterbirds and shorebirds, while important to record, should be given less priority when there is the need to divide one's attention, as incidental observations and seawatch can account for these species. Brief scans of water birds can be made during the census. Ocean viewing positions at Cape Calver, Edye Point and Building 100 (the boathouse) are good locations for this.

3.7. General observations

General observations ("obs") refers to birds encountered during the standard count period that do not fall under census or banding. The general "obs" is an important component for generating estimated totals (ETs). Personnel must pay careful attention to this data, and are encouraged to record the numbers, location and identifying characteristics of the birds observed in a notebook throughout the morning. This is necessary to attempt to eliminate any overlap in observations during the ET tallying process.

General observations begin at net opening and continue for the duration of the standard count period. The extended observation period (one hour after net closure) is designed to accommodate further general observations and data recording that are performed after the 6-hour banding period has finished (e.g. while closing nets or completing ETs). General observations for the standard count period are factored into the ET, while observations outside of this period (i.e. during the non-standard count period) are recorded under DST.

General observations are treated as a separate tally from both banding and census. Personnel are encouraged to note details on their observations such that potential overlap with census or banding data can be eliminated during the ET process (i.e. if a rare bird was both observed during the morning and later a bird of the same species, presumably the same individual, was caught, it is recorded under both categories, but only one individual is tallied under ET).

Volunteers and staff are strongly encouraged to make as many observations as possible throughout the standard count period, providing it does not compromise the ability to complete other standard activities. Due to the large nature of the count area, it is suggested that personnel pay visits to several key areas as time permits. Specific areas of need include the tidal flats (TF), upper ponds (UP), the west meadow (WM), and within the banding area. Staff and volunteers leaving before ETs are calculated must record their observations on paper with reference to species and their total number, location, time and movements of birds (e.g. 1 MGWA @0900 in the Upper Ponds) so that they can be accurately incorporated into the ET's.

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3.8. Seawatch

Seawatch at RPBO is a non-standard sampling method that attempts to account for water bird density, diversity and movements. In no manner are water birds a priority at this station. However, the potential for future projects on seabirds has been shown to be strong by past observational data. Therefore, seawatch is only conducted when circumstances are fitting.

Seawatch is to be conducted for a minimum of a half hour and up to a maximum of 2 hours from either of two standard observation points. Edye Point and Cape Calver are indicated on the site map as the standard seawatch locations. The watch can begin at any time after the standard count period ends with all water birds visible and audible to be counted.

Any unidentifiable birds can be recorded as unidentified gull species or jaeger species for example. Such birds identifiable only to family are recorded on the ET data sheets. These tallies are marked in parentheses to ensure that they are not counted as full species in the summary tables of the log. However, as with general observations and census, a “jaeger species” observed on seawatch counts as a species when no jaegers were identified to species on that day.

3.9. Raptor Count

The raptor count is similar to seawatch in that it is a non-standard sampling method that attempts to measure overhead raptor migration at RPBO. Like seawatch, it takes place outside of the standard count period, near the banding shelter or at Building 100 (see Appendix 2). The count is to be conducted for a minimum of half an hour up to a maximum of 2 hours. As with other observations, unidentifiable birds (e.g. “unidentified buteo”) are recorded in the data but only counted as a separate species when no others of that species group are observed.

4. Daily Log

An example of the daily log is provided in Appendix 7. The RPBO log sheet must be completed by the BIC at the end of each field day. This is the most important part of the daily activities, as without good data, all of the surveys and information taken during the day is for naught. Therefore, it is recommended that the BIC and any volunteers entering data into the log book pay close attention to the following items to be included:

- Date (all pages).
- List of personnel present for that day, their observer class and field hours.
- Censuser, census start and end time.
- Seawatch observer, start and finish times (if completed).
- Weather information at dawn, census, noon and dusk (the latter completed by the BIC at a later hour).
- Net opening and closing times, total hours of operation and total net hours.
- Coverage codes.

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- Daily summation of species for ET, DST, seawatch (if completed), census, banded and re-trapped.
- Daily summation of total # of birds per species banded and re-trapped.
- Unusual species.
- Season banding total and species totals.
- Narrative entry.

The narrative located on the back of the log may include some or all of the following, as appropriate:

- A description of bird movements and their relative density.
- Unusual species.
- Military activity.
- Observational information on volunteers (training procedures etc.).
- Notes about injuries or casualties.
- Personnel changes.
- Unusual or noteworthy bird behaviour.
- First arrival dates for migrants
- Observations made outside of the count area zone.
- Description of other floral and faunal species observations at Rocky Point (Orca, Sea lions, Gorse etc.).
- Anecdotal information deemed worthy of record (i.e., stories about personnel).
- Site maintenance.
- Any protocol deviations or changes.

4.1. Coverage Codes

A daily coverage code serves the purpose of evaluating the quality of the migration monitoring on a given day and therefore allowing for variability in trend analysis. Note that the coverage codes only apply to the standard count period, and therefore seawatch and non-standard banding have no influence on the coverage code.

RPBO, as at many other stations, operates with a coding system based on observer classification, number of observers, observer effort, banding effort, census, and ET. Observer class and observation hours are significant for the calculation of coverage codes, as both have substantial impact on the quality of observations made during the count period. Definitions of each coverage code are provided in Table 4.

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Table 3. Daily coverage codes

Code	Criteria
0	No coverage
1	No census or ET. Some obs. or non-standard banding.
2	Census. Possibly some obs. or non-standard banding
3	Census and ET. At least 1 class 1 observer present for 7 hours and some banding (<50% of 6 hour banding period)
4	Census, ETs, at least 2 class 1 observers + 50-100% of standard banding effort. 1 class 1 observer must be present for 7 hours.
5	Census, ETs, at least 3 class 1 observers +100% of standard banding effort. 2 class 1 observers must be present for 7 hours.

4.2. Weather Data

Weather is recorded at Rocky Point four times daily, at dawn, census, noon, and dusk. The following information is to be measured: temperature, wind direction, Beaufort wind strength (Table 5), visibility, cloud cover, and precipitation as well as any other pertinent weather observations.

Precipitation is measured based upon the three simple, descriptive gradients indicating intensity: drizzle, showers or rain. Temperature is recorded in Celsius from temperature gauges at either the banding station or trailer (depending on personnel location). Cloud cover is measured as a percentage of the sky covered by cloud, as observed from an open viewing position.

Table 4. Beaufort wind and sky condition scales.

Scale	MPH	Wind Speed Indicators
0	<1	Smoke rises vertically
1	1-3	Wind direction shown by smoke drift
2	4-7	Wind felt on face; leaves rustle
3	8-12	Leaves and twigs in constant motion
4	13-18	Wind raises dust; small branches moving
5	19-24	Small trees in leaf begin to sway
6	25-31	Large Branches in motion
7	32-38	Whole trees in motion

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4.3. Estimated Totals (ET) and Daily Species Totals (DST)

Estimated totals are the method deemed valid, by Long Point Bird Observatory and Point Reyes Bird Observatory, for assessing bird presence during migration monitoring. The production of good data during migration monitoring at RPBO hinges upon consistent and efficient ET tabulation for later trend analysis. The ET is derived from census, banding and general observations that occur in the standard count period. (Table 2). All categories of data are integrated to arrive at the best possible estimate of the number of individuals for each species on a given day. Standardization and maximum effort are key for the ET to achieve as much accuracy as possible in the figures.

The exercise of tabulating ETs firstly involves the entering of banding, recapture and census data into the data sheets (see Appendix 8), generally in the form of a round table. The designated ET coordinator (usually the BIC) is responsible for inviting open discussion and encouraging input from all participants. The general observations total for each species is first deduced by eliminating overlap between observers present (i.e., 3 individuals each heard 1 singing COYE in the marsh area, which equals 1 COYE present, not 3). Banded and recaptured birds are then summarized.

The final ET figure accounts for all categories and is delineated by discussion of relevant time, location, behaviour and movement detected by all observers. The ET figure cannot exceed the overall total of encounters across all areas/surveys. For instance, if the combined total of census, banding, retrap and general observations equals 34, the ET figure cannot be greater than 34. By extrapolation and careful consideration of "double-counting", the ET figure will more often be less than the sum total of all categories.

The Daily Species Total (DST) is the final tally of all species and their abundance over the entire day, comprising both the standard count period and the non-standard count period. Non-standard mistnetting, seawatch and raptor count (if completed), and afternoon general obs are factored into the DST for an overall summation of the day.

An example of ET and DST calculation for Lincoln's Sparrow.

Kate reports 3 incidental observations of Lincoln's Sparrow, Jack 3 and Jeff 2. It is determined that there are only 6 sparrows between all observers (4 from the marsh and 2 at Edye Point). The total for the incidental obs column is therefore 6. The ET coordinator also reports 3 banded and 1 retrap as well as 5 on census. While the sum total of all categories is 15, it is then investigated as to whether there were actually 15 or if there is some overlap between categories. Further discussion discloses that all 5 censused birds were in an area not covered by other observers. It is agreed however that the 3 banded and 1 recaptured birds were taken from the marsh area nets which eliminates 4 of the 6 observed. It is presumed then that there were 2 incidentally observed birds, at Edye Point, that differ from all others. Therefore the breakdown for unique individuals of Lincoln's Sparrow is 5 from census, 4 from mistnetting and 2 more from incidental observations. The estimated total is 11 ($5+4+2=11$). Jack identified 2 Lincoln's Sparrows later in the afternoon, 1 was found in the marsh and was banded while 1 was in the west meadow. It

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is presumed that the banded bird found in the marsh was already included from the morning while the bird found in the west meadow is likely different. Therefore the DST is 12 ($11+1=12$).

Birds identified only to family name are recorded as "Gull species", "Dowitcher sp.", etc. In situations where there were also 1 or more species of gull identified, these ET'd are marked in parentheses as Gull sp.= (400) in the ET and/or DST column. If there were no gulls positively identified that day, but there were 10 gulls of unknown species, then the Gull sp. row is counted as a species with no parentheses added.

An example of a completed ET and DST sheet is provided in Appendix 6.

4.4. Probable and Known Stopover (PKS)

Probable and Known Stopover (PKS) refers to the portion of the Estimated Total for a given species which are deemed to have been present on the site for more than one day. PKS allows for new migrants to be distinguished from resident birds or birds that are lingering on site, for the purposes of population analysis. The key word is "known". Situations where PKS is determined include repeat captures, rarities which linger for longer than a day, birds with distinctive vocal or physical characteristics, and birds showing obvious breeding evidence.

Recaptures are separated into "repeats", "returns" and "recovery." A repeat is a recapture of an individual that has been encountered recently (arbitrarily chosen as up to 3 months prior to the recapture date). A return is a recaptured bird that has not been encountered in over 3 months (e.g. a FOSP banded Oct 99 and recaptured Oct 2000). Returns can include recently arrived migrants that were banded in a previous year or residents that have likely been on site but have not been encountered in 3 months or more. Since it is arbitrary and subjective to attempt to determine a migrant Oregon Junco from a resident, all returns are excluded from PKS. Finally, a recovery is a recapture of a bird originally banded elsewhere. A recovery of course cannot be considered a PKS unless it is captured more than once in 3 months. Personnel must be absolutely certain that a given bird or number of birds has been recorded on previous days in order to call them PKS. Determining PKS does not involve guesswork or estimation, concrete evidence must be used as criteria.

5. Digital Data Entry

Where possible, digital data entry should be done as the birds are banded. To avoid possible data loss, a backup protocol has been established using Syncback software so that data is backed up to a second file on the computer's hard drive every 2 minutes and to an external secondary drive every 17 minutes. This backup process should be tested frequently to ensure that copies are being made.

At the end of each banding day, the BIC must print out a hard copy of day's banding records, proofread them for apparent errors and correct the data file as appropriate. The printed copy is then placed in a binder as a further backup of the data.

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A digital copy of the data must be stored in a different location than the station's computers to reduce risk of loss due to theft or damage.

Where direct digital entry of data is impractical, RPBO data forms must be used. Thorough completion of the data sheets and the subsequent electronic entry of all data are considered of equal importance. A designated data manager will co-ordinate data entry and management during the banding season. The BIC is responsible for data entry of the daily estimated totals.

The banding and recapture data, and the daily estimated totals must be recorded daily on the standard RPBO data sheets, as well as entered in an appropriate electronic format. Monitoring activity at RPBO must be entered into a computer on a regular basis, preferably daily. To avoid loss of data entry effort, data entered on-site must be backed-up and taken off-site on a weekly basis. If an on-site computer is not available, then provisions must be made for data entry to occur on a regular basis. If there are problems with data entry, or if data entry is delayed for more than one week from when the data was collected, the data manager, must be notified. The person responsible for data management will then make provisions to have the data entered in a timely fashion. A backlog of data entry for more than two weeks of field data is considered unacceptable.

The Canadian Bird Banding Office does not accept paper copies of banding schedules. Banding data will be submitted to the Canadian Bird Banding Office using designated software programs, such as BandManager or Bandit for banding data and the CMMN Daily Estimated Totals Management Program for observations and estimated totals.

6. Site Access: Regulations and Obligations

The migration monitoring program at Rocky Point is made possible with permission from the Department of National Defense. Being an ammunition depot with restricted access to the public, it is paramount that all personnel associated with RPBO follow some very important guidelines. The future and the quality of work conducted on these grounds hinges upon the understanding among all personnel that **access to Rocky Point is a privilege.**

Prospective volunteers are required to pre-arrange their visits with the Volunteer Coordinator and, if granted permission, must sign in at the main guardroom. When leaving the site, individuals must also sign themselves out at the guardroom. The gate at the entrance to the site, unless you are otherwise directed by the guardroom, is to be closed at all times. Therefore, make sure to shut the gate behind you on your way in and out of the site.

Volunteers at RPBO will have their name on the register at the main gate and will be granted access to the site on the days that each volunteer is scheduled. In order to maintain a healthy relationship with DND it is imperative that personnel treat the site with care and respect. Behaviour by RPBO personnel that may hold this relationship in disrepute is unacceptable.

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Some guidelines expected of RPBO personnel are as follows. Full guidelines are provided in Appendices 10 and 11.

- Any action that may induce fire is to be stopped.
- All garbage from the banding station must be disposed of off-site.
- Keep impact on habitat to an absolute minimum.
- Drive slowly (<30 KPH) down the perimeter road.
- Treat all DND personnel honourably.
- Be amicable to all DND personnel, openly discuss aspects of the project.
- Do not enter or deface any of the DND buildings or materials on site.
- Do not cross over into restricted areas!
- Report any suspicious behaviour or items which may concern DND.

Those individuals who are registered at the gate are obligated to assist in the migration monitoring program. By no means will people be allowed to come to Rocky Point unscheduled or simply to go birding, no matter how rare the observed species. It should be emphasized that this program is not recreational birding but is a scientific project that depends on the hard work and enthusiasm of its volunteer personnel. Migration monitoring is a national initiative working towards the understanding and conservation of birds.

7. Banding: Ethics and Training Procedures

As with access to the site, the handling of birds is a privilege not an inherent right. All banding at RPBO follows the Bander's Code of Ethics (see insert preceding introduction). Bird handling, extraction from mist nets and banding are extremely delicate processes that require lengthy training by experienced persons. Therefore, it is necessary for those wanting to get hands-on experience to approach the Volunteer Coordinator about this beforehand. Volunteers wanting training should consult the following station manuals for basic instruction on banding operations; The North American Banders Study Guide, The North American Banders Manual for Passerines and Near Passerines, and Pyle's Identification Guide to North American Birds.

The BIC is ultimately responsible for bird welfare and a safe banding operation and is the person who will train in these areas of interest. The BIC is not obligated to train all individuals desiring training. Training will be discontinued for volunteers who do not have the necessary dexterity or eyesight required for the safe extraction and handling of birds, or those who simply show poor aptitude. This decision will be made at the BIC's discretion.

It is inevitable in any project that actively handles wild animals that some injuries or deaths will occur. However, every effort should be made to minimize these events, and in no situation should data or personal pleasure be placed ahead of the welfare of the birds. Birds that are obviously stressed from cold or handling should be released immediately, even if unbanded, as extended periods of stress can often lead to death. Likewise, nets should be shut if large volumes of birds are being captured that threaten the ability to extract and process birds in a safe and timely manner. Birds should not be held for more

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than one hour from time of extraction; those that have been waiting for processing longer than this should be released unbanded. It is essential that any casualties and/or injuries encountered at RPBO be recorded on the "Casualty/Injury Form" (see Appendix 9).

8. Habitat Management

Although Rocky Point experiences little human disturbance (relative), habitat is naturally unstable and changes to site composition are inevitable. Any major vegetation changes should be well documented (e.g. through photographic records of net lines, census route). The netting area has endured some changes (blow down) from winter storms and high west winds. Alders and willows should be kept at a consistent stage of growth relative to net height. Broom and Gorse have undergone substantial fluctuations in differing areas since 1994. As of 1999, these plants should be fully assessed in terms of their density, distribution and height, especially near census route and net lanes. Gorse and Broom should not be eliminated all together but rather maintained and managed at a similar state to previous years (primarily 1999 and 2000). Alder, Willow and Aspen should be similarly assessed and managed to ensure continuity between years and eliminate any potential bias within the data. See Appendix 4 for an aerial photograph of the habitat at Rocky Point.

Maintenance of the habitat is the purview of Formation Environment, and from time to time, changes may be made (such as invasive species removal or removal of hazard trees) which may affect the habitat structure of the area. Changes should be documented in writing and with photographs in the season report.

When trimming net lanes and census paths, it should be stressed that nets and walking paths should be well hidden. Although it is more convenient for personnel to have more room to maneuver in the field, it is more important to minimize the impact of people on the vegetation. Therefore, net lanes and census paths should be trimmed back only enough to allow individuals to extract birds comfortably and ensure that vegetation blowing in the wind will not damage nets.

Keeping annual written and photographic records of the standard count area, especially the netting area, can monitor such changes. A detailed habitat management plan should be drafted.

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9. References

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ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

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APPENDICES

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 1. Priority list for migration monitoring at Rocky Point Bird Observatory.¹

A. Species with <50% of North American (Canada and US only) breeding range covered by Breeding Bird Survey (BBS) and <60% of winter range in US-Canada

American Pipit	Orange-crowned Warbler	Swainson's Thrush
Lincoln's Sparrow	Savannah Sparrow	Wilson's Warbler

B. Species with <50% of North American breeding range covered by BBS, but >60% of winter range in US-Canada.

Dark-eyed Junco	Golden-crowned Sparrow	White-crowned Sparrow
Fox Sparrow	Ruby-crowned Kinglet	Yellow-rumped Warbler
Lapland Longspur	Varied Thrush	

C. Species with <60% of their Canadian-Alaskan breeding range (but 50% of North American range) covered by BBS, and <60% of winter range in US-Canada.

Bank Swallow	Cliff Swallow	Violet-green Swallow
Barn Swallow	Common Nighthawk	Warbling Vireo
Black-throated Gray Warbler	Common Yellowthroat	Western Tanager
Cassin's Vireo	Olive-sided Flycatcher	Western Wood Pewee
Chipping Sparrow	Townsend's Warbler	Yellow Warbler

D. Species with <60% of their Canadian-Alaskan breeding range (but >50% of North American range) covered by BBS, but >60% of their winter range in US-Canada (includes some irruptive species and irregular migrants).

American Robin	Golden-crowned Kinglet	Pine Siskin
Belted Kingfisher	Hairy Woodpecker	Purple Finch
Brown Creeper	Hermit Thrush	Red-breasted Nuthatch
Cedar Waxwing	Horned Lark	Red-winged Blackbird
Downy Woodpecker	Marsh Wren	Song Sparrow
European Starling	Northern Flicker	Winter Wren

E. Species with >60% of both their Canadian and North American breeding range covered by BBS, and <60% of their winter range in US-Canada.

Band-tailed Pigeon	House Wren	Purple Martin
Black-headed Grosbeak	Hutton's Vireo	Willow Flycatcher
Pacific-slope Flycatcher	Northern Rough-winged Swallow	

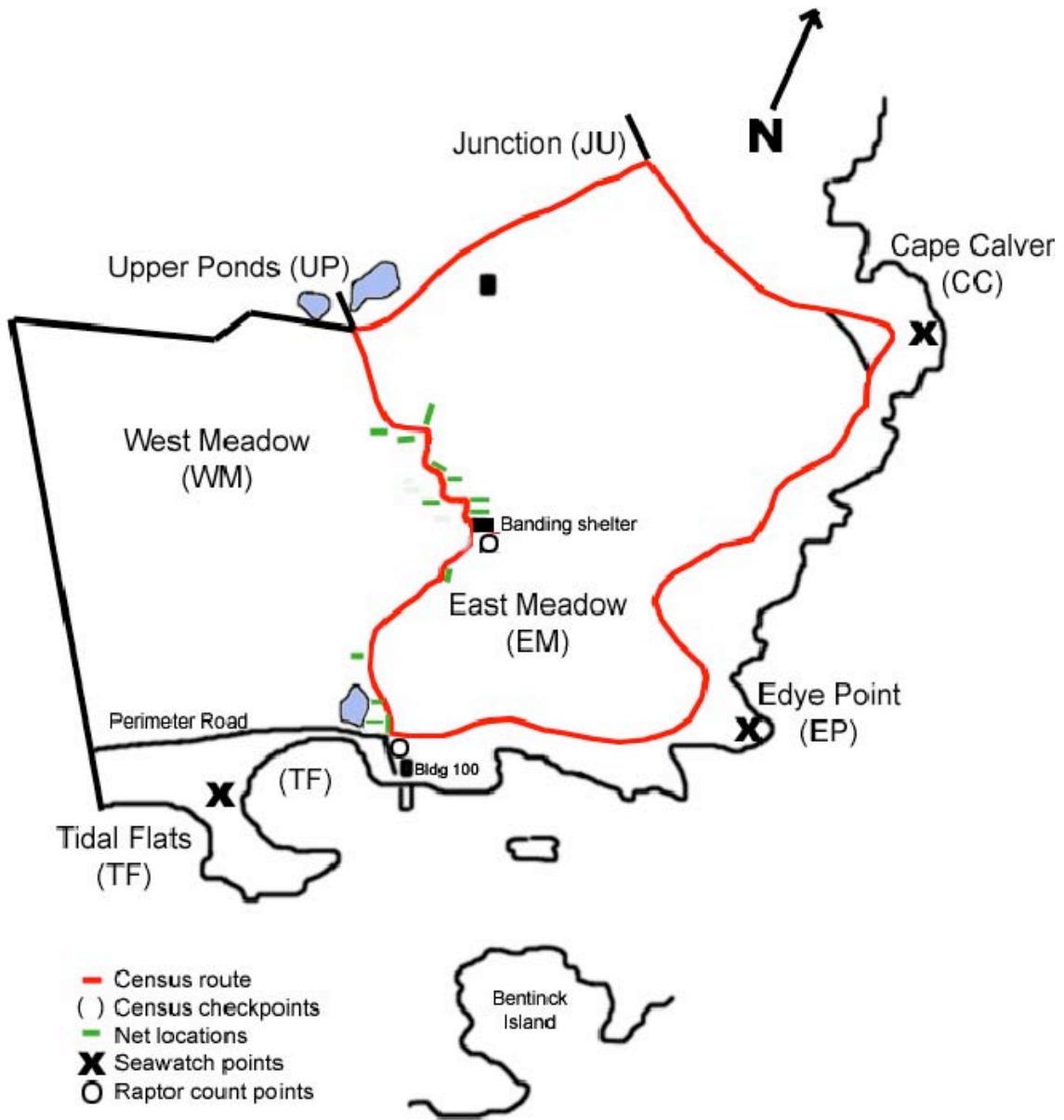
F. Species with >60% of both their Canadian and North American breeding range covered by BBS, and >60% of their winter range in U.S. and Canada.

American Goldfinch	Evening Grosbeak	Spotted Towhee
Bewick's Wren	House Finch	Western Meadowlark
Brown-headed Cowbird	Mourning Dove	

¹ Based on the BSC CMMN priority rankings (1998). This list excludes species rarely observed at Rocky Point.

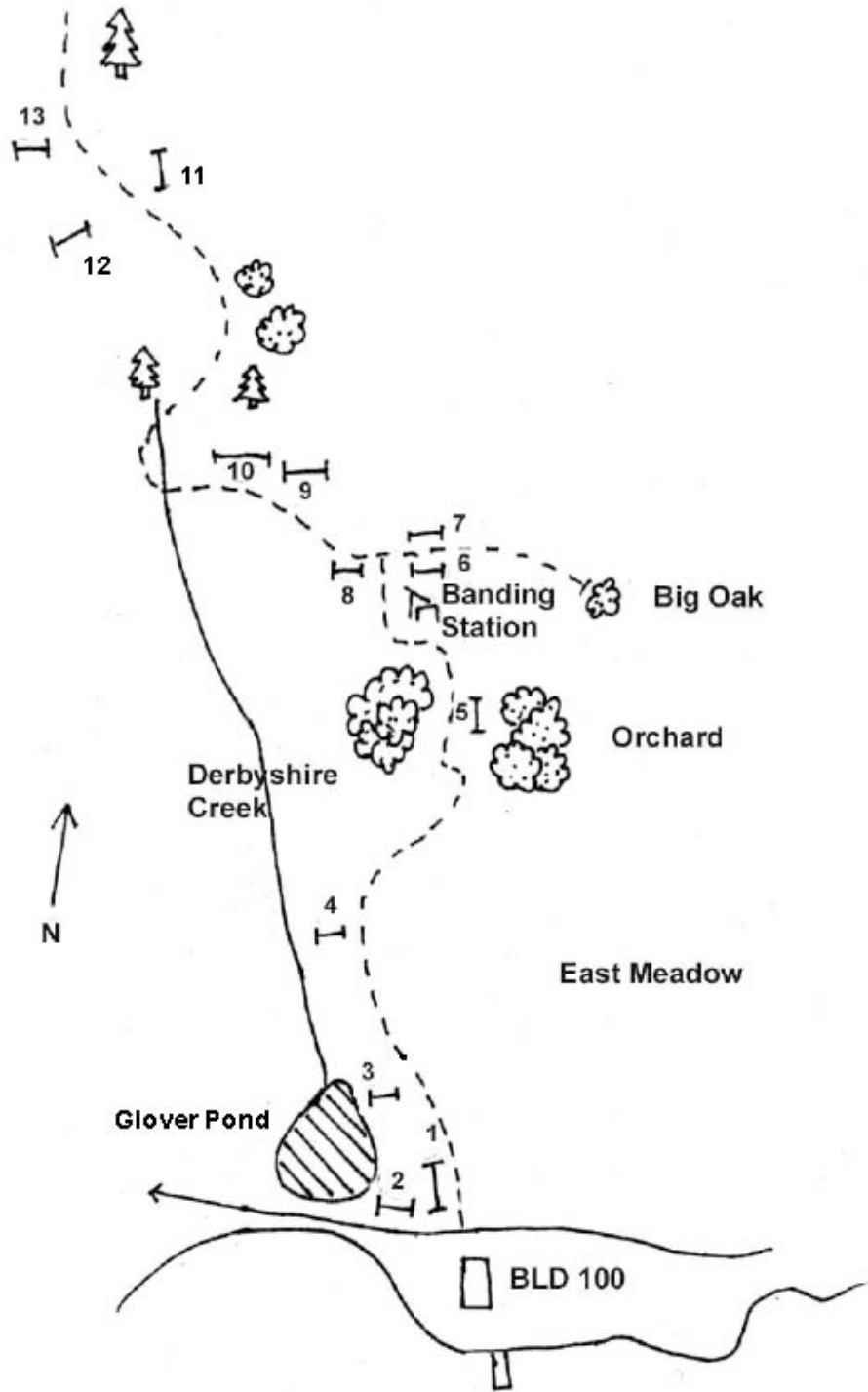
ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 2. Rocky Point Bird Observatory census area boundaries.



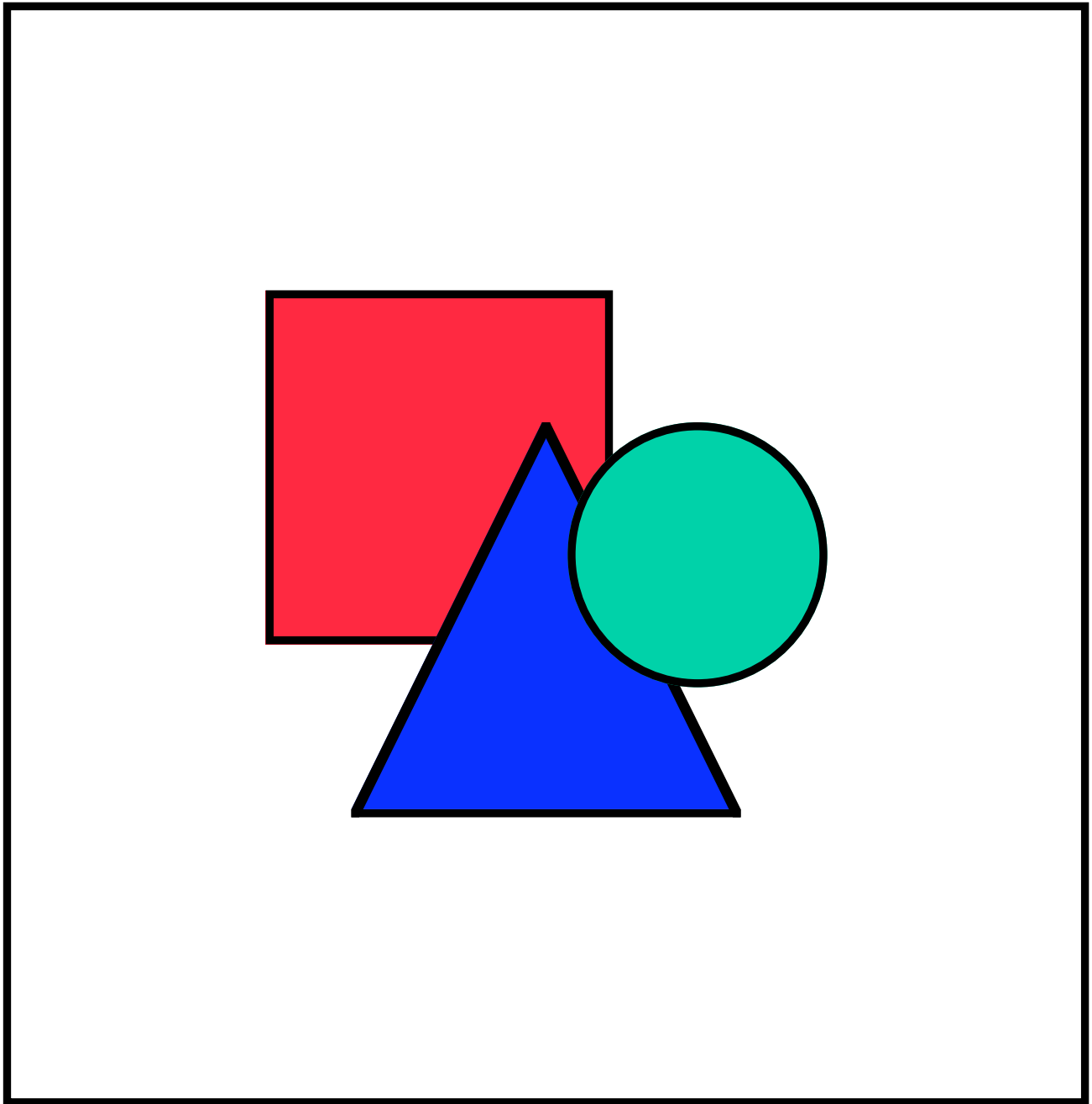
ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 3. Rocky Point Bird Observatory mist net locations.



ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 4. Overhead photograph of RPBO showing netting areas. Red outline denotes standard banding area for migration monitoring; green outline denotes Northern Saw-whet Owl banding area.



ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 5. Example of a Rocky Point Bird Observatory code sheet showing age, sex (BandManager and Bandit), skull and fat codes.

BandManager Codes		
<u>AGE</u>	<u>SKULLING</u>	<u>FAT DEPOSITION</u>
0 unknown 1 AHY 2 HY 5 SY 6 ASY		0 none
SEX 0 unknown 4 male 5 female		1 trace
HOW AGED AND SEXED 1 plumage 2 skull 3 eye colour 4 wing length 5 cloacal protuberance 6 brood patch 7 mouth/bill 8 culmen length 9 rectrice shape		2 light
	3 half	
	4 filled	
	5 bulging	
	6 greatly bulging	
	7 excessively bulging	

BANDIT CODES

Age Num Code	Age Alpha Code	Age Description
0	U	Unknown Age
1	AHY	After Hatch Year
2	HY	Hatch Year
4	L	Local
5	SY	Second Year
6	ASY	After Second Year
7	TY	Third Year
8	ATY	After Third Year

Sex Numeric Code	Sex Alpha Code	Sex Description
0	U	Unknown Sex
4	M	Male
5	F	Female
6	6	Male sexed on subsequent encounter
7	7	Female sexed on subsequent encounter

How Aged Code	How Aged Description
0	cloacal examination (waterfowl only)
1	adult plumage
2	juvinal plumage
3	eye color
A	nestling in nest--no flight feathers present
B	nestling in nest--flight feathers in pin
C	nestling recently fledged, incapable of powered flight
F	feather wear in the flight feathers
J	retained juvinal plumage (wispy tertials/notched tail etc)
L	molt limit present
M	multiple ages of remiges (wing feathers)
N	molt limit absent
P	primary covert shape and/or primary feather shape/wear
S	skulling (not including pinhole windows)
T	tail shape and tail wear
W	pinhole windows (see skulling)
Z	web tag (or other auxiliary marker)

How Sexed Code	How Sexed Description
0	cloacal examination (waterfowl only)
1	adult plumage
2	juvinal plumage
3	eye color
B	brood patch
C	cloacal protuberance
D	DNA/chromosome analysis
E	egg in oviduct
L	laparotomy/laparoscopy
M	mating/copulation
O	behavioral observation not including copulation
T	tail length
W	wing chord
Y	culmen
Z	multiple measurements

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 6. Examples of RPBO banding and retraps data sheets.

ROCKY POINT BIRD OBSERVATORY BANDING DATA

Year: 2007 Banders: Matt Brown
Dave Jones Band Size: OA

Full # First Band On Sheet: 2160 34251

Band No.	Species Code	Age	How Aged	Sex	How Sexed	Wing Chord	Weight	Fat	Skull	Time Trapped	Trap Code	Banders Initials	Date dd / mmm	Comments (use lines below if needed.)	Retrap?
51	PSFL	2	1 2	0		63	11.1	1	1	0930	10	MB	26/Sep		
52		2	1	0		59	10.0	T			13				
53		1	1 2	5	6	60	11.3	T	3						
54	HIWA	2	1	4	1	55	8.0			0950	3	DJ		Cap = 15mm	
55	BUSH	2	1	4	3	44	5.4	T			4				
56		2	1	5	3	45	5.5								
57		1	1	5	3	45	5.0	0							

Totalled By: Species Tot. Species Tot. Species Tot. Full # Last Band on Sheet:

Proofed By:

Data Input By:

ROCKY POINT BIRD OBSERVATORY BANDING DATA RETRAPS

Year: 2007 Banders: Matt Brown
Dave Jones Band Size: OA

Band No.	Species Code	Age	How Aged	Sex	How Sexed	Wing Chord	Weight	Fat	Skull	Time Trapped	Trap Code	Banders Initials	Date dd / mmm	Comment (use lines below for detail if necessary)
2160	HIWA	2	1	4	1	55	8.9	1		0800	08	MB	29/Sep	Cap = 11mm
3427	PSFL	1	1	2	0	56	11.3	0	4	0830	05			
3426	BUSH	2	1	5	3	45	5.0	0		1000	07	DJ		
3426		2	1	4	3	43	5.3	1						
3423	HAFL	2	1	0		64	9.9	0		0730	12	MB	30/Sep	

Proofed By:

Data Input By:

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 7. Example of a Rocky Point Bird Observatory Daily Log.

PERSONNEL

Name	Code	Hrs
BIC: Matt Brown	1	7
Dave Jones	1	7
Bob Smith	2	7
Sarah Jameson	2	7

SEASON BANDING: 2731

SEASON SPECIES: 114

WEATHER

Time	W dir	W sp	Cloud	Temp	Vis.
Dawn	—	—	2	8°	
Noon	W	2	0	17°	
Dusk	W	3	1	12°	
Notes:					

STANDARD BANDING EFFORT

Net	Open	Close	Hrs
1	0645	1245	6
2	↓	↓	↓
3			
4	0645	1245	6
5	↓	↓	↓
6	↓	↓	↓
7	↓	↓	↓
8	↓	↓	↓
9	↓	↓	↓
10	↓	↓	↓
11	↓	↓	↓
12	↓	↓	↓
13	↓	↓	↓
total net hours			72

NON-STANDARD BANDING

Net	Open	Close	Hrs
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
total net hours			

CENSUS

Observer:	DJ
Start time:	0818
Finish time:	0948

SEAWATCH

Observer:	
Start time:	
Finish time:	

RAPTOR COUNT

Observer:	
Start time:	
Finish time:	

COVERAGE CODE

4

Military Activity:

none.

DAILY SUMMARY

	Standard Period						Non-standard Period				
	Band	Rec.	Cens.	OBS	PKS	ET	Band	Rec.	Sea	Rap	DST
# Individuals	42	2			5						
# Species	12	2	30		4	67					67

Entered by:

Proofed by:

NARRATIVE AND COMMENTS

A good day for banding with HETH and RCK1 providing the volume. Over 700 TUVU kettling over ROPo today, along with several RTHA. AMRO and YRWA clearly passing through or staging, but one higher up at canopy level. Winds have finally subsided. Tightened net 2.

SARA-LISTED SPECIES SIGHTINGS

Species	Observer	Details of sighting
BRCO	BS	1 - flew west along shore late morning
GBHE	DJ, MB	2 on census at Upper Ponds, 1 flew overhead mid-afternoon

UNUSUAL SPECIES

Species	Observer	Details of sighting

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 9. Example of Rocky Point Bird Observatory casualty log.

Casualty/injury form for Rocky Point Bird Observatory, BC

date/time	species	personnel	net	description of injury	circumstances and/or course of action
29/sep 1130	WCSP	BS.	06	dislocated knee	found in net with dislocated knee. Cause? Released.
Band number if applicable					
n/a					
date/time	species	personnel	net	description of injury	circumstances and/or course of action
Band number if applicable					
date/time	species	personnel	net	description of injury	circumstances and/or course of action
Band number if applicable					
date/time	species	personnel	net	description of injury	circumstances and/or course of action
Band number if applicable					

October 2002

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 10.

CFB Esquimalt Range and Training Area Safety Briefing

RESPONSIBILITIES

1. Welcome to CFB Esquimalt, all civilian persons entering the Ranges or Training Areas must receive a safety briefing.
2. The person in charge of a group is responsible for receiving or delegating a person to receive a formal safety briefing from Range Control and they in turn briefing all members of their group.
3. The person in charge of a group is responsible for ensuring compliance with all regulations.
4. The permit holder is responsible for ensuring that only activities stated on their permit are performed.
5. The permit holder is responsible for ensuring that only authorised locations, as stated on their permit, are used.
6. All persons entering the Ranges or Training Areas must comply with all DND policies, such as Range Standing Orders.

SAFETY

1. Hazards:

- a. UXO, (Unexploded Ordinances) - DO NOT pick up any metallic, unfamiliar or unusual objects that do not belong to you, report it to Range Control, that's our job, not yours;
- b. HAZMAT – All vehicles entering CFB Esquimalt Ranges and Training Areas must be equipped with a spill kit or groups must have a spill kit capable of dealing with all the vehicles in their group;
- c. Wildlife – CFB Esquimalt areas have Bears and Cougars inhabiting them. Be aware of how to act if you encounter them;
- d. Danger Area Templates – All the Ranges and some of the Training Areas have danger area templates within their boundaries. These templates are the safety zones for active ranges and no one can enter them when that range is in use or active. Locations that have Danger Area Templates are:
 - i. Albert Head – When the Grenade Range is active there is no access to the Albert Head Training Area;
 - ii. Heals Range – The rifle range, is required to have a danger area well beyond the target area in the event of ricochets, therefore there is no access to Heals Range when it is active;
 - iii. Nanaimo Range - The rifle range, is required to have a danger area well beyond the target area in the event of ricochets, therefore there is no access to Nanaimo Range when it is active;
 - iv. Rocky Point – There are three danger areas in Rocky Point:
 - Bentinck Island Demolition Range. There is no Access to Area-B when Bentinck Island is active;

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

- Whirl Bay Underwater Demolition Range. There is no access East past the sentry point at the Y-Junction in Area-C when Whirl Bay is active; and
 - CFAD Destruction Area. There is no access to Christopher Point when the CFAD Destruction Area is active.
- e. Reporting - In the event of a safety emergency, such as a HAZMAT spill or wildlife sightings, contact Range Control ASAP.

2. Emergencies:

- a. Due to the isolation of the areas persons are entering, all groups must have at least one cellular phone with them;
- b. When calling 911 from a cellular phone at Rocky Point and some areas of Albert Head, ensure that you tell the operator you are calling from Victoria, as the call usually goes to Port Angeles;
- c. If you are at Rocky Point, contact the commissionaire at the main gate, as they have a hard phone line to call the appropriate emergency groups;
- d. In the event of a fire, regardless if it was started by you or not, call 911, or the commissionaire if at Rocky Point;
- e. All vehicles entering CFB Esquimalt Ranges and Training Areas must be equipped with a fire extinguisher;
- f. All vehicles entering CFB Esquimalt Ranges and Training Areas must be equipped with a first aid kit, or groups must have a large first aid kit with them; and
- g. All groups must have an emergency plan as follows:
 - i. Persons that are alone must have a check in time with someone who knows: where they are, how long they will be gone for and what they are wearing;
 - ii. Groups must have a set meeting place in the event of an emergency;
 - iii. Groups must have a list of all who are out with them; and
 - iv. Everyone in a group must be aware of what the emergency plan is.

RESTRICTIONS

1. The following restrictions apply:
 - a. A limit may be placed on number of vehicles entering DND property, recommend car pooling to and from site from main gate;
 - b. Smoking is only authorised in non flammable areas, (on roads, parking lots...) and only during Low and Moderate fire conditions;
 - c. A limit may be placed on number of persons entering DND property;
 - d. Keep out of environmentally sensitive areas marked off with Siebert Stakes, Security restricted areas and areas not listed on permit; and
 - e. Parking is only authorised in designated areas, keep all roads and access points clear.
 - f. The parking area for the boat shed and launch in Rocky Point Area-B, is restricted to DND vehicles only.

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ACCESS CONTROL

1. Access will only be granted based on authorised lists, as follows:
 - a. All lists must be approved through Andrea Schiller to Tracy Cornforth, who will then forward the list to Range Control; and
 - b. When updating a list, a new completed list will be submitted, (adding and deleting names is the permit holders' responsibility).
2. The Range Control staff is the only approving agency for access:
 - a. Access is only granted through authorised points of entry, (gates).
3. All access dates must be approved by Range Control as follows:
 - a. Contact Range Control a minimum of one day prior and a maximum of one week prior, to ensure the area is safe for access; and
 - b. Provide a date and person specific access list, which will be checked against the permit holders' master list.
4. Keys for all areas must be signed out from Range Control and the following rules apply:
 - a. An appointment to sign for keys shall be arranged during normal working hours, 0800 – 1600 hrs Mon - Fri;
 - b. Keys may only be held for a maximum of seven days, If a key is required for longer, they must be re-signed for after the seven day period, make an appointment;
 - c. Lost or stolen keys must be reported immediately and the responsible party will pay for all new keys and locks if it is a security issue.
 - d. There is a silver drop box on the right side of the Albert Head main gate for after hours key return.
 - e. Range Control holds the keys to:
 - i. Albert Head;
 - ii. Heals Range;
 - iii. Nanaimo Range;
 - iv. Nanoose TX Site; and
 - v. Rocky Point.
5. When entering Rocky Point sign in and out with the commissionaire at the main gate and for Albert Head, check in and out with Range Control in building 1030.
6. All persons entering DND property must have valid picture ID with them.

RESPONSIBILITIES AFTER BRIEFING

1. It is the permit holders' responsibility to pass this information on to all members of their group.
2. The permit holder is responsible for submitting any changes to access lists.
3. The permit holder is responsible for coordinating access to sites, including picking up and returning keys during normal working hours, contact may be done either by phone or e-mail to the Range Control address provided.
4. Failure to comply with all the regulations could result in the revocation of access.

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

CONTACT INFORMATION

PHONE NUMBERS:

- Range Control Patrol NCOs (250) 391-4164
- Range Control Duty Pager (250) 978-3778
- Andrea Schiller (ESAC) (250) 363-0614
- Mike Waters (ESAC) (250) 363-2177
- Rocky Point Commissionaires (250) 363-5139
- Military Police (250) 363-5546

EMAIL ADDRESS:

- Andrea Schiller (ESAC) aschille@nrcan.gc.ca
- Mike Waters (ESAC) Waters.MR@forces.gc.ca
- Sgt Fraser Thompson (Range Control) Thompson.FB@forces.gc.ca

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Appendix 11. ESAC Environmental Briefing For Studies Conducted In 2008

1. Permit Overview

Please ensure you take a moment to read your permit in detail. As a permit holder you are obligated to follow and fulfil the requirements outlined in this document. Please make yourself aware of what your responsibilities are. A few key items are as follows:

- a. You shall accept full and complete responsibility for ensuring adherence to the conditions of your ESAC Permit.
- b. You may use the Property for the purpose described in the permit, and for no other purposes whatsoever. **The Permit is valid only for specific research and collection activities in the specified areas, for the dates identified on the Permit.**
- c. There will be a site visit, to be arranged, so that the ESAC may monitor your permit activities.
- d. All project members must carry picture identification when accessing the Property and must be prepared to show a copy of the Permit on request.
- e. You may not construct any facilities (buildings, structures, sheds or shelters) on the Property.
- f. Procedures and methods must be **minimally disruptive to the natural environment of the area.**
- g. Ensure that **no plants, animals or other material are damaged, destroyed or removed from the Property**, unless it has been authorized in your permit.
- h. You may **not collect or conduct research on any wildlife species listed in the Species at Risk Act**, unless it has been authorized in your permit. If you are conducting research on any SARA-listed species, a copy of your SARA permit must be provided to the ESAC.
- i. Ensure that **no foreign objects, animals or other material are introduced to or deposited on the Property**, unless it has been authorized in your permit.
- j. **No motorized vehicles or equipment are used** on the Property unless authorized. **Parking will occur only in designated areas. Vehicles may NOT be taken off road** or onto closed roads.
- k. All accidents (personal or environmental) must be reported to Range Control.
- l. Any observed environmental impacts must be reported to the Pacific Forestry Centre.
- m. If you **discover any previously unknown or unrecorded artefacts, historical site or natural or cultural feature** in the course of any research and collection activity that is not specifically covered by the terms and conditions of the Permit, the find must be left intact and undisturbed and reported immediately to the Pacific Forestry Centre.
- n. A **project report** on your activities for this year is **required to be submitted by December 31** of this year. A report template will be provided, and your report must comply with the requirements set out in the templates. Copies of any digital photographs taken during the research period are also required.

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

- o. Within 90 days of completion of the entire research project, you must prepare and submit a comprehensive report (a hard copy and an electronic copy) of the research findings to CFB Esquimalt. If **publications or theses are subsequently produced from the research findings, you are required to provide one copy of each document** at no cost to the ESAC.
- p. Upon completion of the Project or termination of this Permit, you must ensure **that all equipment, tools, apparatus, gear, machinery, utensils, shelters, or any and all other things brought onto the Property or used by you on the Property are removed and that the Property is left in the same condition as it was at the commencement of the Permit.**

2. Seibert Stakes

Seibert Stakes (Figure 1) have been installed at Rocky Point – Area B and Albert Head to identify sensitive areas and to establish a perimeter of **No-Go Zones**.

The stakes are approximately 6 feet tall; the white, red and yellow tube is 17 inches long.

Figure 1. Seibert Stakes



Outside No Go Zone – okay



Inside No Go Zone – must exit

When Seibert Stakes are approached the red and yellow sticker will appear with no vertical white stripe visible. However, if you enter a **No-Go Zone**, the Seibert Stakes will have a vertical white stripe through the red and yellow sticker (Figure 1). To transit around a **No-Go Zone**, simply follow the stakes around the perimeter.

If a No-Go Zone is entered:

- a. Stop;
- b. Assess the situation and inspect for damage to the avoidance area;

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- c. Exit the location the way you came in; and
- d. Notify the Pacific Forestry Centre ASAP.

3. CULTURAL SITES, CULTURALLY MODIFIED TREES (CMT) AND WILDLIFE TREES

Red flagged areas (Figure 2) mark **Sensitive Zones** at Albert Head and Rocky Point - Area B and are indicated on the Sensitive Area maps. In areas where flags are visible do not physically alter or disturb the immediate landscape including the groundcover, boulders and soil. Report disturbances in these areas to the Pacific Forestry Centre.

Figure 2. 30 Inch High Red Flag Indicating Sensitive Zone.

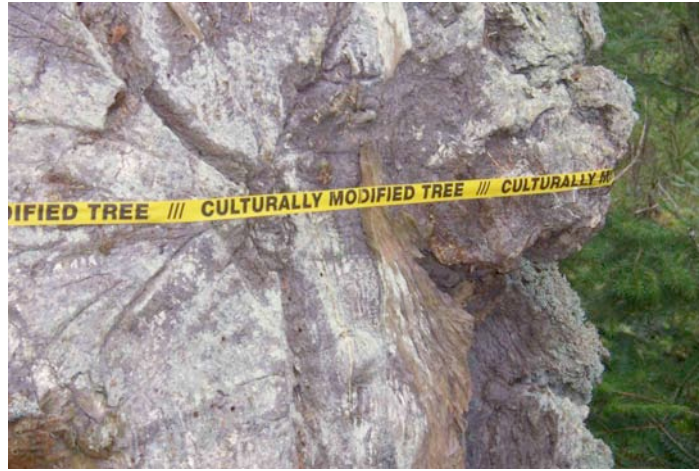


In the past, artefacts and burial sites with significant First Nation's cultural importance and items with heritage value have been found on DND property. If items or artefacts are discovered that are suspected of having archaeological or heritage value, stop activity in the area immediately and report the location to Formation Environment.

Culturally Modified Trees are marked with (blue or yellow) tape (Figure 3) around the tree and Wildlife Trees are marked with a labelled tag. Do not cut, nail, climb, or damage these trees.

Figure 3. Culturally Modified Tree.

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL



4. WETLANDS PRESERVATION

Wetland areas, including water bodies, streams and the adjacent riparian area are protected under the Fisheries Act. Activities in these areas should avoid damaging vegetation and activities that cause sedimentation in the water. These areas are outlined on the Natural Resources Map Series for DND properties. Any observed environmental impacts or sediment in local waterways must be reported to the Pacific Forestry Centre.

5. HAZARD TREES

If you encounter hazard trees, or if trees have fallen across trails that you use in your research, please contact the Pacific Forestry Centre.

A hazard tree is any tree that is leaning, lodged in another tree, rotten, burned or dead, and that has the potential to fall and cause injury to people or damage to infrastructure. Some large limbs on trees may also be hazardous if they are dead, rotten or partially broken.

ESAC permit holders are advised to stay at least a tree-length away from hazard trees, and may not move fallen trees. Stay well away from areas with hazard trees during periods of wind. Stay away from all wooded areas during heavy winds.

Identified hazard trees will be assessed and either topped and retained as wildlife trees, or if it is not safe to retain them, they will be felled.

6. ESAC RESEARCH PLOTS

ESAC researchers are encouraged to label their research installations (i.e. plots, cages, traps, etc.). 'RESEARCH IN PROGRESS' signs (Figure 4) are available from the Pacific Forestry Centre.

Please do not disturb any research plots or installations that do not belong to you.

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

Figure 4. RESEARCH IN PROGRESS sign.



7. WILDLIFE

If you encounter dangerous wildlife please contact Range Control

If you come across sick, abandoned or injured wildlife please contact the Pacific Forestry Centre.

The following is taken from the Ministry of Environment Website and provides direction in the event you encounter a cougar or bear:

COUGAR ENCOUNTERS

The following are guidelines in the event that you do encounter a cougar:

- Stay calm and keep the cougar in view.
- Pick up children immediately - children frighten easily, the noise and movements they make could provoke an attack.
- Back away slowly, ensuring that the animal has a clear avenue of escape.
- Make yourself look as large as possible.
- Keep the cougar in front of you at all times.
- Never run or turn your back on a cougar. Sudden movement may provoke an attack.
- If a cougar shows interest or follows you, respond aggressively. Maintain eye contact with the cougar, show your teeth and make loud noise. Arm yourself with rocks or sticks as weapons. Crouch down as little as possible when bending down to pick up things off of the ground.
- If a cougar attacks, fight back. Convince the cougar you are a threat and not prey. Use anything you can as a weapon. Focus your attack on the cougar's face and eyes.

For more information, visit the provincial website at:

http://www.env.gov.bc.ca/cos/info/wildlife_human_interaction/docs/cougars.html

If you have any questions, do not hesitate to call.

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

BEAR ENCOUNTERS

Reduce the chance of surprising a bear.

- Always check ahead for bears in the distance. If one is spotted, make a wide detour and leave the area immediately.
- Make warning noises and loud sounds.
- Watch for bear sign: tracks, droppings, overturned rocks, rotten trees torn apart, clawed, bitten or rubbed trees, bear trails, fresh diggings or trampled vegetation.

Stay clear of dead wildlife.

- Take note of signs that may indicate carrion - such as circling crows or ravens, or the smell of rotting meat.
- Carcasses attract bears. Leave the area immediately!
- Report the location of dead wildlife to DND staff.

In general:

- Never approach or feed bears.
- If you have an encounter with a bear, please leave the area immediately and report it to DND staff as soon as possible.

For additional information, visit the provincial website at:

<http://www.env.gov.bc.ca/bcparks/explore/misc/bears/bearsaf.html>

8. CONTACT

Pacific Forestry Centre (Andrea Schiller) 250-363-0614.

Range Control 250-391-4164

ROCKY POINT BIRD OBSERVATORY OPERATIONS PROTOCOL

ESAC Application Timelines

For permit **renewals**, permits are most likely to be processed in time if the following deadlines are met.

For projects to start in:	Applications to be submitted by:
Jan, Feb, Mar	October 31
Apr, May, Jun	January 31
Jul, Aug, Sept	April 30
Oct, Nov, Dec	July 31

Applications may still be submitted any time, but permits are not guaranteed to be processed within any set time period.

Final deadline for applications is September 30, for work to be conducted in the same calendar year. Applications submitted after September 30 will be considered for the next calendar year only, and a revised application may be required.

For **new permits**, timelines cannot be guaranteed. If an Environmental Assessment is required, this can significantly increase the time required to approve a permit application.

We recommend that new permit applications be submitted as early as possible, using the dates listed above as a guide. A minimum of two months is usually required to process a new application.

Permit applications will not be accepted after September 30, for work to be conducted in the same calendar year.

Notes:

This process is partially to ensure that permits are ready when the permittee needs them and speed up the process.

Permits renewals are contingent on receiving a satisfactory annual report