

# HJ ANDREWS EXPERIMENTAL FOREST POINT COUNT CENSUS PROTOCOL 2016

## Objective

- To survey breeding birds and nest predators (squirrels and chipmunks) and document the phenology of birds, vegetation, and snowmelt throughout the HJ Andrews Experimental Forest.

## Guidelines

### Time of Year:

- Surveys will be conducted in the early breeding season, at the peak period of mating when males are most vocal and can be readily detected.
- We will conduct our surveys from 1 May-15 July (approximately).

### Time of Day:

- Censuses will begin at 05:15-05:30 and the final point count must start by 10:30.
- Please note that the first point to be surveyed must begin promptly at 05:30 (and as early as 05:15 later in the season), therefore, allowing adequate time for travel to that point.
- Point counts can start as early as 5:15 (if there is sufficient light), should you arrive to the point before 5:30.

### Replication and Order of Point Counts:

- Each point will be surveyed three to six times from 1 May-15 July.
- The starting point, order of points, and observer will differ for each of the replicates to minimize the bias of survey time and observer.

### Point Count Etiquette:

- All point counts are done standing, no sitting is allowed.
- Focus all of your attention on the point count and minimize any potential distractions.
- Your ears must be fully exposed while you are point counting in order to maximize your ability to hear birds.
- Eating is not allowed during point counting as it interferes with your hearing and is a distraction.
- Make sure to listen in all directions during the point count; that is don't face in one direction for the entire point count period.

### Weather Conditions:

- Surveys must be conducted under satisfactory weather conditions: good visibility, little or no precipitation, light winds. Occasional light drizzle or a very brief shower may not affect bird activity, but high winds, heavy fog, steady drizzle, or prolonged rain should be avoided.

### Phenology:

- Vine Maple (*Acer circinatum*, code = ACCI): In order to monitor changes in leaf-out for one of the most common deciduous shrubs found at the Andrews, Vine Maple, we will record the average phenology stage of a marked Vine Maple plant within 25m around each survey point during each point count visit. There are separate codes for vegetative and reproductive phenology (see codes below).

- Pacific Rhododendron (*Rhododendron macrophyllum*, code=RHMA): We will also record the flowering status of Pacific Rhododendron at each plot during each point count visit. 1 = flowering, 0 = not flowering, X = no RHMA present at plot.

#### Stream:

- Stream noise information will tell us about our ability to detect birds by sound during a survey. It will also provide information about the changes in intensity of stream flow throughout the season.
- Stream noise is not based on how large the stream is or how close it is to you (although these factors often determine noise interference by streams), it is the amount the stream noise interferes with your ability to hear birds.

#### Snow:

- We will monitor changes in snowmelt across the elevational and habitat gradients by noting the percent of snow cover around each survey point for each replicate. This will give us an estimate of site-level snowmelt rates.

#### Other Environmental Conditions:

- At some points noise may be a factor due to humans, aircraft, cars, etc. If the noise passes within a short amount of time (~30 sec.) continue with the count. If the noise is persistent, we will conduct the count at a later time.

#### Observation Period at Each Station:

- We will be conducting 10-minute point counts at each station.
- Point counts will commence ~1 minute after arrival at a point.

#### Species:

- We will record all bird species seen or heard.
- We will record all squirrels, chipmunks and pikas seen or heard.

#### Detection Method:

- There are several ways in which an individual can be detected and not all detection types are created equal. Most of your detection will be auditory.
- The highest quality detections are singing males. This is because male birds sing (and in the case of woodpeckers, they drum) in order to defend their territory and to attract mates, therefore we can be sure that singing males are occupying a site and not just passing through. Female birds generally do not sing.
- The order of importance of detection types is as follows:
  - **Song or Drum > Visual > Call or Wings or Tapping**
- You can fill in more than one detection type, but always put the more important detection type first (it will get entered into the database under the 'Det. Meth. 1').
- Flyovers (detection method code **O**): It is important to distinguish between birds that are flying over the site from those that are (more) stationary (these are birds we are talking about and birds do have wings). If a bird(s) flies over a site put O for the primary detection method, and the manner in which you detected the flyovers (V or C or both) as the secondary detection method.
- When there are more than 5 individuals that fly over (most commonly seen with EVGR, RECR, AMGO, and PISI) you can reduce the observations to one line on the point count form and indicate the number of individuals detected in the 'Alt' column. When there are many individuals make your best estimate possible of how many you think there are.

### Counting Radius:

- We will record individuals at three distances:
  - (1) within 50m
  - (2) 50 – 100m
  - (3) > 100m
- At the start of the census at each point, landmarks at a distance of 50 m should be selected and noted.
- **IMPORTANT NOTE REGARDING NEW RECORDS:** If an individual bird moves closer to you during the point count period, the detection at the closest distance class is the one that receives a '1' in the 'New Record' column. This is even if the individual was detected in a prior period, but at a farther away (higher distance category). See more info on this below in the 'New Record' section.

### Period:

- The 10-minute count is divided into 3 equal intervals of 3 minutes and 20 seconds. Periods are: 1=0–3:20, 2=3:21–6:40, 3=6:41–10:00).
- Each period should be treated as a separate count (i.e., count individuals in the later periods even if they were detected in period 1).

### New Record:

- The "New Record" column on the data form indicates whether an individual detected is new for the complete 10-minute count. For example, if an individual is detected in the second period and was also detected in the first period, it receives a "0" in the 'New Record' column for the period 2 detection. If it appears for the first time in the second period, it receives a "1".
- If an individual moves closer during the count (either from >100m to 50-100m or from 50-100m to <50m), this individual should be marked with a "1" in the 'New Record' column in the period in which it occurs at the closest distance.
- If an individual starts counter-singing during a period in which it was not first detected ('New Record' = '0'), The 'Counter-sing' column should be filled in as '1' in the first detection of that individual in a prior period, even if it was not counter singing at that earlier time.

### Counter-singing:

- If two male birds are detected simultaneously within 100m at a count both individuals should receive a "1" in the counter-sing column. This is important information for calculating relative abundance.
- The two or more males should exchange songs back and forth 2 or more times to be considered counter singing.
- **IMPORTANT NOTE REGARDING NEW RECORDS:** If an individual starts to counter-sing in a period in which it is not a new record, you must also mark the 'Counter-sing' column with a '1' in the prior period in which it was a new record.

### Other notes:

- Mammals should be entered as birds in the Species column. Mammal codes: Townsend's Chipmunk (CHIP), Douglas Squirrel (DOSQ), Pika (PIKA), and Northern Sasquatch (NOSA).
- When filling out datasheets in the field every effort should be made to write clearly so that datasheets are easily interpretable.

### When You Return From the Field:

- Check off the points you surveyed that day (on the check-off sheet on the wall). For each point that you surveyed, record the date and your initials. For each point you

check off, have the actual datasheet in hand to be positive that each point has been surveyed, do not do it by memory. On the map, fill in the circles for the points you surveyed that day.

- Place your datasheets in the UNENTERED box if you do not plan to enter them at that moment.
- When you are ready, enter your data in one of the 2 data entry laptops using the program Access. Mark your datasheet with a check in the top right corner once it is entered (use pen or marker of a different color). Any changes you make to your datasheet once you have returned from the field should be done in pen, preferably with a color that stands out. Once you have finished entering your data, place your datasheets in the ENTERED box in numerical order.

#### At the End of a Point Count Round:

- Make sure all of the data is entered for that round.
- Double check that the datasheets for that round are in numerical order.
- Check that each survey point has been surveyed by comparing the datasheets with the check-off sheet. Mark the points on the check-off sheet that have a completed datasheet.
- Store the datasheets for each round in a labeled data box.

#### Error Checking:

- Compare the datasheet to what is in the database, checking off each line of data as you go. Make sure they are the same.
- Watch for data collection errors and check with the observer to resolve issues.
- Label the datasheet as having been error checked with another check in the top right corner with your initials. It is best not to error check your own datasheets.

## Data Recording and Reporting

Data Field	Description
Route #	Record the route number (1-18)
Plot #	Record the plot number (1,2...,400)
Replicate #	Record the survey replicate number (1-6)
Date	Record the date
Time	Record the time that the point count begins
Observer	Record your initials
Sky	Record the sky code as presented on the code sheet
Wind	Record the wind code as presented on the code sheet
Phenology (ACCI)	Record the average phenology code for the marked Vine Maple (ACCI) within 25m of the survey point, V = vegetative code, R = reproductive code)
RHMA	Record a 1 for flowering RHMA, 0 for RHMA present, but not flowering, and X for no RHMA present at plot.
Stream	Record the stream code as presented on the code sheet. This is a measure of how much the stream noise interferes with your ability to hear birds.
Snow	Record the snow code as presented on the code sheet.
SMrec	Record yes (Y) if you recorded the point count with a songmeter. If the point count was not recorded by a songmeter, record no (N)
Number	Corresponds to the number of the individual recorded on the census
Period	The 10-minute count is divided into 3 equal intervals (3 minutes 20 seconds). Record the period: 1=0–3:20, 2=3:21–6:40, 3=6:41–10:00
Minute	Record the minute that the given individual was first detected. 1=0-0:59, 2=1:00-1:59, 3=2:00-2:59...etc.
Species	Record the four-letter species code as presented on the code sheet. Record mammals species (Chipmunk, Squirrel) as if they were bird species (include minute, detection method, distance, new individual, and “counter sings”)
Sex	Record male (M), female (F), or unknown (U)
Detection Method	Record the method by which the individual was detected: song (S), visual (V), call (C), Drumming (D), Tapping (T) or fly over (O)
Distance	Record the distance category from the point to the individual: < 50m (1), 50 - 100m (2), or >100m (3)
New Record	If an individual is observed for the first time in the 10-minute count (regardless of period) record a ‘1’. If it has been observed previously put ‘0’.
Counter-sing	If birds are observed to be singing from different locations nearly simultaneously note a ‘1’.

## CODES

BIRD SPECIES	CODE	BIRD SPECIES	CODE	BIRD SPECIES	CODE
American Crow	AMCR	<b>Hermit Thrush</b>	<b>HETH</b>	<b>Song Sparrow</b>	<b>SOSP</b>
American Dipper	AMDI	<b>Hermit Warbler</b>	<b>HEWA</b>	<b>Sooty Grouse</b>	<b>SOGR</b>
<b>American Goldfinch</b>	<b>AMGO</b>	<b>Hutton's Vireo</b>	<b>HUVI</b>	<b>Spotted Owl</b>	<b>SPOW</b>
<b>American Robin</b>	<b>AMRO</b>	Killdeer	KILL	<b>Spotted Towhee</b>	<b>SPTO</b>
Bald Eagle	BAEA	Lazuli Bunting	LABU	<b>Steller's Jay</b>	<b>STJA</b>
<b>Band-tailed Pigeon</b>	<b>BTPI</b>	Lesser Goldfinch	LEGO	<b>Swainson's Thrush</b>	<b>SWTH</b>
Barred Owl	BADO	<b>MacGillivray's Warbler</b>	<b>MGWA</b>	<b>Townsend's Solitaire</b>	<b>TOSO</b>
Bewick's Wren	BEWR	Merlin	MERL	Turkey Vulture	TUVU
<b>Black-capped Chickadee</b>	<b>BCCH</b>	Mountain Bluebird	MOBL	Unknown	UNKN
<b>Black-headed Grosbeak</b>	<b>BHGR</b>	Mountain Chickadee	MOCH	Unknown Finch	UNFI
<b>Black-throated Gray Warbler</b>	<b>BTYW</b>	Mountain Quail	MOQU	Unknown Flycatcher	UNFL
<b>Brown Creeper</b>	<b>BRCR</b>	Mourning Dove	MODO	Unknown Grouse	UNGR
Bullock's Oriole	BUOR	<b>Nashville Warbler</b>	<b>NAWA</b>	Unknown Jay	UNJA
Bushtit	BUSH	<b>Northern Flicker</b>	<b>NOFL</b>	Unknown Thrush	UNTH
California Quail	CAQU	Northern Goshawk	NOGO	Unknown Vireo	UNVI
<b>Cassin's Vireo</b>	<b>CAVI</b>	<b>Northern Pygmy-Owl</b>	<b>NOPO</b>	Unknown Warbler	UNWA
Cedar Waxwing	CEWA	Northern Saw-whet Owl	NSWO	Unknown Woodpecker	UNWO
<b>Chestnut-backed Chickadee</b>	<b>CBCH</b>	<b>Olive-sided Flycatcher</b>	<b>OSFL</b>	Unknown Wren	UNWR
Chipping Sparrow	CHSP	Orange-crowned Warbler	OCWA	<b>Varied Thrush</b>	<b>VATH</b>
Clark's Nutcracker	CLNU	<b>Osprey</b>	<b>OSPR</b>	<b>Vaux's Swift</b>	<b>VASW</b>
Common Nighthawk	CONI	<b>Pacific-slope Flycatcher</b>	<b>PSFL</b>	Violet-green Swallow	VGSW
<b>Common Raven</b>	<b>CORA</b>	<b>Pacific Wren</b>	<b>PAWR</b>	<b>Warbling Vireo</b>	<b>WAVI</b>
Cooper's Hawk	COHA	Peregrine Falcon	PEFA	Western Kingbird	WEKI
<b>Dark-eyed Junco</b>	<b>DEJU</b>	<b>Pileated Woodpecker</b>	<b>PIWO</b>	Western Screech-Owl	WESO
Downy Woodpecker	DOWO	<b>Pine Siskin</b>	<b>PISI</b>	Western Scrub-Jay	WESJ
Dusky Flycatcher	DUFL	Purple Finch	PUFI	<b>Western Tanager</b>	<b>WETA</b>
Evening Grosbeak	EVGR	<b>Red Crossbill</b>	<b>RECR</b>	<b>Western Wood-Pewee</b>	<b>WEWP</b>
Fox Sparrow	FOSP	<b>Red-breasted Nuthatch</b>	<b>RBNU</b>	White-breasted Nuthatch	WBNU
Golden Eagle	GOEA	<b>Red-breasted Sapsucker</b>	<b>RBSA</b>	Wild Turkey	WITU
<b>Golden-crowned Kinglet</b>	<b>GCKI</b>	Red-tailed Hawk	RTHA	Willow Flycatcher	WIFL
<b>Gray Jay</b>	<b>GRAJ</b>	Ruby-crowned Kinglet	RCKI	<b>Wilson's Warbler</b>	<b>WIWA</b>
Great Horned Owl	GHOW	<b>Ruffed Grouse</b>	<b>RUGR</b>	Yellow Warbler	YWAR
<b>Hairy Woodpecker</b>	<b>HAWO</b>	<b>Rufous Hummingbird</b>	<b>RUHU</b>	<b>Yellow-rumped Warbler</b>	<b>YRWA</b>
<b>Hammond's Flycatcher</b>	<b>HAFL</b>	Sharp-shinned Hawk	SSHA		

\*Bold & blue = most common, Bold = common\*

MAMMAL SPECIES	CODE	MAMMAL SPECIES	CODE	MAMMAL SPECIES	CODE
Douglas Squirrel	DOSQ	Townsend's Chipmunk	CHIP	Pika	PIKA

**WIND CODES: In general, counts should not be conducted if winds are code 4 or above.**

Code	MPH	Description
0 - Calm	less than 1 mph	No noticeable wind
1 - Slight breeze	1 - 3 mph	Tiny amount of wind, not much movement of leaves
2 - Light breeze	4 - 7 mph	Leaves moving in wind
3 - Gentle breeze	8 - 12 mph	Leaves & small branches move
4 - Moderate breeze	13 - 18 mph	Branches sway
5 - Fresh breeze	19 - 24 mph	Small trees sway, branches moving a lot
6 - Strong breeze	25 - 31 mph	Larger branches and trees sway

**SKY CONDITION: In general, counts should not be conducted in rain, showers or snow (5 and above).**

0 = clear or few clouds	5 = rain
1 = partly cloudy (scattered) or variable sky	6 = snow
2 = cloudy (broken) or overcast	7 = hail
3 = light fog	8 = Run like hell
4 = light drizzle	

DETECTION CODES (S/D > V > C/T/W)	
S = Song	D = Drumming
V = Visual	C = Call
O = Fly over	W = Wings
T = Tapping	

SEX CODES
M = Male
F = Female
U = Unknown

DISTANCE CODES
1 = < 50 m
2 = 50 - 100 m
3 = > 100m

**PHENOLOGY CODES (target species – Vine Maple):**

**Vegetative (V):**

Code	Description
<b>0</b>	<b>No vine maple present</b>
1	Dormant -hard red buds
2	Buds swollen - scales separating
3	Bud Break - green visible past tips of bud scales
4	Emerging leaves - green sheath extending
4.5	Leaves emerge from green sheath, folded
5	Unfolding leaves < 75% size (droopy)
6	Unfolding leaves ≥75% size (flat)
7	Stem elongation

**Reproductive (R):**

Code	Description
<b>0</b>	<b>No vine maple present</b>
1	No flower bud visible
2	Flower Buds visible, closed
3	Open flowers
4	Peak Flowering
5	Past Peak (majority done)
6	Flowering over - no flwrs/buds
7	Immature Fruits visible
8	Majority of fruits visible
9	Mature/dispersing fruits
10	Fruiting over
11	Fruit aborted

**STREAM CODES:**

Code	Description
0	No interference from stream w/in 100m
1	Slight interference from stream w/in 100m
2	Slight interference from stream w/in 50m
3	Moderate interference from stream w/in 50m, difficult to hear birds >50m
4	High interference from stream w/in 50m, only can hear louder birds w/in 50m and no birds >50m
5	Complete interference from stream w/in 50m, unable to hear a WIWR on your shoulder

**SNOW CODES:**

Code	Description
0	No snow
1	Small patches of snow covering ~25%, mostly bare ground
2	Patchy snow cover ~50% of ground
3	Ground covered mostly by snow (~75%), few bare patches
4	Snow covering everything, no bare ground visible

**POINTS WITH NO VINE MAPLE (ACCI):**

20	240	271	276	347
200	248	272	277	358
216	250	273	278	PC14
235	258	274	279	PC17
239	270	275	314	PC18