Point count protocol

        We will monitor the same 8 transects (A-H) in the Chiricahua Mountains as our previous study, although some points have been moved to make them more accessible. These transects are distributed in pairs across the mountain range including the Cave Creek, Turkey Creek, Onion Saddle/Rustler, and Rucker Canyon areas.   Each transect route consists of several points (range: 6 - 11) spaced at 300 m intervals within ~5-15m of a trail. We will sample each point 3 times (allow ~ 2 weeks to visit all transects during each round) during the breeding season to sample variation in bird distribution and detectability throughout the breeding season.

        We will use a double-observer approach to survey birds, whenever possible. This means that two people will work together and count the same point at the same time. This is being done for both analytical and safety reasons.

        Point counts should begin within 30 minutes (before or after) of sunrise and be completed no later than 4 hours after sunrise. Once observers arrive at a point, they should wait at least 2 minutes before beginning the count to allow birds to settle. Use this time to record the point number, time of day, cloud cover index, wind speed index, and air temperature. After this waiting period, the count begins. Counts should last for 5 minutes, during which time each observer should independently record all birds seen or heard, including the species, age (adult, juvenile, unknown), sex (male, female, unknown), mode of detection (visual, song, call, other), estimated horizontal distance to the bird (in band widths, see below), and whether or not the bird occurs as part of a flock. Be aware that you will often encounter more than one individual for some species at a point. It can be tricky to sort out whether you have 2 different birds or one bird that has moved, but you need to try and record all individuals detected at a point.

        Again, each observer needs to record birds independently and avoid being influenced by the other observer. While conducting a count, move slowly and quietly to face all directions. Stay within 5 meters of the tree with the point tag.   Once done, move to the next point.

Data variables that are recorded for point count forms:

Header line (top of first page)

Area – CM (Chiricahua Mountains)

Line – appropriate letter for the transect line being counted (A-H)

Day, Month, Year – date of the count

Observer – first, middle, last initial of observer

Tstart – time that the count begins (military style)

Tend – time that the last count ends (military style)

Pass – visit number for count (1, 2 or 3). We hope to count each point 3 times. So first time it's recorded as **1**, second time as **2** and third time as **3**.

Body of data form

Point – Number of the counting station that is on the tree tag. Record this only on the first line for the point.

Time – time in which the count for that particular point begins (military style). Record this only on the first line for the point.

Cloud – an index for cloud cover (1=0-5%; 2=5-10%; 3=10-25%; 4=25-50%; 5=50-75%; 6=75- 100%). Record this only on the first line for the point.

Wind – an index for wind speed [0=<1mph- smoke rises vertically; 1=1-3mph- smoke drifts indicating direction; 2=4-7mph- wind felt on face, leaves rustle; 3=8-12mph- leaves and small twigs in constant motion; 4=13-18mph- raises dust and dry leaves, small branches in motion (DO NOT COUNT); 5=19-24mph- small trees begin to sway (DO NOT COUNT); 6=25+mph- large trees begin to sway (DO NOT COUNT)]. Record this only on the first line for the point.

Temp – using a Kestrel, record the temperature to the nearest degree centigrade. Record this only on the first line for the point.

Species – 4 letter Bird Banding Laboratory (BBL) mnemonic code to denote the name of the species (see http://www.pwrc.usgs.gov/bbl/manual/speclist.cfm). Many species have

the first 2 letters from the first word and the first 2 letters from the second word (i.e., hermit thrush=HETH, elegant trogon=ELTR). A similar rule applies to species with three non-hyphenated words to their name (i.e., great horned owl=GHOW). If a species has only one word to its name, then use the first 4 letters of the name (i.e., bushtit=BUSH).

Age – (A=adult, J=juvenile, U=unknown)

Sex – (M=male, F=female, U=unknown)

Det – mode of detection [V=visual, S=song, C=call, O=other (woodpecker drum, wing beat, pecking, etc.)]

Dist – index for the estimated horizontal distance to the bird. **1**, 0-10 m; **2**, 11-25 m; **3**, 26-50 m; **4**, 51-100 m; **5**, > 100 m

Flk# – if a flock is observed (consisting of conspecifics or mixed species), it is coded using sequential numbers (starting over with #1 at each point). All species in a mixed species flock get the same number. Flocks can consist of 1 or multiple species.

Mem – number of birds of one species in that particular flock

Fly: if an observation is of a bird flying over (usually the case with raptors and ravens) put a check mark in the box on the form.

**With monomorphic species, do not call sex unless you know that only the male sings, and only use song to distinguish males and females when you know that the females do not sing.