

## Appendix 2: Entering Data into the Computer

When data of any kind is entered into the computer, you must indicate so on the data sheet. In general, you can do this by writing "entered" in the top right corner of the data sheet, with the date and your initials in red pen. Also indicate when data has been proofed. On banding and net hours forms, data entry and proofing are indicated in the left margin for each record. The point is to be able to tell whether or not data on stray forms has been entered and proofed. In addition, be sure to back up your work at the end of each day.

### Part 1: Encounter Data

In general any colorbanded bird encountered in the field (as opposed to in the hand) where a positive identification was made is to be entered into the coastal scrub encounter computer in the data room. Birds encountered on winter bird census at times other than during official breeding grid censuses should be recorded on the posted notebook in the data room after you have confirmed by looking in the banding database that this color combination is correct. Colorband encounter data must be entered in the encounter database regularly. If you were unable to get the entire color combination of the bird you encountered in the field, do not record this bird in the encounter database.

1. From any computer, open Visual Foxpro
2. Type "SET CARRY ON" if you plan to enter more than one encounter.
3. Type "APPEND"
4. Push "CAPS LOCK" key.
5. Open the file, located at z:\palodata\encount\enct[year].dbf
6. Enter data as Follows:

Field	Data	Example
SPEC	Species	WREN
COLORS	band combination	YOB/S
DATE	date of encounter	04/15/2004
AGE	age of bird (as noted in the field)	0 (unk),1(local), 2(HY), 3(AHY), 4(SY), 5(ASY), 6(TY), 7(ATY)
SEX	(if known)	U=unknown, M=male, F=female
CODE	type of encounter	8= census, 9=observed but not during official census
LOC	which grid or location	OG (Off Grid), G1, G2 (Palo Buildings are on this grid), G4, G5, AR (Arroyo Hondo)
SITE	exact location of capture	This should be left blank
ROW	grid row	D2
COL	grid column	5C
SING	territorial song?	Y (yes) or N (no)
COM	Comments	T (true) or F (false)
NOTE	add comments here by: 1) pushing "CTRL + "page up" 2) type in note (i.e. building nest) 3) push "CTRL" + End"	

7. push "Cntrl" + "End" (to save)
8. Place an "E" by the line of data on the CENSUS DATA SHEET to indicate that it was put in the computer.

To look up previous encounters:

1. At the Command box prompt type "USE ENCOUNT" (for all previous years)
2. Type "SET FILT TO COLORS="YOB/S"
3. Type "BROWSE" (or push f8)

## **Part 2: Nest Data**

Enter data for every nest on the day it is found and/or checked. This will enable the Nest Check Schedule and proofing procedures to be accurate and efficient.

### **To Enter a New Nest:**

Use the computer you have been assigned

1. Open the FoxPro Nest Program. This will take you to the nest program main menu.
2. Select the appropriate nest data and nest check database for your grid by clicking on "Choose nest and nestcheck databases" from the main menu.
3. Select "Enter new nest" from the main menu
4. Enter data, using Protocol for PRBO nest data entry below as a guide.
5. Push "Cntrl + End" to save and return to main menu.
6. Once finished entering new nests, select "Exit nest program"

### **To Enter nest checks:**

Follow steps 1-2 above.

1. From the menu, choose "Enter nest checks."
2. Enter data, using **protocol for nest check data entry** below as a guide.

### **Display check schedule, entering known nest dates, closeouts, and proofing nest data**

Each morning, or night before going "out on grid", follow above steps 1- 2. From main menu screen, choose "Display Check Schedule". The computer will display a list of all active nests and how many days it has been since last checked. This program will not run effectively unless all current nest data is entered, including all nest checks.

Enter known Clutch Completion, Hatch and Fledge Dates, and Closeout data using same format as above, choosing the appropriate box from the main menu after entering the program. If you do not know the exact date for clutch completion, hatching and/or fledging, within 2 days (4 day nest checks), the Nest Program will calculate them based on your nest check data and average laying, incubation, and nestling periods. If you do know these dates within 2 days, enter them, as they may be more accurate than the program's calculation.

At the end of the season, close out all nests by entering "all" from the close out menu. This will find certain types of errors in the nest check data. When these problems are resolved, proof data using "Proof Nest Data" menu item. The program will run through all entered nest data and display problems on the screen. Errors are stored in a database called "nesterr.dbf" Try to resolve all errors listed, then proof again. Unresolved errors should be brought to the attention of your supervisor.

## Protocol for PRBO nest data-entry

\* Fields marked with an asterisk are only used at Palomar

### RESULT CODES

**Results:** 20 character field for the outcome of this nest - Fledged, Preyed Upon, Abandoned, and or Parasitized. Examples: e.g. F3 = fledged 3 (only host young); FBHCO = fledged cowbird, P4e = preyed upon 4 eggs, A2y = abandoned 2 young; F2P1y = fledged 2 and 1 young preyed upon, P = preyed upon (unknown if eggs or young), W3y = death by weather, 3 young, UNK = nest outcome unknown, no clues as to outcome of nest or nest not re-checked.

**Resultpre:** Character code for precision to which the *result* of this nest is known.

- 1 = all fledglings seen or predation or abandonment observed (see failcause for definition).
- 2 = at least 1 fledgling or dead nestling seen, or egg fragments or nest disturbed supported by timing.
- 4 = repeated food carries by the adults or timing of next attempt suggests success or failure (varies by species).
- 3 = failed – timing makes fledging of the nest impossible (do not use if nestlings had any chance of “jumping”)
- 5 = timing suggests success (nestlings seen within 3 days of predicted fledge date), supported by physical evidence (nest empty and intact, poop on sides).
- 6 = adults distress calling or giving no evidence of fledglings.
- 7 = uncertain; nest empty with no disturbance, no clues from adult behavior or timing.
- 8 = unknown (e.g. nest not rechecked; nest found after use).
- 9 = no data.

### ENTERING A NEW NEST

**Date:** Date nest was found, month/day/year (e.g.: 04/27/2001).

**Time:** Time that nest was found, 24 hour format (e.g., 1400 = 2 pm).

**Nestid:** 9 to 11 character code identifying specific nest. First 4 characters are species code, next 2-4 are grid/plot (Palo grids are 2 characters, i.e. G1, while offsites are 4 character, i.e. WELE), next 2 are nest number for given species and plot, and the last character is the attempt (i.e., A for first, B for second, etc.). Examples: SOSPG101A, BLGRWELE01A.

**Finder:** Initials of person who found the nest.

**Findcont:** Contents of this nest when found. Refers only to building, natal eggs, or natal young. Must be entered in the following format: First character: (B, E, Y, P, O) for the most advanced contents of nest. Next 2 characters for number of eggs or young, or percent built in the case of nest building.. Examples: E4 = 4eggs; Y2E1 = 2 young 1 egg; OeU = found empty used; B40 found building 40% complete; B100 observed complete).

**Treatment:** Habitat classification, i.e. old growth riparian, reveg., orchard, etc.

**Locdist:** Distance, in meters, to nearest reference point (usually a point count station or net location).

**Locdir:** Compass direction (in degrees) to same reference point.

**Locgridpt:** 3 character name for reference point used in above two fields.}

\***Gpoint:** 6 character code for location of nest on Palo grids. E.g: 5A 13c. If location is right on a grid line, enter 0, i.e., F 17 should be entered as F0 170.

\***Maleparent:** 7 characters for colorbands of male parent, such as “KKW/S”.

\***Maleparpre:** Character for precision to which male parent is known. Usually “#” for absolutely known. Use “\*” if there is some reason to question the identity of individual.

\***Maleparco:** 2 numbers for male parent’s cohort (the year they hatched).

\***Malecopre:** Character for precision to which male parent’s cohort is known. “#” for exact, “\*” for “at least” (same as parenthesis on your maps and write-ups).

\***Femalepar:** 7 characters for colorbands of female parent, such as “KKW/S”.

\***Femparpre:** Character for precision to which female parent is known. Usually it will be “#” for absolutely known. Use “\*” if there is some reason to question the identity of individual.

\***Femparco:** 2 numbers for female parent’s cohort (the year they hatched).

\***Femcopre:** Character for precision to which female parent’s cohort is known. “#” for exact, “\*” for “at least” (same as parenthesis on your maps and write-ups).

**Rateabove:** Number code rating the degree to which the nest has cover from above.

- 0 = Nothing hiding the nest. Perfectly exposed.
- 1 = Very poorly hidden.
- 2 = Poor to medium hidden.
- 3 = Medium hidden to well hidden.
- 4 = Very well hidden.

**Ratebelow:** Use one of the above number codes to rate the degree to which the nest has cover from below.

**Rateappr:** Ranking of vegetation patch around nest and/or nest bush and how well an adult bird can approach the nest without being observed.

- 0 = Nest bush totally in the open. The bird can only gain access to its nest by a totally exposed flight or walk.
- 1 = Approach very poorly hidden. Only one way the bird can get to the nest without being seen (0 to 25%).
- 2 = Poorly to medium hidden (25 to 50%).
- 3 = Medium to well hidden (50 to 75%).
- 4 = Approach very well hidden. The bird may go to its nest perfectly hidden from virtually any direction (>75%).

**Humanpath:** Number code for rating a new human-caused path to nest.(e.g. the path you have created while finding or checking the nest. Do not rate already existing paths).

- 0 = No path whatsoever.
- 1 = You might detect a footprint or two but it is unlikely another person would notice it.
- 2 = Little to medium path.
- 3 = Medium to large path.
- 4 = Trail created directly to the nest.

**Finddist:** Number code for rating the amount of disturbance caused to the parents (e.g. amount of distress calling) during the finding of this nest.

- 0 = no disturbance
- 1 = minor disturbance
- 2 = low to medium disturbance
- 3 = medium to high
- 4 = high disturbance

**Findmeth:** Cues used to find nest (record most useful).

- PB = parent behavior
- F = flushed parent off nest while walking past.
- SS = systematic search.
- NBC = non-behavioral clue.
- L = luck. Found nest without looking for it.
- PY = previous year. Found nest based on knowledge of nest location from previous year.
- YB = young's behavior led observer to nest.

**Timespent:** Total time spent finding nest (in minutes).

**Numparvis:** Total number of parental visits during nest finding efforts.

**Searchrad:** Radius of search area (in meters).

**Numprevtry:** Number of previous days you have spent time trying to find this nest

## ENTERING NEST CHECKS

**Nestid:** 9 to 11 character code identifying specific nest. First 4 characters are species code, next 2-4 are grid/plot (Palo grids are 2 characters, i.e. G1, while offsites are 4 character, i.e. WELE), next 2 are nest number for given species and plot, and the last character is the attempt (i.e., A for first, B for second, etc.). Examples: SOSPG101A, BLGRWELE01A.

**date:** date of nest check.

**time:** time of nest check (24 hour format).

**status:** (Follows same rules as **findcont** above)Contents of this nest when checked. Refers only to building, natal eggs, or natal young. Must be entered in the following format: First character: (B, E, Y, P, O) for the most advanced contents of nest. Next 2 characters for number of eggs or young, or percent built in the case of nest building.. Examples: E4 = 4eggs; Y2E1 = 2 young 1 egg; OeU = found empty used; B40 found building 40% complete; B100 observed complete).

**nyage:** age of young (host not cowbird) in days. Only necessary if nest is found with young.

**cowstat:** Same as **status** above, except for cowbirds only.

**cyage:** age of cowbird young in days. Only necessary if nest is found with cowbird young.

## NEST CLOSEOUT AND PROOFING CODES (see "Dates and date precision" below *before closing out your nests*)

**Prst:** Numeric code for timing of predation, fledging, parasitism, or abandonment. (refers to natal eggs/young only - see Cowprst below).

- 0 = fledged at least 1 natal young.
- 1 = preyed upon during laying.
- 2 = preyed upon during incubation.
- 3 = preyed upon during nestling phase.
- 4 = abandoned prior to any eggs.
- 5 = abandoned during laying stage (includes trampling, lightening strikes, etc.) or natal eggs fail due to parasitism.
- 6 = abandoned during incubation stage (includes trampling, lightening strikes, etc.) or natal eggs fail due to parasitism.
- 7 = abandoned during nestling stage (includes trampling, lightening strikes, etc.) or natal young fail due to parasitism.
- 8 = probable predation timing unknown.
- 9 = probable fledging timing unknown.

**Cowprst:** Numeric code for timing of predation, fledging, or abandonment of Cowbird eggs or young.

- 0 = fledged at least 1 Cowbird young.
- 1 = preyed upon during laying.
- 2 = preyed upon during incubation.
- 3 = preyed upon during nestling phase.
- 4 = abandoned prior to any eggs.
- 5 = abandoned during laying (includes trampling, lightening strikes, etc.).
- 6 = abandoned during incubation stage (includes trampling, lightening strikes, etc.) or cowbird eggs don't hatch but natal eggs do.

7 = abandoned during nestling stage (includes trampling, lightening strikes, etc.) or cowbird young don't fledge but natal young do.

8 = probable predation timing unknown.

9 = probable fledging timing unknown.

**Status:** Character code brood number.

1 = 1st brood attempt

2 = 2nd, 3rd, 4th, 5th, 6th attempt at 1st brood

3 = 2nd brood attempt

4 = 2nd, 3rd, 4th, attempt at 2nd brood

5 = 3rd brood attempt

6 = 2nd, 3rd, attempt at 3rd brood

7 = 4th brood attempt

8 = unknown brood attempt

9 = no data

**Clutchsize:** Size of the completed clutch (host eggs only) based on observations of nest or published or local information.

**Clusizepre:** 1 character code for precision to which the *Clutchsize* is known.

2 = found on or before laying and complete clutch observed.

4 = same # of eggs (full clutch) observed at least twice

5 = number of eggs counted only once after female flushed.

6 = estimate based on brood size or single observation of a normal full clutch.

7 = nest contents never observed; estimate based on published or local data.

8 = unknown.

**Cownumegg:** Number of cowbird eggs.

**Hatchnum:** Number of host eggs that hatched in this nest.

**Hatnumpre:** Character code for precision to which the *Hatchnum* is known.

2 = observed prior to and after hatching.

4 = estimate based on observed brood size.

5 = estimate based on brood size observed late in nestling period only.

6 = estimate based on number fledged.

7 = nest contents never observed; estimate based on published or local data.

8 = unknown

**Cownumhat:** Number of cowbird nestling

**Fledgenum:** Number of host fledglings from this nest.

**Flgenumpre:** Character code for precision to which the *Fledgenum* is known.

2 = all fledglings observed or seen leaving the nest.

4 = estimate based on observing and counting all nestlings within 4 days of the fledge date.

5 = estimate based on single count of brood more than 4 days of fledging.

6 = estimate based on number clutch size.

7 = nest contents never observed; estimate based on published or local data.

8 = unknown.

9 = no data

**Cownumfled:** number of cowbirds fledged.

**Failcause:** Two character code for cause of failure, if any. If successful, choose FY or FB as appropriate.

UN = unknown because not revisited

FY = at least 1 young seen leaving or in vicinity of nest or colorbanded young seen or caught in nets

FB = adults behaving as if dependent fledglings nearby, but no young seen or caught.

FC = fledged at least 1 host young with cowbird parasitism

PO = predation observed

PE = probable predation, nest empty and intact

PD = predation, damage to nest structure

AB = nest abandoned prior to eggs

DE = deserted with eggs or young

CO = failure due to cowbirds

CF = fledged cowbird only

WE = failure due to weather

HA = failure due to human activities

OT = other.

**Banddate:** Date of banding for nestlings.

**B1-B5:** Band numbers of up to five nestlings (nine digits each).

**Outsidedia:** Diameter of nest as measured from the outer edges, in mm.

**Insidedia:** Diameter of nest as measured from inner edges, in mm.

**Outsidedph:** Depth of nest as measured from top to bottom of cup outside, in mm.

**Insidedph:** Depth of nest as measured within, in mm.

**Clumpwidth:** Maximum width of clump in which nest plant is located, in m.

**Perpwidth:** Width of clump perpendicular to maximum clump width, in m.

**Maxclumplt:** Maximum height of clump in which nest plant is located, in m.

**Plantht:** Height, in cm, of nest plant.  
**Htfrgrd:** The height of the nest, in cm, from the ground.  
**Plantsp1:** 6 character code for scientific name of primary plant species that nest is in.  
**Plantsp2:** 6 character code for scientific name of secondary plant species that nest is in.  
**Nstcncl1:** Primary object concealing nest, i.e. log, plant (use four letter code), etc.  
**Nstcncl2:** Secondary object concealing nest.  
**Shrubdbh:** The diameter at breast height, in cm, of the nest plant.  
**Dist\_edge:** The distance, in cm, of the nest from the closest edge of the plant.  
**Canopycov:** The canopy cover of the nest area (as measured by densiometer).  
**Dist\_cent:** The distance, in cm, from the central trunk or stem of the nest plant.  
**Numsupbran:** The number of branches directly supporting(contacting below) the nest.  
**Diasupbran:** Average diameter of support branches, in mm.  
**Concealab:** Percent to which the nest is concealed from directly above.  
**Concealbe:** Percent to which the nest is concealed from directly below.  
**Concealno:** Percent to which the nest is concealed on the north side.  
**Concealso:** Percent to which the nest is concealed on the south side.  
**Concealea:** Percent to which the nest is concealed on the east side.  
**Concealwe:** Percent to which the nest is concealed on the west side.  
**Compdir:** Compass direction from center of nest substrate to nest location.  
**Totalcover:** Percent of cover offered by nest plant (compare to same species in area), also thought of as “percent alive.”  
**Lat & Lon:** Location of nest in Decimal Degrees or Universal Transverse Mercator (from GPS or USGS Quad).  
**Datum:** Datum for UTME and UTMN. Default is WGS84.  
**Elevation:** From topographic map, altimeter or generated by GPS reading (meters).

**DATES and DATE PRECISIONS (only use if not using nest program, if nest program fails, or you know exact date within 2 days (i.e., 4 days between checks)). These precision codes should be entered by you *before* closing out your nests.**

**Firstegg:** Date that first egg was laid.  
**Clutchdate:** Date that clutch was completed.  
**Cludatepre:** 1 character code for precision to which the *Clutchdate* is known.  
 2 = exact date known (within 24hr)  
 4 = date known within 2 days (4 days between checks) **or** exact *hatch* date known  
 5 = date within 3 (6 days between checks) days **or** exact *fledge* date known  
 6 = known within 5 days  
 8 = unknown  
 9 = no data  
**Hatchdate:** Date that first egg hatched.  
**Hatdatpre:** character code for precision to which the *Hatchdate* is known.  
 2 = exact date known (within 24hr)  
 4 = date known within 2 days **or** exact clutch or fledge date known  
 5 = date within 3 days  
 8 = unknown  
 9 = no data  
**Florfadate:** Date that nest either fledged or failed  
**Fledatpre:** 1 character code for precision to which *Florfadate* is known.  
 2 = exact date known (within 24hr)  
 4 = date known within 2 days **or** exact hatch date or clutch completion date known.  
 5 = date within 3 days  
 8 = unknown  
 9 = no data  
**Dpr:** The date the nest was first observed preyed upon.  
**Dup:** Most recent date that nest was observed to be active.  
**Offgridloc:** Township, range, and section.  
**P:** Computer determined predicted date of fledging or failing  
**D:** Last date nest observed active, filled in with computer program  
**P1, P2, and P3:** computer calculated values for the entire time the nest may have been active, with P1=laying, P2=incubation, and P3=nestling periods.  
**D1, D2, and D3:** computer calculated values for the entire time the nest was observed active, with D1=laying, D2=incubation, and P3=nestling period.

### Part 3: Nest Veg Data

#### A. Instructions for entering PRBO nest vegetation data

Nest vegetation data is entered in three files, Nestveg1.dbf, Nestshr.dbf, and Nesttree.dbf.

Nest veg1 contains one record for each completed vegetation form. The fields are described below.

<b>FIELD NAME</b>	<b>DESCRIPTION</b>
METTERRAD	Radius of veggie
YEAR	4 numbers for the year
STATE	2 characters for the state abbreviation
REGION	Up to 9 characters for region or county name
SITE	2 characters for specific site abbreviation
NESTID	8 characters for identifying code for individual nest. Should match the code used for nest data entry
USE	T or F for use or non-use site
SLOPE	3 numbers for slope
ASPECT	3 numbers for aspect
CANOPYHT	Avg height of the top of the canopy within 11.3 m
SHRUBCOV	3 numbers for shrub cover % within plot
FORBCOV	3 numbers for forb cover % within plot
LOGS	3 numbers for percent of ground cover which is logs
LITTER	3 numbers for percent of ground cover which is litter
GROUND	3 numbers for percent of ground cover which is bare ground
WATER	3 numbers for percent of ground cover which is water
DENS1-4	Canopy cover measurements using a densiometer
D 1-4 LOW/HIGH	Measurement in cm of lowest and highest canopy levels within the densiometer reading
LITDEPTH1-10	2 numbers for litter depth at 10 points

Nestshr.dbf contains one record for each shrub species listed under “Number of Shrub or Sapling Stems...” on the PRBO Shrub Nest Vegetation Form. The fields are explained below.

<b>FIELD NAME</b>	<b>DESCRIPTION</b>
METERRAD	Radius of veggie plot
YEAR	4 numbers for the year
NESTID	8 characters for identifying code for individual nest. Should match the code used for nest data entry
USE	T or F for use or non-use site
SHRUBSP	4 characters for each shrub species
AVGHTCM	Avg height in sampling circle of shrub species
HT LOW/HIGH CM	3 numbers for number lowest and highest height of shrub species
STEMS	Count the numbers of stems at 10cm
COVER	Percent of total shrub cover of each species within sampling circle

Nesttree.dbf contains one record for each tree species listed under “Number of Trees....” On the PRBO Shrub Nest Vegetation Form. The fields are explained below.

<b>FIELD NAME</b>	<b>DESCRIPTION</b>
YEAR	4 numbers for the year
NESTID	8 characters for identifying code for individual nest. Should match the code used for nest data entry
USE	T or F for use or non-use site
TREESP	4 characters for each tree species
DBH8to23	3 numbers for number of trunks of species listed in TREESP for DBH's of 8-23 cm.
DBH23to38	3 numbers for number of trunks of species listed in TREESP for DBH's of 23-38 cm.
DBHGR38	3 numbers for number of trunks of species listed in TREESP for DBH's greater than 38 cm.
SNAGS	3 numbers for number of snags for the species listed in TREESP
STUMPS	3 numbers for number of stumps for the species listed in TREESP

Nestforb contains one record for each forb species. Fields are explained below:

<b>FIELD NAME</b>	<b>DESCRIPTION</b>
YEAR	4 numbers for the year
NESTID	8 characters for identifying code for individual nest. Should match the code used for nest data entry
USE	T or F for use or non-use site
FORBSP	4 characters for each forb species
AVGHTCM	Avg height in sampling circle of shrub species
HT LOW/HIGH CM	3 numbers for number lowest and highest height of forb species

COVER

Percent of total shrub cover of each species within sampling circle

#### **Part 4: Transect Veg Data**

##### **A. Data entry**

- a) Copy the file Z:\data\_structure\palovegtrans.dbf (on Data Central's C: drive) to your local work space. **DON'T ENTER DATA INTO THIS ORIGINAL STRUCTURE!**
- b) Rename the file veg01.dbf (using the appropriate year)
- c) Open Visual FoxPro, and open the file you just created. Depending on your personal preference, use the APPEND command or the BROWSE command (CTRL-Y adds another record) to add records to the database table.
- d) Back this file up on data central and to a floppy at the end of your work.

## Part 5. Banding Data

Any bird that receives a line of data must be entered into the banding computer. It is essential that this data entry be done daily. The longer one waits to enter data the poorer the quality of data.

### A. ENTERING DAILY BANDING DATA (to be done the day it is collected!)

1. Use the banding computer for all banding data entry.
2. Choose the Visual FoxPro shortcut to band.exe icon on the desktop.
3. Hit Caps Lock
4. Select the Data option on the toolbar
5. **Weather:**
  - a. Select Enter Weather Data
  - b. Hit the *Add* button.
  - c. Enter any weather data from the previous day or days not yet entered, including low and high temperatures that are determined from the graph on the weather computer (see chapter 5: Weather Monitoring). Do not enter the current day's weather until the following day to ensure that the low temperature is correct, as temperatures could drop by midnight lower than they were in the morning. Fill in "Palomarin" for project.
  - d. Hit the *Exit* button when finished.
  - e. Be sure to mark the raw data as entered (with a horizontal red line next to each record).
6. **Net Hours:**
  - a. Select Enter Net Hours Data
  - b. Hit the *Add* button.
  - c. Enter date, loc, banders (enter the whole name and not just initials for volunteer banders), time of opening and closing of nets, total net hours, and notes. The additional notes should always include an explanation for any nets that were not run the entire time.
  - d. Hit the *Individual Nets* button to go to the next screen. Do this even if you had a complete banding day or if all of your nets that closed early were closed simultaneously.
  - e. Hit *Add Net Rows* to import records for your date and location of banding. Do this even if you had a complete banding day or if all of your nets that closed early were closed simultaneously.
  - f. If you had a complete banding day or all nets were closed at exactly the same time, hit *Save* (on both screens) and *Exit* now.
  - g. If not all nets were open for the same exact period of time, scroll between nets using the *Next Row* and *Previous Row* buttons. When a net is shown for which you had less than a complete day, modify the open, close, and hours times accordingly. If all of your nets closed early and at the same time, after you have added net rows you may exit.

- h. Hit the *Save* button (twice, on both screens) and then *Exit* when finished.
- i. Be sure to mark the data from the net hour sheet as entered (with a horizontal red line next to each record).

7. **Banding Data:**

- a. Select Enter Banding Data
- b. Hit the *Add* Button
- c. Please enter all data for birds netted that day.
- d. Type in all fields for each record, and mark each entered record in the raw data with a horizontal red line.
- e. The tab and return keys can speed navigation within the banding data entry screen. Tab moves forward one field or button, shift-tab moves backwards one field or button, and Return selects the “default” command button. When finished with one record and ready to add the next record, for example, hitting Return twice and then Tab twice will save your current bird, begin adding a new bird, and navigate to the first field of the new bird. (The Return key doesn’t work from the “notes” field. You must tab out of the “notes” field before using Return to select the “Save” button).
- f. When completed with all records, hit *Save* and *Exit* buttons.
- g. On the following page is a list of data fields and corresponding notes. For the most part they are the same as banding data sheet. **PLEASE RECORD 9 FOR DATA NOT TAKEN.**

Field Name	Description of Banding Data Entry Type
SIZE	Band size = 0,X,1,2,3,etc. Use RE for recaps.
INITIALS	Bander's initials
CODE	Band code, i.e. N=new, R=recap, U=Unbanded, C= Changed, L=lost, D=Destroyed.
BANDNUM	Enter complete band number: if not banded enter a 0. If hummingbirds are banded, replace the alphabetic code with the numbers it represents (Y = 3000, etc).
B	
SPEC	Enter 4 number AOU code
AOU	Enter AOU 4 number code
AGE	0,1,2,3,4,5 6, 7
HA1	How aged? J,H,A,W,C,B,I S,T,E,F,M,P,R,X, V or 9
HA2	How aged? J,H,A,W,C,B,I,S,T,E,F,M,P,R,X, V or 9
SEX.	M,F, or U
HS1	How sexed? J,H,A,W,C,B,I,S,T,E,F,M,P,R,X or 9
HS2	How sexed? J,H,A,W,C,B,I,S,T,E,F,M,P,R,X, or 9
SKL	Skull pneumaticization
BRP	Brood patch:0,1,2,3,4
CLP	Cloacal protuberance:0,1,2,3
FAT	Fat: 0, 1, 2, 3, 4, 5, 6, 7
MLT	Body molt: 1, 2, 3
FFM	Flight feather molt: 0 (absent), F (flight feather molt), or A (adventitious molt)
WWR	Wing wear: 1, 2, 3, 4, 5
FDL	Fade line: 1, 2, 3
WING	Unflattened wing chord length, in mm
WGHT	Weight in grams
STAT	000 if not banded, 300 if USF+WS band only, 301 if color banded, 615 if severely injured (and banded), 636 if held in captivity
DATE	mm\dd\year
TIME	3 numbers only rounded to the nearest 10 minutes, using 24-hr time. (1:15pm become "131")
LOC	PN,PS,G1,G2,G3,G4,OG, and 4 digits for offsites (PGUP, PIGU, MUHO), etc.
SITE	Net number or nearest single grid point
TCR	Tail or crown measurement, in mm. <b>For OCWAs and WIWAs whose crowns did not get measured be sure to enter "999"</b> . If crown = 0 be sure to enter it; do not just leave it blank.
TAR	Tarsus length, in mm
NEWCB	" If this is a changed colorband combination ,or the first time the bird is color banded, use "T" for true. Otherwise "F" for false
COLORS	Color band combination (e.g. OS/OO)
INJ	Injury codes - see above or list under Utilities menu in banding program
RES	Was injured bird released? Treated? See result codes above or in Utilities menu in program
COM	Put a "T" for true if there are notes on back, and if not, "F" for false
PROJECT	Enter appropriate project ("Palomarin" for all west Marin sites)

OLDBAND NOTES	# of the band that was removed from the recapture if the band was changed. Enter notes from backside of sheet. Tail length, tarsus measurements, color combinations, etc can be entered in the appropriate fields and do not need to be double-entered.
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**B. DAILY PROOF: PROOFING AND PRINTING BANDING DATA** (to be done the same day the data was collected and entered)

1. Before printing out proof, select Run Recap Report under the Proof menu. This allows you to see if there have been any erroneous current or prior data discrepancies for all recaptures for which data has been entered.
  - a. If you find that the data collected that day is incorrect, please make changes on the raw data and in the current banding data (using the View/Edit/Make corrections option under the Proof menu). Except for species discrepancies, change the incorrect data to unknown; do not change it to what it was determined on another date.
  - b. If you find that the historical data from the current year is incorrect, please make changes in the raw data and in band.dbf (choose by selecting Open under the File menu). Except for species discrepancies, change the incorrect data to unknown; do not change it to what it was determined on another date.
  - c. If you find that data from previous years is incorrect, please put this information on the Banding Data Errors form, on a clipboard in the banding lab, so that your supervisor can make changes to the historical database(s). **DO NOT MAKE ANY CHANGES DIRECTLY INTO ALLBANDPALO.DBF** (this is a different system than in other Terrestrial Program projects, where banders may directly update their respective allband database, depending on the directive of their supervisor).
  - d. Document any unresolved discrepancies on the Data Error form as well.
2. Select Proof/daily proof from the menu.
3. At the prompt for printing the proof, put legal size paper in the printer (**be sure to recycle all daily and monthly proofs**), and select “yes”.
4. Proof the data with two people, with one person reading out loud from the raw data and a second person simultaneously looking at the printout for errors. Thoroughly check all error codes, which might mean sifting through old data. A listing of error code meanings can be found under the Utilities Menu. (See **Helpful Computer Hints** at the end of the Palo Handbook for Foxpro commands and ways to look up old data).
5. Using red ink put a vertical line through the first slash on the raw data sheet, making a “+”, to show it has been proofed. On the printed page put a horizontal line if there were no mistakes, and a circle and if there are mistakes. If there are mistakes change the data in red on the printed page.
6. Make corrections in the FoxPro banding program under Proof then View/Edit/Make Corrections *or* by selecting and opening Mist under the File menu. Put a check mark next to each corrected mistake on the printout so you know it has been fixed.
7. Write “entered/proofed/corrected”, the date, and your initials on top of the proofed computer-printout and file it on the correct shelf. These only need to be saved until the monthly proof is completed, but should be recycled.

8. After all corrections have been made from the proof, choose “Palo finalize and backup” to save the data. This makes backups and moves the banding data from mist.dbf into band.dbf and allnumb.dbf.
- C. MONTHLY PROOF (to be done after all the data for a month has been collected, entered, proofed, and corrected, and finalized; in this process we completely proof all the data again - and we still find mistakes!).**
1. Make sure the correct paper is loaded into the printer.
  2. In the band program select Proof then Monthly proof. When you are prompted, select “yes” for Monthly proof (banding data), Net Hours, and Weather.
  3. Proof the data using the same exact process you use with the daily proof - reading off the raw data; and checking the computer generated error codes for the banding data.
  4. Once a line of banding data has been monthly proofed, the “+” sign next to it should be circled. For net hour and weather data, for which this is the first proofing process, make a “+” sign out of the “-” on the raw data sheets.
  5. Once proofing has been completed, check all raw data as well as the entire printout to be sure that all lines of data have been proofed.
  6. Make corrections by choosing Open under the File menu, and then selecting the appropriate database (band.dbf, nethrs.dbf, or weather.dbf) where you need to make corrections. Find your record that you need to edit and correct it.
  7. After all corrections are made, go into the band program (band.exe) and choose, under the Utilities menu, “Rebuild allnumb from band and historic project data”. Choose “allbandpalo.dbf” (when it asks you to select your historical database, and “band.dbf” when it prompts you for your current database. This rebuilds the allnumb database (used as a reference during the proofing program) by replacing all the current year’s data with the cleaned up data in band.dbf, as well as cleaned up data in allbandpalo.dbf. **DO NOT MAKE ANY CHANGES DIRECTLY INTO ALLBANDPALO.DBF.**
  8. To make a backup of your updated band.dbf, select, under the Proof menu, “Nonpalo Finalize and Backup”. Write “entered/proofed/corrected”, the date, and your initials on top of the proofed computer-printout and file it on the correct shelf. These only need to be saved for the duration of the year.

**D. Yearly Net Hours Proof**

At the end of each year, the general net hours database (not the by net database) is proofed a second time.

**Part 6. Point Count Data**

**A. Data entry**

1. Open Visual FoxPro
2. Under Program, choose DO and select z:\procedur\pc\pointcnt.exe
3. When prompted, select appropriate file (e.g., z:\palodata\pc\palopc04.dbf)
4. Push the "CAPS LOCK" key
6. Select “Enter point count data” and follow instructions.
7. Enter data using the following as an example:

<b>SPEC:</b> SOSP	<b>STATE:</b> CA
<b>Cue:</b> S=song, V=visual, C=call	<b>REGION:</b> MARIN
<b>Distance</b> (upper end of distance band; or FLO for flyover): 30	<b>STATION:</b> PALO
<b>How many? (with same data):</b> 1	<b>DATE:</b> 05/15/1998
<b>Breeding Observations</b> (see bottom of PC form): FL	<b>VISIT:</b> 1
<b>SITE:</b> 10	<b>INITIALS:</b> GG
<b>TIME:</b> 0710	
<b>Count duration:</b> 5 (minutes)	<b>Browse/correct data:</b> N

## B. Proofing and making corrections

1. To proof data, select "Proof a point count database"
2. Select your database (same as above).
3. Select "1" for "Data entry errors for one point count visit"
3. Select your transect and date from the list (if it's not there, one of them was entered wrong)
4. Proof data on screen against raw data forms. Before you do this, see your supervisor, as issues in how the program does proofing existed when this handbook "went to press", and you may need additional input.
5. Write in red on your data forms any corrections/deletions/additions that need to be made.
6. To make corrections, exit the point count program.
6. Open the file you want to correct by opening the folder icon and selecting your file.
7. Type *BROWSE* and locate records to be changed (or set filters; see *Helpful Computer Hints* section), and make corrections. To add records, do the data entry process above. To delete, select the blank square to the left of the record so that it appears black. When you've fixed an error, please indicate so on the raw data sheet (for instance, by checking off the error you had written in red while proofing).
8. Hit the CTRL and END keys at the same time to save the data.

## Part 7: Area Search Surveys

1. Open Visual Foxpro
2. Type or Choose under the toolbar *Program > Do > z:\palodata\as\as*
3. Select your database which will be named something like *Paloareasearch03.dbf*
4. Enter data by following the directions on the screen and using the following list of data fields and corresponding descriptions:

Spec	Four letter AOU code
Data	Means of detection (S = song, V = visual, C = call)
Forag	T (True) if observed foraging
Flock	T if a flock was observed
Displ	T if observed displaying
Pair	T if a pair was observed
Carry	T if a nest material, food, or fecal sac carry was observed
Nest	T if a nest was observed
Fledg	T if a fledgling was observed
State	California
Region	County, i.e. Marin
Station	Two letter code for name of study site, i.e. PI
Plot	Plot number
Initials	Data recorder's initials
Date	Date of census (mm\dd\year)
Numobs	Number of observers conducting census
Stime	Time census was started
Etime	Time census ended

5. To enter multiple numbers of one species of same data type from one census, when you are prompted with *How many?* type in the appropriate number.

## B. Proofing and making corrections

1. In FOXPRO command window, type *DO ASPROOF*, or select it under the *Programs > Do* toolbar.
2. Enter date (i.e. 08/25/2001)
3. Enter station code
4. Select appropriate database if necessary
5. Proof data: indicate corrections to be made on data sheet in red pen
6. Make corrections to database: open the file you want
7. Type *BROWSE* and locate records to be changed, make corrections, and hit the CTRL and END keys at the same time to save the data.

### Appendix 3: Helpful Computer Hints

Included here are a few helpful hints for some common computer questions and needs which seem to arise. For other questions that may come up, you may want to consult the FoxPro User's Guide or use the online HELP Function. To access the program's HELP either press F1 or write HELP in the Command Window.

#### Part 1: Basic Working Glossary

**Database File:** this is an organized collection of data. For example, all banding data for the year 1996 is stored in the database file *BAND1996*.

**Record:** this is a single entry, or line of data. For example, all the data taken of a given bird captured on a given day is entered into a single record.

**Field:** a record is often made up of numerous fields, or data items. To continue with the banding example, for each record there will be different fields for band number, species, date, age, etc.

**Data Types:** FoxPro stores different kinds of data differently: Data made up of a combination of letters and/or numbers is called "Character" data. When writing in the Command Window and referring to a Character data type, you must place the data in quotes (e.g. to look up color bands you would have to write *LOCATE FOR COLORS="WB/SK"*). Data made up solely of numbers is usually stored in a "Numeric" data type. No quotations are necessary when referring to this kind of data (e.g. to look up a band number you would write *LOCATE FOR BANDNUMB = 1231231234*). Dates are typically in "Date" fields. To look up Date data, you must enter the following: *LOCATE FOR DATE = CTOD("01/01/98")*. You will see the message "Data Type Mismatch" if you attempt to refer to a data type incorrectly (not putting Character data in quotations, or doing the opposite with Numeric data, etc.).

#### Part 2: General FOXPRO commands

You may type the following commands or look for them in the menus at the top of the screen. For more information on these and other FoxPro Commands, type *HELP* + the name of the command)

**USE:** allows you to open database files. Can either use the FILE menu and the OPEN choice to select the file you wish to open. Or, at the Command Window, type *OPEN FILENAME.dbf* (where FILENAME.dbf is the name of the file with which you wish to work).

**APPEND:** (F9)-gives you a blank copy of the database structure for entering data.

**SET CARRY ON:** duplicates data to the next record, so you do not have to retype all the data for each record each time (such as date or location). Type *SET CARRY ON* and hit return before typing *APPEND*.

**BROW** or **BROWSE**: allows you to look through data records already entered (F). You can also enter data from this mode, though it may not be as expedient.

**INDEX**: temporarily organizes data in ascending order of the values of a field you select. INDEX does not permanently change the order of data in a file.

For example, if you wanted to index file by band number to see consecutive bands of a given string, you would type *INDEX ON BANDNUMB* (where BANDNUMB is the field storing band number data). The prompt will then ask you to name the INDEX it will create. While you may give the INDEX any name you wish, it's generally best just to call it TEMP. If a prompt appears and asked if you wish to over-write the existing INDEX named TEMP, type *YES*. It will then create the INDEX, organizing the database in ascending order of band numbers. You can then find a particular band number by browsing (type *BROW*) the file (which is now temporarily in numeric order of band numbers) or by typing *FIND* and the desired combination. For example, to FIND the band number 1231231234, type *FIND 1231231234*. (However if you just want to find one particular record with a given band number, *LOCATE FOR* or *SET FILTER TO* are better commands for that purpose; see explanation below).

**DELETING blank or duplicate records from a FOXPRO file:** To do so, click once with the mouse at the left end of the record, on the space just to the right of the gray outline on the left side of the screen. If you have clicked in the correct spot you will see a dot marking the record for deletion. If you change your mind, simply click on the dot again and it unmarks the record for deletion. Or, if the record is no longer visible, you can type *RECALL ALL*. This recalls **all** records that have been deleted since the file was last packed. To completely delete the record you must write *PACK* after returning to the command window. **ONCE YOU PACK A FILE YOU CANNOT RECALL DELETED RECORDS. THEY ARE GONE FOREVER.** However, if you are certain that you no longer want that record, it is better to *PACK* the file.

#### **Banding Databases**

These are located in z:\palodata\band. There are a number of databases and we only describe pertinent ones. To learn about the databases used in banding and which ones you should look at for reference, select "Describe Databases" under the Utilities toolbar in the banding program.

Band.dbf –the current year's banding data

Mist.dbf – the current day's banding data before it has been proofed, finalized and saved.

**Allnumb.dbf** – a reference database that includes all years (including current) of Palomarin banding data. This one is the primary database that gridders will want to use.

Allbandpalo.dbf – a reference database of our entire banding dataset for the Palomarin region for all previous years.

When new banding data is entered but before it has been proofed and saved to *BAND.DBF*, it is stored in a temporary file called *MIST.DBF*. Particularly when correcting the daily proof you may need to access this file. Another way to access these files is to go under the menu at the top of the screen, select *FILE*, and then select *OPEN*. You may then directly select the file you want to open.

#### **Part 3: Looking up a bird**

You may want to look up the history of a bird that you have caught or that you have seen in the field (i.e. to see when it was first captured, or to find a missing color band).

**A. By band number for records in the BAND file:** For the current year, you may do the following:

1. Go into FoxPro
2. Select "Open" in the toolbar. Select the Z drive under Directory. Select Table.dbf under File Type. Open the Palodata\Band folder from the directory list. Open the appropriate file.
3. Use the filter methods below to locate the needed information.

**B. LOCATE FOR:** Open the Z:\Palodata\Band directory as above . Open the appropriate file. After you have opened up the desired database in which the bird is likely to be: *LOCA FOR BANDNUMB = 209096841* (LOCA is short for locate; FoxPro only the first requires 4 letters of a given command, but you can also write *LOCATE*).

If this band is found in the file you are looking in, the record number of the first record with that number will show up on bottom of the screen. If it is not found you will see EOF (End of Field), meaning the search reached the bottom of the file without finding the record you were searching for. To look at the record type *BROW*. There may be more records of this bird for the given year. To find out, type *CONTINUE* (or *CONT*) in the Command Window; if another record number appears, type *BROW* again.

Note: for some years before 1995 the band number needs to be in quotation marks. If you do not have it in quotes but it should be, or if you have it in quotes and it should not be, the program will alert you with the message: *OPERAND/TYPE MISMATCH..*

**C. SET FILTER TO:** You may want to browse all records that fit a certain criteria at once, instead of one at a time. For instance you may want to view all records of a certain bird (certain band number) for a given year. To do this you type *SET FILTER TO BANDNUMBER = 209097123*, for example (or simply *SET FILT TO...*) Then type *BROW*. See Section D below.

**D. Locating by color bands:** If you see a color banded bird in the field and are interested in its history, you may look it up with the following command once you are in your dbf of choice: *LOCA FOR COLORS = "RK/WS"*. As with band numbers, you may prefer to view all records of that bird for a given year at once, in which case you would use the *SET FILTER* command.

The formats *LOCATE FOR* and *SET FILTER* are good for all fields. To know the proper name of the field (i.e. *COLORS*, above) browse any band file and see what that field is called. Also note that all character fields must be in quotes and must be in capital letters if they were entered that way (i.e. "RK/WS", not "rk/ws" or RK/WS, and species as "SOSP" not "sosp").

**E. Locating or Filtering by a combination of fields.** You may wish to find records for a bird that fits two different criteria. This is especially true when looking up color banded

individuals as although two Wrentits will never have the same color combination, a Western Scrub-Jay and a Wrentit may. You must combine the 2 criteria with an *.and*. For example: *LOCA FOR COLORS = "RK/WS" .and. spec = "WREN"*, or *SET FILT TO COLORS = "RK/WS" .AND. SPEC = "WREN"*. You may also wish to find a bird that meets one of two criteria. The "or" function works as the "and" function, written as *.or*.

#### Part 4: Clumping data

**A. Counting the number of records that fit a certain criteria:** for instance if you wish to see how many new Wrentits were caught in a given year (note that "and" is written with a period before and after the word, as ".AND."): *COUN FOR SPEC = "WREN" .AND. CODE = "N"*

#### B. Setting a filter:

1. If you want to browse only data that fits certain criteria, i.e. all Winter Wrens:  
*SET FILT TO SPEC = "WIWR"*  
*BROW*
2. Once you have set the filter, you will only have access to the records under that filter setting unless you do one of the following:
  - a. if you set another filter, i.e. to another species, it will automatically "reset" your original filter.
  - b. if you simply wish to return to the complete database file with no filter settings, you must first turn off the filter by typing the following in the command window: *SET FILT TO*

**C. Dates:** there is a specific format for entering a date as one of your search fields. For instance if you wanted to look at all birds caught on 01/01/97, do the following: *SET FILT TO DATE = CTOD("01/01/97")*

To find look at all records between two dates (i.e. if you want to look exclusively at the month of July of a given year), type the following: *SET FILT TO DATE >= CTOD("07/01/97") .AND. DATE < CTOD("08/01/97")*

#### Part 5: Common Error Messages from FoxPro and What They Mean

**Operator/Operand Mismatch:** You've entered the type of data incorrectly (see Section A above), either not including quotes around Character data (e.g. writing *LOCATE FOR COLORS = RK/WS* instead of *LOCATE FOR COLORS = "RK/WS"*), putting quotes around Numeric data, or incorrectly writing Date data (e.g. writing *LOCATE FOR DATE = 01/01/98* instead of *LOCATE FOR DATE = CTOD("01/01/98")*).

**Invalid function argument value, data type or count:** Again, you've incorrectly entered data in the Command Window (e.g. writing *LOCATE FOR DATE = CTOD(01/01/98)* instead of *LOCATE FOR DATE = CTOD("01/01/98")*).

**End of Locate Scope:** This isn't really an error, but it may happen even when you are positive that the data you are looking for is in the file. You probably have a FILTER set. Type *SET FILTER TO* to turn the current filter off.