

ANALYZING A BIRD COMMUNITY

FIELD WORK

The best time to go bird watching is early morning. Use binoculars to spot the birds and a bird guide book to identify them. Record all bird observation on to the standard data collection sheet.

Bird Survey Record Sheet

Date: <u>17.12.05</u>	Weather: <u>sunny, cool</u>	Recorder/s: <u>LM, MT, CT</u>	File Name: <u>Restoration Plot 6 years old</u>
Block Number: <u>G1</u>	Plot Number: <u>EG-05</u>		
Start time: <u>7.47am</u>	Finish time: <u>10.30 am</u>		

TIME	SPECIES(COMMON NAME)	SONG OR SIGHT	NO. OF INDIVIDUALS	DISTANCE FROM POINT (M)	TREE (SPECIES/ LABEL)	POSITION (CROWN/ TRUNK ETC.)	ACTIVITY (FEEDING, PERCHING, DISPLAYING ETC.)
7.47	Black-crested Bulbul	sight	1	20	Eythrina stricta	crown	feeding and flying
7.52	Bar-winged Flycatcher-shrike	sight	5	30	Ficus altissima	crown	feeding and flying
8.06	Hill Blue Flycatcher	song	1	50	Betula alnoides	tree trunk	flying
8.08	Sooty-headed Bulbul	song	1	25	Gmelina arborea	crown	flying
8.15	Puff-throated Babbler	sight	2	15	Spondias axillaris	tree trunk	flying
8.23	White-rumped Shama (male)	sight	1	10	near Prunus cerasoides	ground	perching

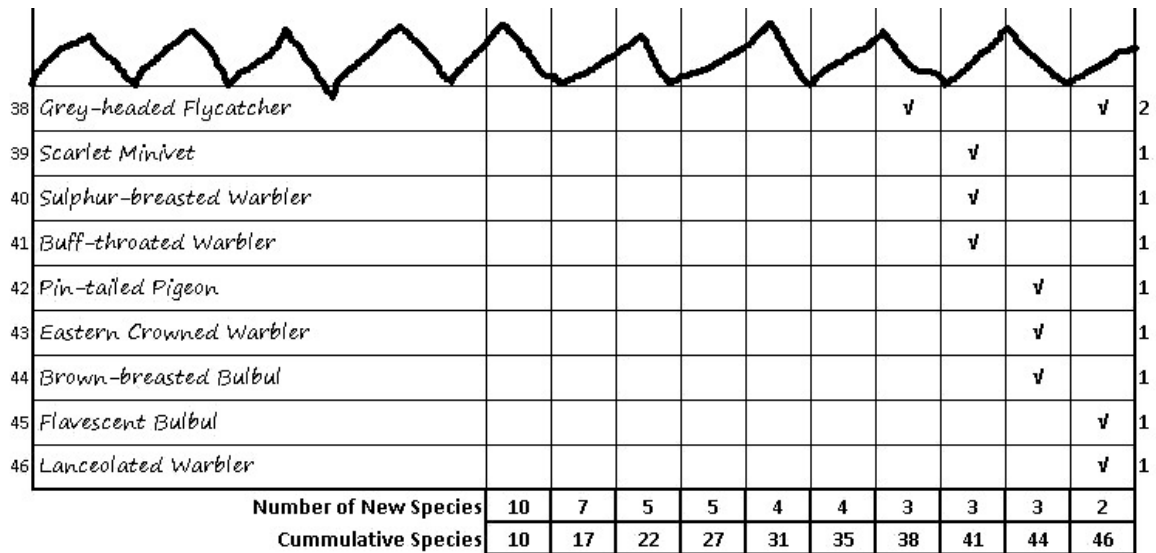
When you have finished field work, arrange the data sheets in order of time and then make a list of the first 10 DIFFERENT bird species that you saw down the left hand column on a table. Continue scanning the data sheets and in the second column of the table make a second list of 10 species, just as before. If you recorded a species already recorded in the first list, place a cross against its name in column 2. If you saw a species not already recorded in the first list, then add its name to the bottom of the species list. Repeat this process until you have ten lists. On any one list, each species occurs only once, but a single species may occur on more than one list or even on all of them.

McKinnon Bird Species List - 6 year old Restoration Plot

		List Number										No. of lists on which the species occurs
		1	2	3	4	5	6	7	8	9	10	
1	Black-crested Bulbul	✓			✓	✓	✓		✓	✓		6
2	Bar-winged Flycatcher-shrike	✓	✓						✓			3
3	Hill Blue Flycatcher	✓		✓	✓	✓		✓		✓	✓	7
4	Sooty-headed Bulbul	✓				✓	✓					3
5	Puff-throated Babbler	✓	✓	✓								3
6	White-rumped Shama	✓							✓	✓	✓	4
7	Yellow-browed Warbler	✓			✓		✓	✓	✓			5
8	Golden Spectacled Warbler	✓	✓	✓	✓		✓	✓		✓	✓	8
9	Golden-fronted Leafbird	✓										1
10	Verditer Flycatcher	✓				✓					✓	3
11	Lesser Necklaced Laughing thrush		✓									1
12	Long-tailed Minivet		✓	✓		✓		✓		✓		5
13	Green-billed Malkoha		✓						✓			2

The total number of bird species seen (by making ten lists) can be used as a reliable index of the bird community species richness.

- Count the numbers of new species found in each list and fill in the row marked "NO. OF NEW SPECIES".
- Accumulate the no. of new species in the bottom row of the table, e.g. the value for list no. 3 would be no. new species in list 3 + no. new species in list 2 + no. of new species in list 1. Plot a graph of cumulative no. of new species along the y axis and no. of lists along the x axis.



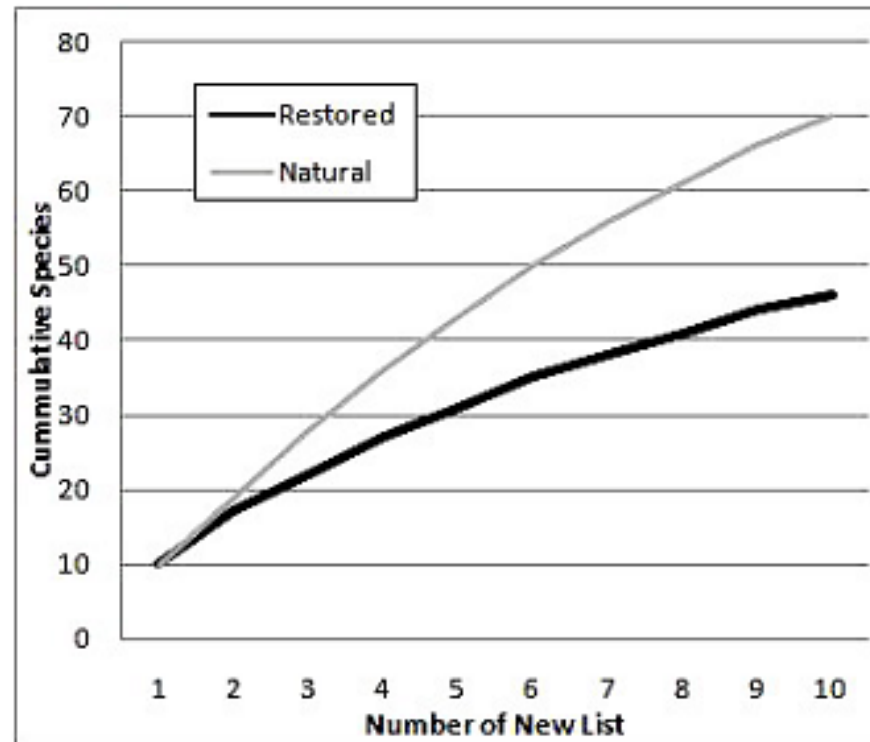
- Fill in the far right column on the data sheet marked "NO. OF LISTS ON WHICH SPECIES OCCURS" and fill in the table below:

NO. OF LISTS ON WHICH SPECIES OCCURS	1	2	3	4	5	6	7	8	9	10
NO. OF SPECIES OCCURRING ON THAT NO. OF LISTS (FREQUENCY)										
LOG ₁₀ FREQUENCY										

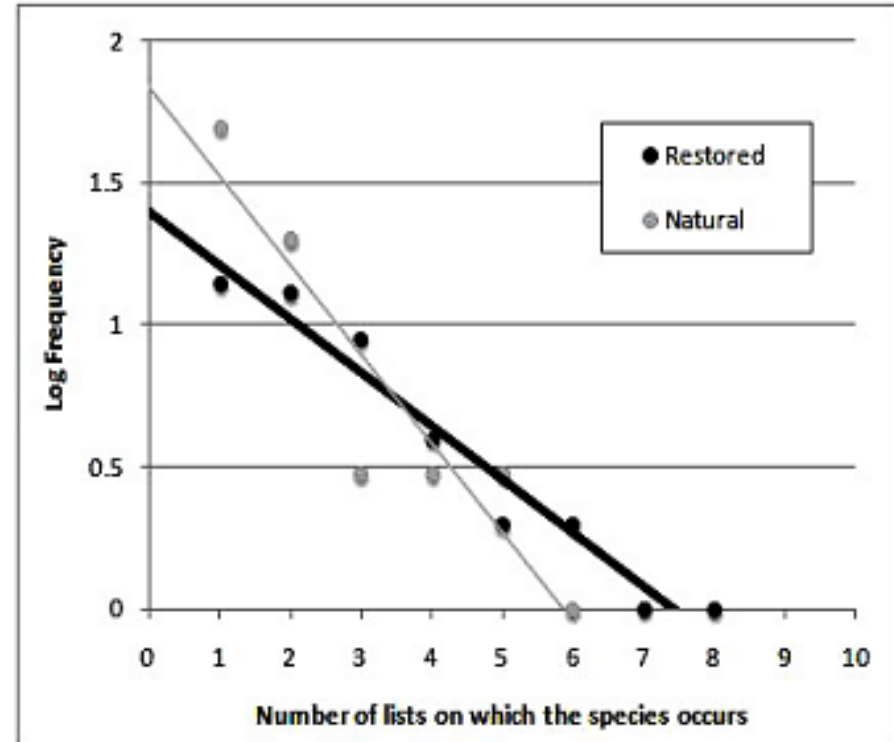
- Plot a graph of log frequency along the y axis and no. of lists on which species occur along the x axis.
- Extrapolate the line back to zero. Where the line crosses the y axis gives an estimate of the log no. of species not seen during the survey. Convert this log value into a number using antilog and add the result to the total number of species seen to obtain an estimate of the total number of birds in the community.

Dr. Steve Elliott,
20/09/18

Cumulative species-effort curves



Log Frequency



Extract the numbers of observed species from the species-effort curves (70 and 46 for natural "target" and restored forest respectively, above left). Plot the log frequency graph (right). Extrapolate the line-of-best-fit back to zero and read off the log values for the no. of species *not* observed. Convert the logs into numbers (1.84 and 1.40 = 69 and 25 species respectively). Add that number to the number of observed species, to arrive at an estimate of the total number of bird species in the community (139 and 71 species respectively).