0505

OTS FIELD PROBLEM
BIOLOGY OF TROPICAL VERTEBRATES, 1966

BIOLOGY OF SEEDEATERS
(Study made at Los Diamantes, March 15 and 17)

THE PROBLEM

Five species of seedeaters (Oryzoborus funereus, Tiaris olivacea, Volatinia jacarina, Sporophila aurita, and S. torqueola) occur in mixed flocks in grassy areas. An analysis of differences in foraging behavior, bill structure, diet, social organization and reproductive behavior should demonstrate the adaptations which make it possible for these birds to live together efficiently.

EQUIPMENT

6 12 meter bird nets
12 net poles, 8 ft. long
1 30 meter tape

1 compass

2 machetes
heavy string
scalpel, forceps, scissors
colored plastic leg bands

Each student should carry a cloth sack, binoculars, notebook, and millimeter rule.

PROCEDURE

With a six man team:

1. Two persons map the study area (we used a field about 200 meters long and 50 meters wide), the other four clear net lanes and set up nets. A preliminary sample of birds should be killed to demostrate specific differences and age and sex variation to the students. Furl nets.
2. For each bird, determine sex (by dissection), age (look at skull ossification), size of gonads, state of molt. Save crops and gizzards for later analysis. Map location and time of capture for each bird.
3. Open nets for 30 minutes (or 1 hour). Record species, sex, age, and evidence of building for all birds captured. Mark and release birds. (We marked them by pulling out certain tail feathers. Colored plastic leg bands would be much better. Furl nets. Recorder should collect data for each of the 6 nets.
4. For 1 hour, students should watch birds from individual observation posts, paying particular attention to feeding activities. Are there specific differences in places and methods of foraging ?
5. Open nets for 30 minutes (or 1 hour). Record same data as for preceding sample, plus number of marked birds (recaptures). Kill enough birds from this sample (or collect birds elsewhere) to bring the total of crops and gizzards up to at least 2 and preferably 4 individuals of each species. (In 1966, we ran the exercise with two groups of students, taking four netted samples in all).

In the laboratory:

6. Analyze crops and gizzards for evidence of qualitative differences in diet. Are food items taken different in size?
7. Make population estimate for total population (capture-recapture index) and for each species.
8. Summarize morphological, behavioral, and ecological differences in this group of

species.

SUMMARY OF RESULTS, WINTER, 1966.

1. Stomach analysis indicates that Volatinia eats the largest seeds, often in fragments; Oryzoborus (sample of six collected in a nearby field) eats fairly large, hard seeds; Sporophila aurita eats medium sized seeds; S. torqueola and Tiaris eat very small seeds, about same size. None contained insects. Opportunity for correlation of diet with bill structure is obvious.
2. A total of 158 birds was captured and marked (on two days, with two groups of students).

Birds captured:

	Male	Fem.	im.	TOTAL	%
Sporophila aurita	16	32	24	72	46
Sporophila torqueola	2	6	3	11	7
Tiaris olivacea	29	18	6	53	33
Oryzoborus funereus	-	-	1	1	-1
Volatinia jacarina	11	7	3	21	13
	58	63	37	158	100%

Calculated population

Last (of 4) samples: 36 birds, 4 recaptures = 1134 total population.
Next to last sample: 78 birds, 5 recaptures = 858 total.

Average of these two estimates gives a population of roughly 1000 birds which may not be far wrong. Eyeball estimates indicate that fewer than 1/5 of the birds seen were captured.
Sex and age composition were not analyzed but could have been.

SOME QUESTIONS FOR DISCUSSION:

What are the best ways to mark the birds?
Are the species equally vulnerable to netting?
Can food consumption be calculated in a meaningful way?
How would breeding affect results?
What are the implications of similarities and differences in plumages?
Note especially the similarity in corresponding plumages of Sporophila aurita and Oryzoborus funereus.

H. B. Tordoff
19 March, 1966.

O. T. S. ADVANCED BOTANY COURSE

FINAL SCHEDULE

FEB.-MAR. 1966

February 2 Introduction
3 "
4 "
5 Travel to Monteverde
6 Monteverde
7 "
8 "
"
10 To Taboga
11 Taboga
12 "
13 "
14 To San Jose
15 To Turrialba
16 Turrialba
17 "
k8 "
19 To Diamantes
20 Diamantes
21 "
22 "
23 "
24 To San Jose
25 Free day
26 La Palma
27 Cartago
28 Aserrí

March 1 To San Isidro
2 San Isidro
3 "
4 "
5 "
6 "
7 "
8 "
9 To San Vito de Java
10 San Vito de Java
11 "
12 "
13 "
14 "
15 "
16° "
17 To San Jose
18 To Barba
19 To Póas
20 To Irazú
21 To Taboga
22 Taboga
23 "
24 To San Jose
25 Research
26 "
27 "
28 End of Course
29 "
30 "