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Notes on the feeding habits of three species of Philippine weavers of the genus *Lonchura* *

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Field and laboratory observations were made on the feeding behavior of 3 species of Philippine weavers: *Lonchura leucogaster* (Tweedale), *Lonchura punctulata* (Sharpe), and *Lonchura malacca* (Martens). Feeding in ricefields occurred twice daily and examination of crops showed two main food items: *Oryza sativa* (rice) and *Echinochloa* seeds. Intake of individually caged birds showed daily food consumption for all 3 species of about 3 grams.

The Philippine weavers, known as "maya" in most Filipino dialects, are readily recognized by local farmers more than most Philippine birds due to the destructive feeding of these birds on rice and other small grain crops. Three species of Philippine weavers, also called mannikins, of the genus *Lonchura* are quite common in Luzon provinces. These are the nutmeg mannikin—*Lonchura punctulata* (Sharpe), the white-breasted mannikin—*Lonchura leucogaster* (Tweedale), and the chestnut mannikin—*Lonchura malacca* (Martens). Except

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for *L. punctulata*, the other two species are widely distributed throughout the country (1,2). These birds are rather small, measuring 4 inches from the tip of beak to the end of tail and have an average weight of 11 grams. They are gregarious and are usually seen in flocks (3); flocks of 500 individuals are not uncommon.

Materials and methods

Birds were collected from January to March in two localities, one in the International Rice Research Institute (IRRI) millet experiment plots at Los Baños, Laguna, and the other in barrio Maytalang I, Lumban, Laguna. The latter site provided most of the birds and observations. In this area, the birds were collected from fields of dough stage rice where *Echinochloa* weeds were abundant in some paddies. The roosting place of the weavers was located about one kilometer from the infested ricefield, and was composed primarily of reeds (*Phragmites australis* (Cav.) Trin. ex Steud), locally known as "tambo" in Tagalog. Some birds were also collected in the roost.

The birds were collected by means of 40- and 60-ft. mist nets with 1.5 inch mesh. Those caught in the morning were placed in a holding cage and brought to the laboratory for the daily consumption experiments. Those caught in the afternoon were killed immediately so crops could be removed and placed in a 10% formalin solution. Crop contents of 54 *L. leucogaster*, 39 *L. punctulata* and 10 *L. malacca* were examined under a dissecting microscope, and the weight of each food item measured separately.

Observations on the feeding behavior of the weavers in the ricefields were made every hour from sunrise to sunset for one week using 7 x 35 mm binoculars.

In the daily consumption experiment, 30 birds (12 *L. punctulata*, 12 *L. leucogaster*, and 6 *L. malacca*) were placed in separate cages. Each bird was first offered palay for 7 days then polished rice for 7 days (water *ad libitum*). The initial weight of the food given each day was 25 grams. Bait changes

were made at night to minimize disturbance and insure availability of food for early morning feeding.

Results and discussion

Only 2 main food items were found in all 103 crops: rice (*Oryza sativa*) and *Echinochloa* seeds (Table 1). Some had traces of other weed seeds of insignificant quantity; no effort was made to identify these other seeds. The paired t-test of the

Table 1. Crop content analysis of 103 *Lonchura* sp. collected in dough stage rice where *Echinochloa* was abundant in some paddies.

Species	Sample size	Rice		<i>Echinochloa</i>	
		Wt. (g)	%	Wt. (g)	%
<i>L. leucogaster</i>	54	0.60	60.0	0.40	40.0
<i>L. punctulata</i>	39	0.61	63.6	0.35	36.4
<i>L. malacca</i>	10	0.61	46.0	0.71	54.0

mean weights of each food item showed that *L. leucogaster* and *L. punctulata* crops contained significantly more rice than *Echinochloa*, while *L. malacca* contained equal amounts of both foods. The amount of rice found in the crops was about equal for all species; however, considerably more *Echinochloa* was eaten by *L. malacca* than the other two species. Consequently, crop contents averaged slightly more (0.3 gram) for *L. malacca* than for *L. leucogaster* and *L. punctulata* (Table 1). There was a negative correlation between the amount of rice and *Echinochloa* in all species. A large amount of rice resulted in a low amount of *Echinochloa* and vice versa.

The two main food items, rice (*Oryza sativa*) and *Echinochloa*, recovered from the crops of these birds were also included in the list of food plants of Philippine weavers made by Manuel

Table 2. Daily mean consumption in grams of palay per bird.

Days	<i>L. leucogaster</i> 12 birds	<i>L. punctulata</i> 12 birds	<i>L. malacca</i> 6 birds
1	3.23	3.18	3.05
2	2.91	2.47	2.25
3	4.42	4.50	3.72
4	4.75	4.23	3.80
5	4.07	3.62	3.08
6	2.98	2.88	2.97
7	3.12	3.12	2.80
Over all X ¹	3.63 a	3.42 a	3.09 b

¹ Means followed by the same letter are not significantly different at 5% probability level.

(4). Gonzales et al. (5) also reported grass seeds as chief constituents in the stomachs of *L. leucogaster*. Manuel (6) reported that "...Philippine Weavers frequently visit rice fields when this grain is in head. And during this period the percentage of rice in the food of the birds is more than at other times..."

Table 3. Daily mean consumption in grams of polished rice per bird.

Days	<i>L. leucogaster</i>	<i>L. punctulata</i>	<i>L. malacca</i>
1	2.85	2.75	2.70
2	3.00	2.65	3.00
3	2.85	3.25	2.80
4	3.00	3.05	3.00
5	2.95	3.10	2.90
6	3.10	3.10	3.20
7	3.00	2.85	2.90
Over all X	2.96	2.96	2.93

The apparent larger amounts of palay than polished rice consumed in the feeding trials is probably a behavioral response to caging (Tables 2 and 3). An adjustment period appeared to start on the second day by a noticeable decrease in consumption. This could also explain the smaller intake of palay for *L. malacca*. This species could respond more adversely to caging and require a longer adjustment period. The increased consumption on the 3rd to the 5th day could have been a compensatory effect for what was lost on the 2nd day. Feeding was more stabilized during the remainder of the trial.

Feeding activity of the weavers in the ricefields at Lumban peaked twice during the day. Morning feeding began just after dawn lasting until about 10:00 A.M., while the second feeding period was in the afternoon at about 3:00 P.M. and lasting until dusk. No effort was made to check where the birds spent the hours between these major feeding periods.

Farmers were removing most of the *Echinocloa* heads from the ricefields at Lumban during our studies; it was not determined if this was an attempt to discourage the birds from feeding in the area or for some other reason.

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