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 The nature and amount of damage to rice by three species of Philippine weavers, *Lonchura malacca*, *L. leucogaster*, and *L. punctulata*, were determined by exposing single potted plants to individually caged birds for 24 hr. Overall damage to green and mature rice was about the same for the three species. On the average, each bird destroyed 394 green and 338 mature grains. These figures represent 30% to 50% of the total grains exposed or 7.0 to 10.4 g of rice (14% moisture content) per bird-day.

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### **Damage potential of three species of Philippine weavers (*Lonchura*) \***

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The nature and amount of damage to rice by three species of Philippine weavers, *Lonchura malacca*, *L. leucogaster*, and *L. punctulata*, were determined by exposing single potted plants to individually caged birds for 24 hr. Overall damage to green and mature rice was about the same for the three species. On the average, each bird destroyed 394 green and 338 mature grains. These figures represent 30% to 50% of the total grains exposed or 7.0 to 10.4 g of rice (14% moisture content) per bird-day.

The Philippine weavers are among the most destructive pests of rice and other small grains. Alviola et al. (1) found the average daily rice intake of individually caged birds to be about 3 g. In the field, however, these birds not only eat to meet their nutritional requirements, but also cause additional damage in terms of shattered grains, broken panicles, and other physical injuries. Considering that these birds

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are gregarious and are usually seen in flocks, their potentials as pests are not to be discounted.

This study was conducted to describe the nature and amount of damage to green and mature rice by three species of Philippine weavers, *Lonchura malacca* (Martens), *L. leucogaster* (Tweedale), and *L. punctulata* (Sharpe).

### Materials and methods

Birds caught by netting in Lumban and Victoria, Laguna were first made to adjust to caging for at least three days prior to tests for their potential damage to green and mature rice grains as suggested by Alviola et al. (1). After the adjustment period, four birds of each species were individually caged with single potted rice plants (C-22 variety) each with an average of 8 panicles. The birds were introduced to the plants shortly before 0500 hr and removed at about the same time the following day. For this purpose, twelve cages, made of 1/2-inch wire mesh covering a square meter area and a height of 1-1/2 m, were each used to enclose both the potted plants and the birds. The birds were provided with roosts, partial shade, and a dish of drinking water for the 24-hr feeding period.

The following data were recorded for each plant starting with the tallest panicle: number of grains totally or partially eaten, number of grains shattered and total number of filled grains. The potential damage was determined in terms of total damaged grains (eaten and shattered), percent of the total grains damaged, and weight of mature grains damaged based on the weight of 100 filled grains at 14% moisture content. The type of damage inflicted were also described. The damage indices were statistically tested for differences among the bird species. Separate analyses were made for each index of damage and maturity of grain.

### Results and discussion

The three species fed while perching on the panicles. *L. leucogaster* was the only species observed to feed on fallen

Table 1. Damage potential on rice hill exposed for 24 hr to three species of Philippine weavers (*Lonchura*), November to March 1974.

| Type of rice | Type of damage              | <i>L. malacca</i> |      | <i>L. punctulata</i> |      | <i>L. leucogaster</i> |      |
|--------------|-----------------------------|-------------------|------|----------------------|------|-----------------------|------|
|              |                             | Range             | Mean | Range                | Mean | Range                 | Mean |
| Green        | No. of grains eaten         | 68-566            | 336  | 191-441              | 340  | 59-451                | 186  |
|              | No. of grains shattered     | 5-120             | 43   | 24-229               | 115  | 43-133                | 82   |
|              | Total no. of grains damaged | 144-618           | 380  | 299-605              | 454  | 145-637               | 349  |
|              | Total no. of filled grains  | 548-1791          | 1159 | 688-2263             | 1308 | 713-1638              | 1209 |
|              | Percent damage              | 12.1-80.3         | 35.5 | 13.2-64.1            | 41.9 | 14.9-49.8             | 29.3 |
| Mature       | No. of grains eaten         | 117-262           | 176  | 86-163               | 138  | 183-257               | 214  |
|              | No. of grains shattered     | 52-179            | 101  | 36-133               | 68   | 32-71                 | 46   |
|              | Total no. of grains damaged | 221-536           | 379  | 184-499              | 330  | 249-363               | 306  |
|              | Total no. of filled grains  | 724-1538          | 1064 | 426-1377             | 850  | 708-1469              | 1077 |
|              | Percent damage              | 20.1-55.2         | 37.3 | 30.2-56.8            | 40.3 | 23.2-38.5             | 30.5 |

grains. Other types of damage consisted of shattered filled grains and broken panicles. The three species exhibited different feeding behaviors. *L. malacca* and *L. leucogaster* removed the grains from the panicles by opening the husk at the mid-section. *L. punctulata*, on the other hand, squeezed the grain content out of the husk, especially the green rice, without necessarily removing the grain from the panicle. Damage by *L. malacca* and *L. leucogaster* was indicated by missing grains. *L. malacca* usually stripped the grains near the panicle base or near the tip of the panicle, while grains damaged by *L. leucogaster* were scattered throughout the length of the panicle. Damage inflicted by *L. punctulata* was indicated by white powdery coloration on the partially opened grains.

Table 1 summarizes the damage potential of each species to green and mature rice. Analysis of variance tests made on these indices showed that the three species had about the same damage potential, except in the number of green grains eaten; *L. leucogaster* consumed significantly less than the other species. The wide ranges of the different indices show the great variation of damage potential from bird to bird, even within the same species.

Overall damage to green and mature rice was about the same for the three species. On the average *L. malacca* destroyed 380 green and 379 mature grains; *L. leucogaster* 349 green and 306 mature grains; and *L. punctulata* 454 green and 330 mature grains. These figures represented 30% to 50% of the total grains exposed, or 7.0 to 10.4 g of rice (14% moisture content) per bird-day.

#### Literature cited

- (1) P.L. Alviola III, F.F. Sanchez, and E.A. Benigno (1973). *Kalikasan Philipp. J. Biol.* 2: 149.