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DECEMBER FOOD HABITS OF THE MALLARD (ANAS PLATYRHYNCHOS LINN.) IN THE GRAND PRAIRIE OF ARKANSAS

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INTRODUCTION

Recognizing the need for more study of the food habits of wintering waterfowl in Arkansas, the Arkansas Game and Fish Commission and the University of Arkansas began in 1960 this cooperative project (PR-W-56-R-1) to determine the winter food habits of the mallard **(Anas platyrhynchos)** in the Grand Prairie Region of eastern Arkansas. The objectives of the investigation were to determine the kinds of food eaten and the food preferences by analyzing the crop contents.

Very little recent information has been published concerning the winter food habits of the mallard in Arkansas. McAtee (1918) analyzed 1,725 gizzards, of which only a small portion were taken in Arkansas. Martin and Uhler (1939) examined the contents of 382 gizzards, from several species of ducks collected in Arkansas, but only five were taken from the Grand Prairie area. The most recent intensive study of the Grand Prairie was that of Wright (1959) in which 583 mallard crops were examined.

Arkansas is a major rice-producing state. In both 1960 and 1961, a total of 384,000 acres was devoted to rice culture, most of which was in the Grand Prairie area (U.S.D.A. 1961 and 1962). About one-half of the rice acreage is rotated with soybeans, cotton, cattle and fish (Wright, 1959). The concentration of wintering waterfowl in this area is enhanced by rice culture, and the practice of flooding the rice fields for hunting purposes and for fish culture after the rice has been harvested. The major forest cover types in the Grand Prairie area are bottomland hardwoods along the rivers and terrace hardwoods or "flatwoods" next to the bottoms (Holder, 1951).

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METHODS

The 300 crops collected for this investigation were obtained at the Standard Ice Company, Stuttgart, Arkansas, on December 7, 18, and 30, in 1960, and on December 2, and 3, in 1961. These were taken

from ducks killed by hunters in the Stuttgart area and brought to the above establishment for cleaning. Each crop was wrapped in cheese cloth, placed in containers of 10 per cent formalin, and labeled.

In the laboratory each specimen first was assigned a catalog number. Then the crop contents were removed and wrapped in a piece of wet cheese cloth for immersion in water to measure the volume by displacement. Next the contents were placed in a numbered petri dish and dried by heating. When dried, the contents were separated and identified by comparing the contents with reference collections in the University of Arkansas Herbarium.

The percentage of the total bulk of each of the identified constituents was estimated visually after spreading the contents on a grid. Using the percentages of bulk the relative volume of each kind of food was calculated from the total volume.

RESULTS AND DISCUSSION

In the 300 crops analyzed, rice was the dominant food composing the largest per cent of the total volume and the largest per cent of weight (Table 1). Rice was followed by **Echinochloa***, then soybeans, **Paspalum,** witchgrass, bull paspalum, and sorghum, in decreasing order of volumes. Rice was followed in decreasing order of weight by **Echinochloa, Paspalum,** witchgrass, bull paspalum and sorghum. Rice also was the most frequent in occurrence (frequency in Table 1) followed by **Echinochloa,** bull paspalum, **Paspalum,** and insects. ("Frequency" is the per cent of the crops in which a particular item was found, and "occurrence" is the number of crops in which a particular item was found.)

Rice comprised 70 per cent of the total volume, 79 per cent of the total weight, and occurred in 90 per cent of the crops. This volume of rice was considerably higher than that found by Wright (1959) in the same area, in which rice composed 47.4 per cent of the total volume. Dillon (1959) found that rice composed only 24.3 per cent of the total volume, in a rice growing region of Louisiana. However, rice was the major single food item in both of these studies.

Echinochloa was second to rice and composed 17 per cent of the total volume, 12 per cent of the total weight and occurred in 70 per cent of the gullets. Wright (1949) found the per cent total volume of **Echinochloa** to be somewhat less than this, totaling 11.1 per cent, and placing third in importance behind rice and acorns. Dillon (1959) reported that the combined total of **Echinochloa colonum** and **Echinochloa crusgalli** was 28.7 per cent of the volume yielding a combined volume greater than that for rice, but separately ranking third and fourth respectively.

Soybeans comprised 4 per cent of the volume, 2 per cent of the

*Jungle rice and barnyard grass are combined in the genus **Echinochloa**.

Table 1. Analysis of the Contents of 300 Mallard Crops

Name		Volume	Percent	Weight	Percent		Frequency
Common	Scientific	(cc.)	volume	(grms.)	weight	Occurrence	(per cent)
Rice domestic	Oryza sativa	6,107	70	2,631.5	79	270	90
Barnyard grass	Echinochloa crusgalli						
Jungle rice	Echinochloa colonum	1,431	17	440.9	12	210	70
Soybeans	Glycine soja	325	4	90.4	2	18	6
Paspalum	Paspalum	313	4	102.1	3	53	18
Common witchgrass	Panicum capillare	178	2	61.7	1	18	6
Bull paspalum	Paspalum boscianum	130	1	40.6	1	66	22
Sorghum	Sorghum vulgare	73		33.2		2	1
Acorns	Quercus	46		16.0		5	2
Marshpepper smartweed	Polygonum hydropiper	5		2.3		15	5
Pennsylvania smartweed	Polygonum pennsylvanicum	4		2.1		3	1
Swamp smartweed	Polygonum hydropiperiodes	3	2*	1.4	2*	5	2
Flatsedge	Cyperus	3		1.2		3	1
Insects	Insecta	2		0.9		39	13
Inorganic		2		1.5		25	8
Unidentified		2		1.0		2	1
Snails	Gastropoda	1		1.1		7	2
Smartweed	Polygonum	T		T		2	1
Panicum	Panicum	T		T		3	1
Crayfish	Crustacea	T		T		3	1
Total		8,626	100	3,428.9	100		

*Sum of categories less than 1 per cent.

weight, and occurred in 6 per cent of the crops, and was the third most important food item in the present study. The per cent of soybeans found by Wright (1959) was 6.1 per cent and ranked fourth in importance as a food item. Dillon (1959) did not find soybeans in his investigation, and the third ranked food item was **Paspalum plicatulum.**

Paspalum species constituted 4 per cent of the total volume, 3 per cent of the total weight, occurred in 18 per cent of the gullets and ranked fourth in importance. This was not found to be a major item by Wright (1959), or Dillon (1959).

Panicum capillare composed 2 per cent of the total volume, 1 per cent of the total weight, occurred in 6 per cent of the crops and ranked fifth in importance. **P. capillare** was not a major food in the study by Wright (1959) and was not present in the results of Dillon (1959).

The large amount of rice found in the 300 crops analyzed indicates that it was the most important food available to the mallard during the month of December in the Grand Prairie Region of Arkansas. **Echinochloa,** soybeans, **Paspalum,** witchgrass, and bull paspalum were also major food items of the mallard diet, but the combined weights and volumes were approximately only one-third that of rice. The combined volumes of rice and **Echinochloa** comprised 87 per cent of the total volume and their combined weights were 91 per cent of the total weight. The weight and volume of rice was greater than the combined weights and volumes of all other identified items.

SUMMARY

This study was conducted in order to determine the winter food habits of the mallard in the Grand Prairie area of eastern Arkansas.

The 300 duck crops used in this investigation were collected at the Standard Ice Company in Stuttgart, Arkansas.

Rice was the principle food based on weight and volume. Rice was followed by **Echinochloa,** then soybeans, **Paspalum,** witchgrass, bull paspalum and sorghum in decreasing order of volumes. Rice was followed in decreasing order of weights by **Echinochloa, Paspalum,** witchgrass, bull paspalum, and sorghum.

Rice was the most frequent in occurrence, followed by **Echinochloa,** bull paspalum, **Paspalum,** and insects.

The weight and volume of rice was greater than the combined weights and volumes of all other identified items.

LITERATURE CITED

Dillon, O. W. 1959. Food habits of wild mallard ducks in three Louisiana Parishes. Trans. 24th N. Am. Wildl. Conf., p. 374-382.

Holder, T. H. 1951. A survey of Arkansas game. Ark. Game Fish Comm., PR-11-R, 155 pp.

McAtee, W. L. 1918. Food habits of the mallard ducks of the United States. U. S. Dept. Agric., Bull. No. 720, 36 pp.

Martin, A. C. and F. M. Uhler. 1939. Food of game ducks in the United States and Canada. U. S. Dept. Agric., Tech. Bull. No. 634, 157 pp.

U. S. Department of Agriculture. 1961. 1960 Agricultural Statistics for Arkansas. Univ. Ark. Agric. Exp. Sta., Rept. Ser. No. 101, 44 pp.

_____. 1962. 1961 Agricultural Statistics for Arkansas. Univ. Ark. Exp. Sta., Rept. Ser. No. 101, 44 pp.

Wright, T. W. 1959. Winter foods of mallards in Arkansas. Proc. SE. Assoc. Game and Fish Comm., 13:291-296.