

CROWS' FAVORITE FOODS AROUND KOBE HIGH SCHOOL AND HOW TO DISTINGUISH THE CONTENTS OF GARBAGE BAGS

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THE PURPOSE

1. Find out what crows like and dislike.
2. Find out how crows can tell what's inside a garbage bag.

HYPOTHESES

1. It is said that *corvus macrorhynchos* generally prefer meat with a lot of fat to vegetables, and we think so too.
2. Crows are highly intelligent animals, and many people think that crows hunt for garbage bags containing food. But we hypothesize that crows will not actually be able to discern what is in the garbage bag, and will pick the garbage bag at random.

PRELIMINARY EXPERIMENT

In order to observe the crows, we searched for where to place a camera and food. As a result, we found crows would come if we placed camera on the rooftop of the main building and food on the rooftop of science building. And due to the following external features, we found crows around Kobe High School are *Corvus macrorhynchos*

Corvus corone

The beak is thin and not very curved.

They walk like people



Crows around Kobe high school

Corvus macrorhynchos

The beak is thick and the upper beak is curved.

They move like jumping

EXPERIMENT I

Experimental method

We placed food on the roof of the main building, and took a video.

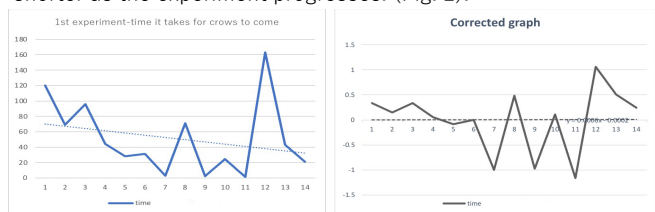
We placed cucumbers, potatoes, bananas, fish (Greenland halibut) and meat (chicken) on paper plates.

Each portion of food is about 90 gram.

The experiment was performed 14 times in all, and their arrangement them was randomized.

Result

Figure 1 is a graphical representation of the time it takes for a crow to arrive for each experiment. The difference was so large that it was difficult to understand, so the graph was converted to logarithm. Furthermore, as the crows learn the location of the food, it is thought that the time to retrieve it will become shorter as the experiment progresses. (Fig. 2).



Graph1

Graph2

1meat 2banana 3potato 4cucumber 5banana 6meat 7fish 8potato 9potato 10cucumber 11fish 12cucumber 13banana 14meat

1st	-1.08	fish
2nd	-0.04	potato
3rd	0.14	banana
4th	0.19	meat
5th	0.31	cucumber

Table3



Table 3 shows the averages of the data in Fig. 2 for each food type. Based on Table 3, the favorite foods were shown in order from top to bottom:

EXPERIMENT II

Experiment method

We place the fish and cucumbers in a garbage bag with an empty plastic bottle, and place three garbage bags on the rooftop without food in the remaining one.

We will investigate whether the crow can identify the contents of the garbage bag from the way the crow pecks the garbage bag and the change in the garbage bag after collection.

Result

The garbage bag with the cucumber and the garbage bag with the fish were poked the same number of times. However, sometimes they wouldn't eat the contents even if they poked a garbage bag with cucumbers in it. So the cucumbers were left inside or outside the garbage bags. A garbage bag containing only plastic bottles was also poked, but there were less holes.

fish	first	second	third	fourth	fifth
poked	○	×	○	○	○
eaten	○	×	○	○	○
cucumber	first	second	third	fourth	fifth
poked	×	×	○	○	○
eaten	○	×	○	×	△
only garbage	first	second	third	fourth	fifth
poked	×	×	○	○	×
eaten	×	×	×	×	×



After finishing this experiment, we placed three empty garbage bags on the rooftop. As a result, two of them were poked.

CONSIDERATION

In Experiment 1, the crows around Kobe High School liked fish the most and cucumbers the least. We thought the reason they didn't like chicken so much was because it had less fat. Also, from experiment 2, it is thought that the crows poke garbage bags at random. However, since there was a trend in the number of holes, we thought that the contents were recognized after stabbing.

FUTURE PROSPECTS

A third experiment explores how crows find objects in garbage bags (for example, by smell or by sight). In addition, I would like to observe the difference in the behavior of crows when the type of garbage bag changes, and think about how to reduce the damage caused by crows.

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