

Passage 1 - Research Summary of beak depth (biology)

Overall:

Island A - both *G. fuliginosa* and *G. fortis* present

Island B - only *G. fortis*

Island C - only *G. fuliginosa*

-both species eat seeds

-shallow beaks are good for only small seeds

-deeper beaks are good for large and small seeds (though small seeds are still preferred)

-beak depth is inherited and, therefore, controlled by genetics

Study 1:

-Two types of birds on three islands

-beak depth is on the x-axis and percent of captured finches is on the y-axis for all three figures

-one figure per island: A, B, and C

-all scales (numbers) on the x- and y-axes are the same in the three figures

Results:

In Island A, the two species have formed distinct beak depth patterns. *G. fuliginosa* has much comparatively shorter beaks. Inference: Since both finch species are on this island, they have adapted to the 'competition for resources' over the generations and formed distinct groups. The deeper beak of the *G. fortis* may be an adaptation to the lack of small seeds for all the finches.

In Island B and C, only one type of finch is present and, on average, they have shallow beaks. Inference: In Island B and C, since either *G. fortis* or *G. fuliginosa* are alone, they do not have competition for resources and can stay with shallower beaks with no problems. All finches prefer smaller seeds, and only need the shallow beak for small seeds.

For *G. fortis*, the range of beak depths is great on Island A than on Island B.

For *G. fuliginosa*, the range of beak depths is a little bit smaller on Island A (7.25 to 9.25) than Island C (8.25 to 10.75).

Study 2:

In Island B (*G. fortis* only), the researchers measured beak depth for 10 years. They also recorded whether the year was wet or dry.

Wet weather - lots of small seeds

Dry weather - less seeds overall, and more of them are large

Inference: In wet weather, the beak can be shallower since there are lots of small seeds. In dry weather, the beak needs to be deeper to be able to crack the large seeds.

Results:

In 1976, 79, 81, 83, 84, and 85, the beaks are shallower. Inference: These years could be more wet, on average.

In 77, 78, 80, and 82, the beaks are deeper. Inference: These years could be more dry, on average.

Notes:

Both studies, if read on their own, make no mention of the shallow beak being suitable for small seeds and the deeper beak being better for large seeds. Without reading the info in the second paragraph of the passage, this would be very confusing studies to understand!