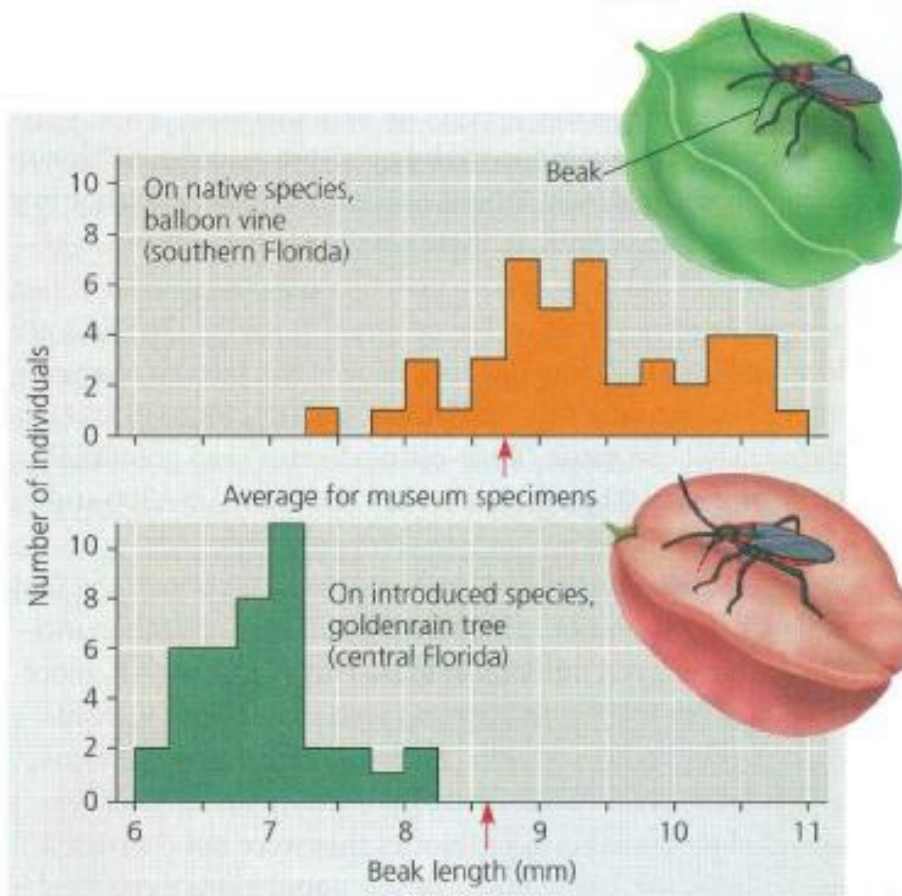


## Soapberry Bug Beak Evolution



Soapberry bugs feed most effectively when the length of their “beak” is similar to the depth of the seeds within the fruit. Researchers measured beak lengths in soapberry bug populations feeding on the native balloon vine. They also measured beak lengths in populations feeding on the introduced goldenrain tree. The researchers then compared the measurements with those of museum specimens collected in the two areas before the goldenrain tree was introduced. Their results are summarized in Figure 1.

**Figure 1** Beak length of soapberry bug populations

- What can you say about beak length in the two populations?
  - Based on what you know about the soapberry bug feeding strategy, suggest a reason for the difference in beak length.
  - Using your suggestion in (b), explain how the difference in beak length occurred?
- Additional studies took soapberry bug eggs from a population that fed on balloon vine fruits and reared them on goldenrain tree fruits (and *vice versa*). Predict the results you would expect to find. Justify your response.