

Determining Morphological Relationships Among Species of *Lonicera*

Ally Vassalotti, Dr. Wendy Clement
The College of New Jersey



Project Overview

Petal fusion is a trait abundant amongst species of *Lonicera*. Floral characteristics of species of *Lonicera* were measured to assess variation in those characters across the clade and their utility in species identification. Virtual herbariums were utilized to collect specimen to measure.

Methods

- Used virtual herbarium specimens to collect floral measurements of 18 species of *Lonicera*
- Examined the variation within these traits and to differentiate species

Conclusion

- There appears to be more variation among rather than within a species with regards to floral traits
- Not all species can be recognized using floral traits alone.

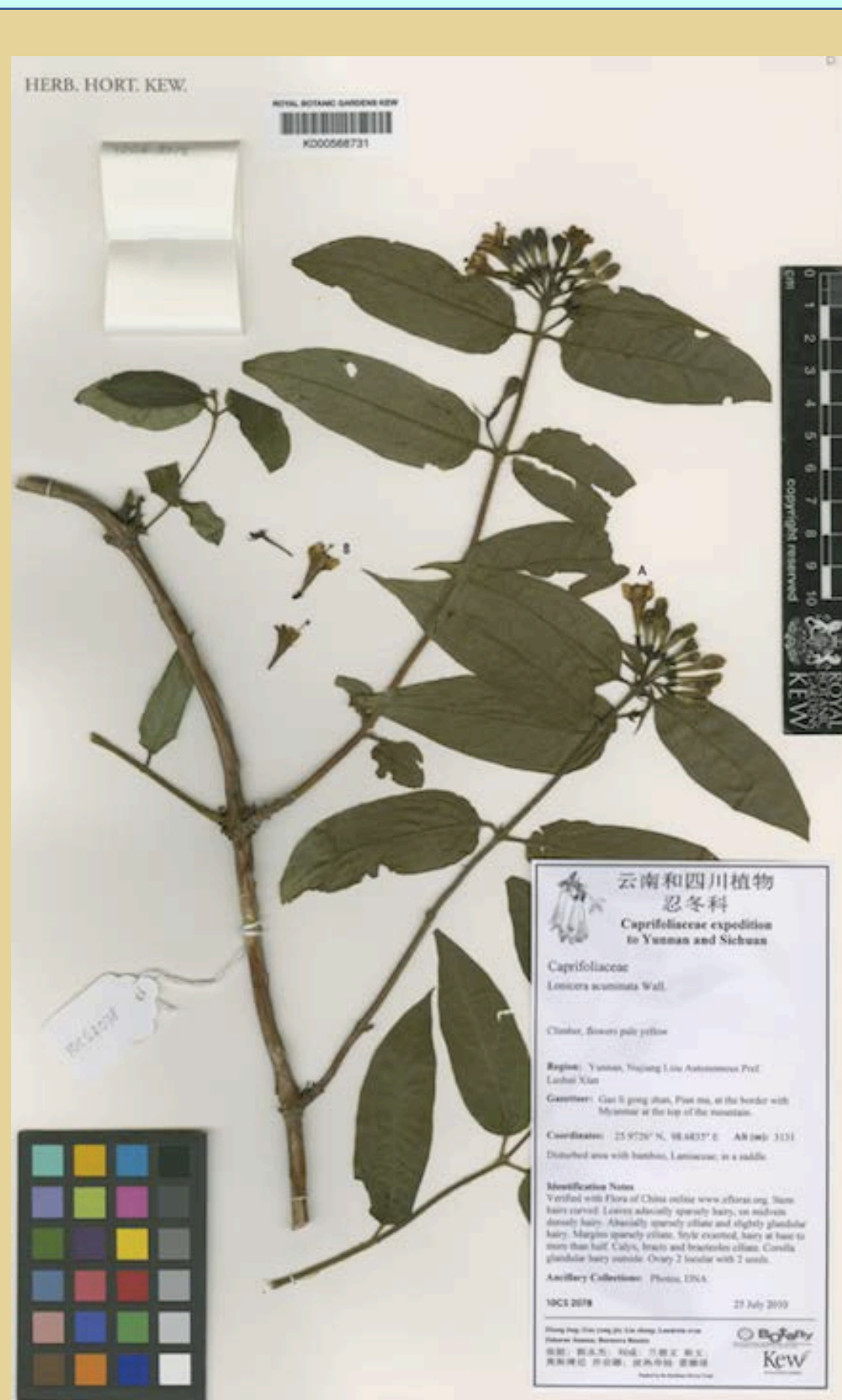


Figure 1: Herbarium specimen of *Lonicera acuminata* from Kew Botanic Gardens, accessed from their digitized collections. An herbarium specimen is preserved plant with data recorded at the time of collection. In this work I made measurements from 200 herbarium specimens. The labels “A”, and “B” identify flowers measured.

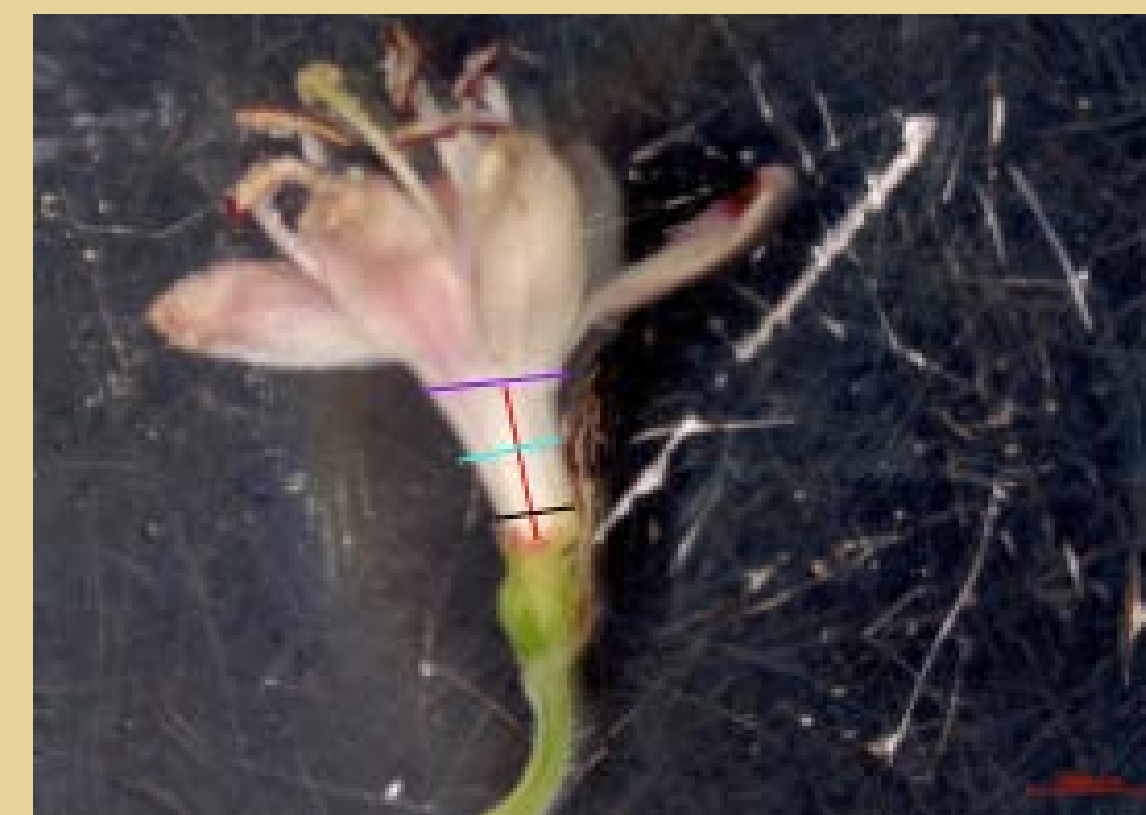


Figure 2: Example of a typical honeysuckle flower (*Lonicera chrysantha*) with a tube formed by the fusion of five petals. From each flower sampled I measured the **corolla tube length**, **widest corolla tube width**, **middle corolla tube width** and the **width of the corolla tube above the ovary**.



Figure 3: In this study I used museum specimen (*Lonicera canadensis*, *Lonicera xylosteum* and *Lonicera trichosantha*) where I measured four to ten specimens per species. Not all specimens collected had flowers that could be measured.

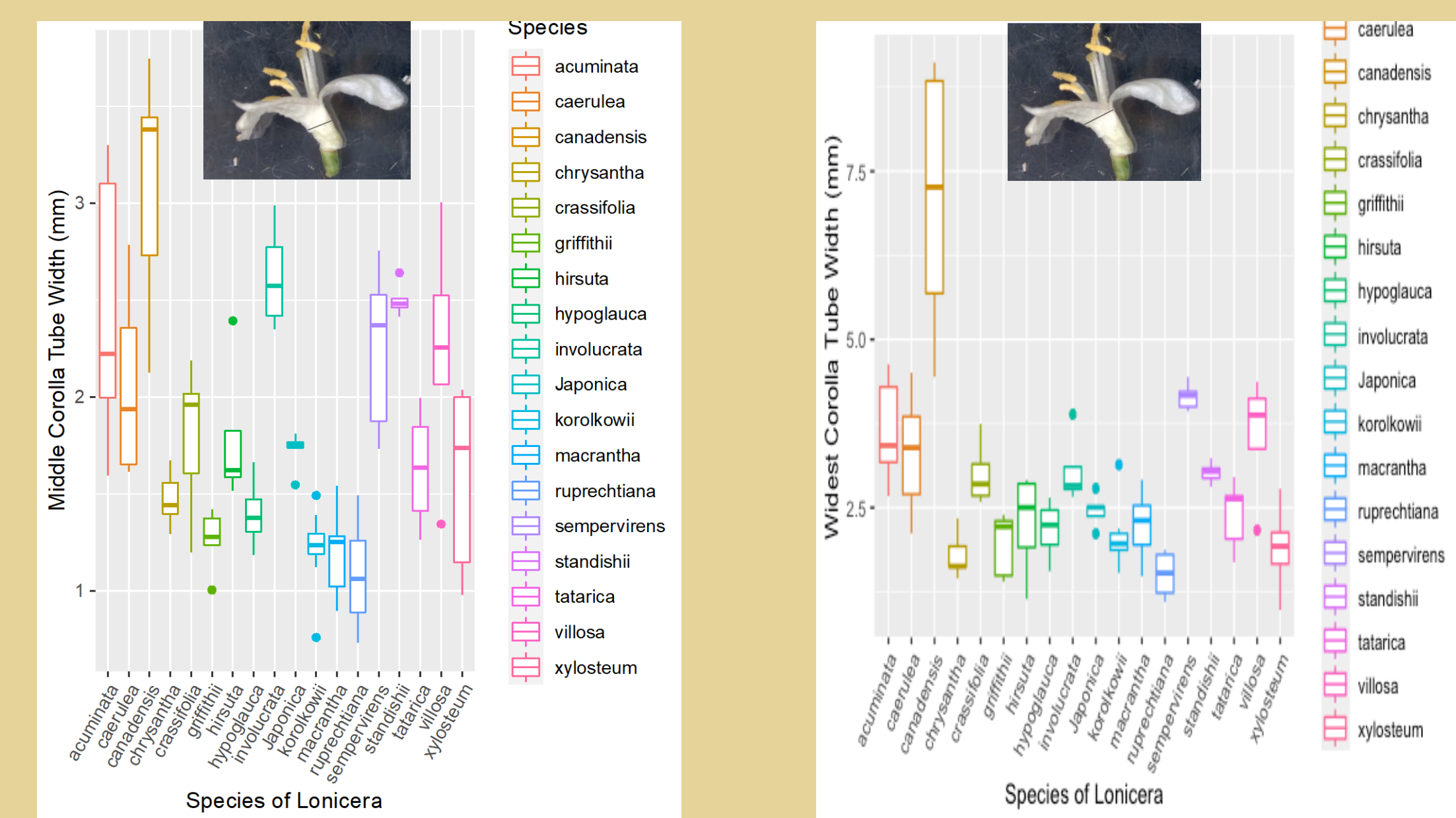
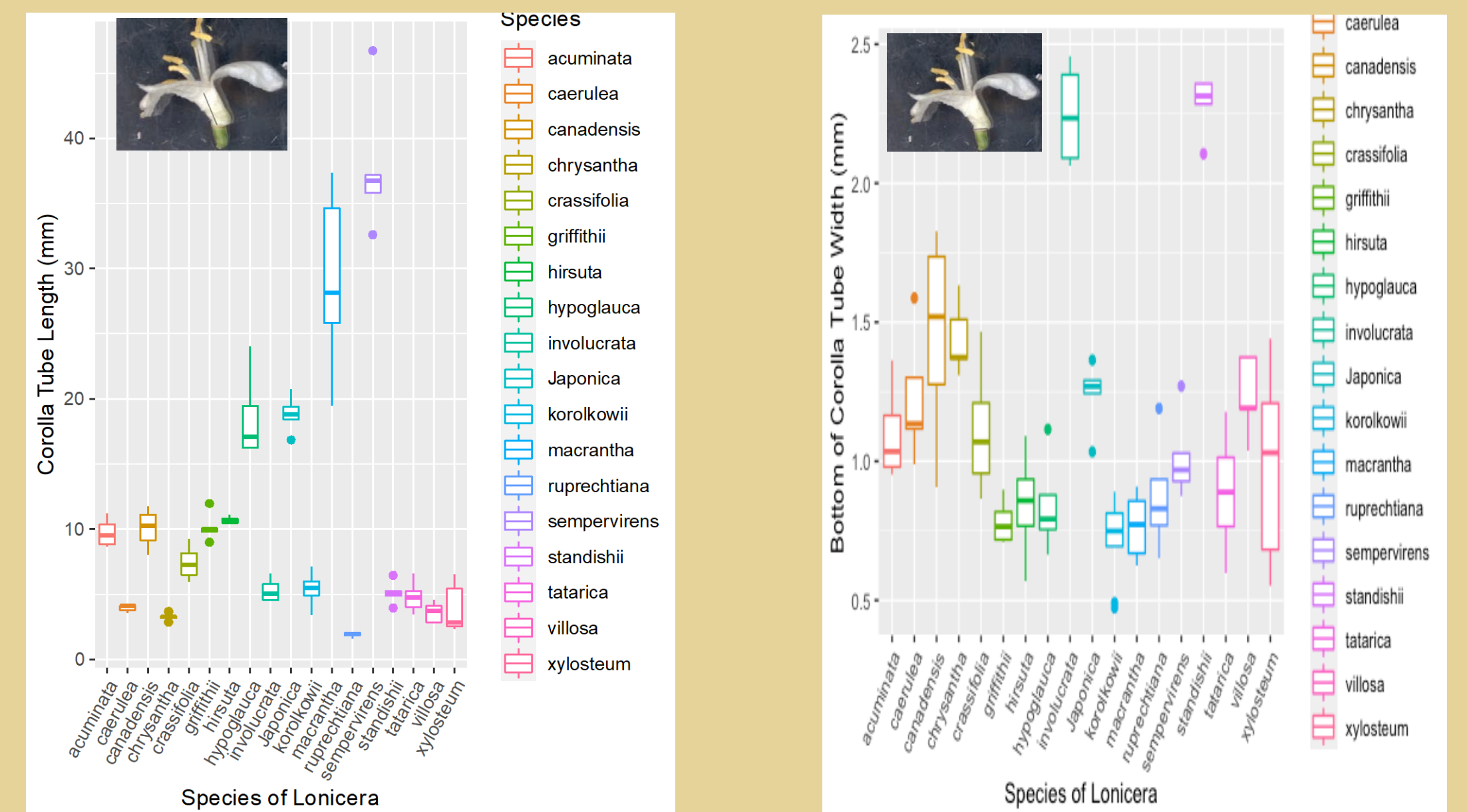


Figure 4: Boxplots generated in R showing variation in corolla tube length (A), width of the corolla tube at the bottom (B), width of corolla tube in the middle (C), and width of corolla tube at the widest point (D). The specimen in the top left corner (*Lonicera standishii*) depict the trait analyzed.

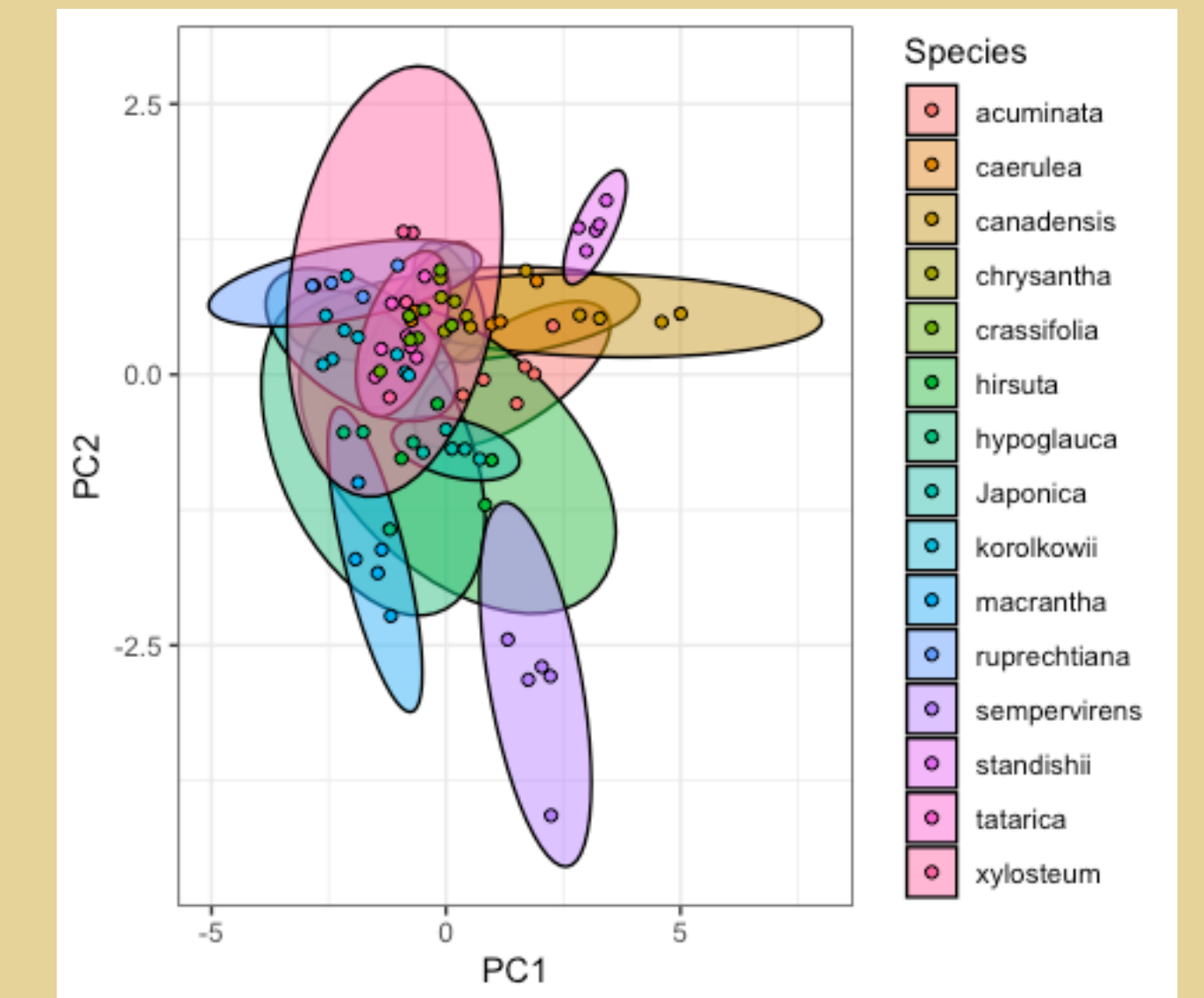


Figure 5: A PCA plot analyzed from five morphological characteristics including corolla tube length, all corolla tube widths, ovary length and ovary width. While many species show overlapping trait distributions with respect to flowers, some species such as *Lonicera sempervirens* and *Lonicera tatarica* appear to be distinct.

Future Direction

- Continue utilizing digitized herbarium specimens to collect data for more species
- Study this variation using a phylogeny to describe the evolution of floral morphology in honeysuckles

Acknowledgements

- This work was supported by NSF grant DEB-1929670