

PHYLOGENETIC POSITION AND BIOGEOGRAPHY OF *HILLEBRANDIA SANDWICENSIS* (BEGONIACEAE): A RARE HAWAIIAN RELICT¹

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The Begoniaceae consist of two genera, *Begonia*, with approximately 1400 species that are widely distributed in the tropics, and *Hillebrandia*, with one species that is endemic to the Hawaiian Islands and the only member of the family native to those islands. To help explain the history of *Hillebrandia* on the Hawaiian Archipelago, phylogenetic relationships of the Begoniaceae and the Cucurbitales were inferred using sequence data from 18S, *rbcl*, and ITS, and the minimal age of both *Begonia* and the Begoniaceae were indirectly estimated. The analyses strongly support the placement of *Hillebrandia* as the sister group to the rest of the Begoniaceae and indicate that the *Hillebrandia* lineage is at least 51–65 million years old, an age that predates the current Hawaiian Islands by about 20 million years. Evidence that *Hillebrandia sandwicensis* has survived on the Hawaiian Archipelago by island hopping from older, now denuded islands to younger, more mountainous islands is presented. Various scenarios for the origin of ancestor to *Hillebrandia* are considered. The geographic origin of source populations unfortunately remains obscure; however, we suggest a boreotropical or a Malesian–Pacific origin is most likely. *Hillebrandia* represents the first example in the well-studied Hawaiian flora of a relict genus.

Key words: *Begonia*; Begoniaceae; biogeography; divergence time; *Hillebrandia*; molecular phylogeny; paleoendemic; relict.