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A reevaluation of the nomenclature of Hawaiian *Acacia*[1]

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The close relationship between Hawaiian *Acacia koa* A. Gray and Réunionese *Acacia heterophylla* Willd. has long been noted (Bentham 1875), but due to their disjunct geography and morphological differences they have been recognized as distinct species (St. John 1975; Wagner *et al*. 1999). Their relationship was investigated using genetic techniques by Le Roux *et al*. (2014) and revealed that *A. heterophylla* evolved from *A. koa*, rendering *A. koa* paraphyletic. The most parsimonious explanation for these genetic results is an extreme long-distance dispersal event from Hawai'i to Réunion. Based on this relationship, these species should be treated at the infraspecific level to best represent their evolutionary history and maintain monophyly.

In Hawai'i both western scientific and indigenous taxonomic systems have recognized two types of *Acacia*, both *A. koa* (Hawaiian name koa) and *A. koaia* (koai'a or koai'e). Koa is traditionally recognized by its large habit (up to 35 m), transversely arranged seeds, generally straight trunks, and wider phyllodes whereas koai'a has a shorter habit (up to 5 m), longitudinally arranged seeds, denser wood, often twisted and furrowed trunks, narrower phyllodes, and occurs in drier habitats (Hillebrand 1888; St. John 1979; Adamski *et al*. 2012). The current taxonomy of Wagner *et al*. (1999: 1875) and Rico-Arce (2007) recognizes these at the species rank, but given that they intergrade both morphologically and genetically (Adamski *et al*. 2012), we propose to recognize them instead at subspecific rank.

As such, we do not accept the names *Acacia kauaiensis* Hillebr., *Acacia koa* var. *latifolia* (Benth.) H.St.John, or other segregates outside of koai'a and treat these as synonyms within *A. koa*. *Acacia kauaiensis* was noted as more-or-less distinguishable by Wagner *et al*. (1999) based on its terminal inflorescence, accepted by Lourdes Rico-Acre (2007), and Fredua-Agyeman *et al*. (2008) found that Kaua'i populations of *A. koa sensu latu* are rather distinct genetically. However, the genetic work by Adamski *et al*. (2012) and Le Roux *et al*. (2014) found the koa from Kaua'i to be indistinct within the variation

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of Hawaiian koa. Furthermore, there is no known ecological differentiation between *A. kauaiensis* and *A. koa,* unlike koaiʻa. Examination of koa specimens at BISH found intermediates with respect to the position of the inflorescence, including Oʻahu specimens with terminal inflorescences, suggesting that floral arrangement has nearly continuous variation within koa and should not form the basis of any taxonomy.

Acacia heterophylla subsp. ***koa*** (A. Gray) Morden & Faccenda, **comb. et stat. nov.**
Basionym: *Acacia koa* A. Gray, U.S. Expl. Exped., Phan. 1: 480 (1854).
Lectotype: (designated by St. John [1979]): Sandwich Islands, Oʻahu, on the mountains behind Honolulu, U.S. Exploring Expedition, Capt. Wilkes (K).

Acacia heterophylla subsp. ***koaia*** (Hillebr.) Morden & Faccenda, **comb. et stat. nov.**
Basionym: *Acacia koaia* Hillebr., Fl. Hawaiian Isl.: 113 (1888).
Lectotype: (designated by St. John [1979]): Hawaiian Islands, Molokaʻi, Kalae, Jul 1870, W. Hillebrand (B) [now destroyed, photograph reproduced in St. John (1979)].

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