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Plants, Research, Conservation, and Education in the Bahama Archipelago. The Emerging Picture

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Abstract This is an introductory paper for a Special Issue of Botanical Review devoted to plant biodiversity in the Bahamian archipelago. The papers published in this issue represent some of the contributions presented at a symposium that took place in Nassau in October 30 and 31, 2012 to celebrate the 30 year anniversary of the publication of the "Flora of the Bahama Archipelago" by Donovan and Helen Correll. The papers provide insights pertinent to plant conservation challenges, current floristic studies, plant endemicity patterns, plant exploration history, molecular systematic perspectives, and the importance of botanic garden collections for research, horticulture, and education.

Keywords Caribbean Island · Biodiversity Hotspot · Tropical islands · Donovan Correll · Helen Correll · William Gillis

The Bahamas have been a major focus for plant research, education, and conservation initiatives in the Caribbean Islands. During the last 100 years, faculty, researchers, and students from five American universities/museum/botanic gardens (New York Botanic Garden, Field Museum of Natural History, Miami University, Fairchild Tropical Botanic Garden, and Cornell University) have actively developed plant biodiversity activities in this archipelago (Britton & Millspaugh, 1920; Correll & Correll, 1982; Nickrent et al., 1988; Kass, 1991). More recently, four teams from Florida International University, the Kushlan Tropical Science Institute (at Fairchild Tropical Botanic Garden), Montgomery Botanical Center, and the Subtropical Horticulture Research Station (USDA) have also conducted botanical studies in these islands (Jestrow et al., 2012; Calonje et al., 2013; Korber et al., 2013; Geiger et al., 2014). Bahamian organizations and research/educational centers such as the Bahamas National Trust and the Gerace Research Center of San Salvador (College of The Bahamas) have been pivotal in assisting the vast majority of these activities during most of the second half of the 20th century and to the present. In the Turks and Caicos Islands, the Department of Environment and Maritime Affairs and the Royal Botanic Gardens of Kew have been

undertaking the most recent studies pertinent to plant biodiversity of this United Kingdom Overseas Territory (Hardman et al., 2012).

Nathaniel Lord Britton and Charles Frederick Millspaugh from the New York Botanical Garden and the Field Museum, respectively, produced the first comprehensive flora for the archipelago in 1920. The work of Britton and Millspaugh (1920) paved the way for subsequent plant biodiversity studies that engaged other American, European, and Bahamian organizations since the 1950s. In 1982 Fairchild Tropical Botanic Garden plant taxonomists Donovan and Helen Correll published the latest complete flora for these islands. This work was started by William Gillis, who was the first plant taxonomist and curator of the herbarium of Fairchild Tropical Botanic Garden (Kass & Eshbaugh, 1993). Corrells' flora was one of the most important research milestones in the history of this botanic garden. To celebrate the 30 anniversary of the publication of this work, the Bahamas National Trust, the College of the Bahamas, Fairchild Tropical Botanic Garden, and Florida International University put together a symposium entitled "Celebrating 30 Years of the Flora of the Bahamas: Conservation and Science Challenges" that took place in October 30th and 31st, 2012 at the College of Bahamas at Nassau. Seven lectures and 15 posters were presented at this event, and Botanical Review kindly provided a forum for the publication of seven of these presentations plus an introductory paper by Stevenson & Stevenson pertinent to the legacy of Donovan Correll and his work in the Bahama archipelago.

Three of the papers found in this issue of Botanical Review provide historical perspectives to: (1) the work conducted by Britton and Millspaugh to develop their Bahamian flora (by B. Boom), (2) the expeditions of David Fairchild to the Bahamas (by Francisco-Ortega et al.), and (3) contributions made by faculty and students of Miami University to preserve and study the unique plant heritage of the islands (by Eshbaugh).

Two of the other contributions focus on Bahamian endemic plants. The first one is by Freid et al. and it presents an updated checklist of seed plants endemics in the Bahamas. This paper discusses biogeographic patterns that can be inferred from the insular distribution of these species. The second paper on Bahamian endemics is by Jestrow et al. and it reviews the impact that DNA-based phylogenies have had in our current understanding for the origin, evolutionary history, and systematics of these species. Using the Bahamian living collections of Fairchild Tropical Botanic Garden as a case study, this work also stresses the importance of botanic gardens collections to advance scientific research in the Caribbean region.

The last two papers provide insights concerning floristic studies and conservation. The first of these papers is by Vincent & Hickey and provides details pertinent to their research leading to a new flora for the Bahamas. Since the publication of the work by Correll and Correll (1982) there have been many plant taxonomic changes that are relevant to the archipelago. In addition, new insular records for invasive and native species have been published and our understanding of the geographical distribution of these species on the mainland has broadened. The contribution by Carey et al. gives insights concerning challenges that are faced by the Bahamian society to preserve the unique plant heritage of these islands. The Leon Levy Native Plant Preserve (The Bahamas National Trust) is developing both in and ex-situ conservation and educational programs relevant to Eleuthera (Fig. 1) and the entire Bahamian Archipelago. This

Fig. 1 View of coastal vegetation landscape on the island of Eleuthera at Lighthouse Point. Individuals of *Coccothrinax argentata* (Jacq.) L.H. Bailey (Arecaceae) and *Casasia clusiifolia* (Jacq.) Urb. (Rubiaceae) are shown in this image. Photo credit: Jason López

nature reserve and botanic garden is a good example of current initiatives for plant conservation and preservation of Bahamian ecosystems.

The Flora of the Bahamian Archipelago symposium provided an avenue for botanists, educators, land managers, and policy makers to evaluate the current and emerging frameworks for plant biodiversity research and conservation across the Bahamian Archipelago. The participants agreed about the need to increase public awareness for the importance of the native flora and its related ecological services. This is extremely relevant on New Providence/Nassau, where there is a predominantly urban population. The most immediate action should be to revitalize the Botanic Garden of Nassau as a center for botanical research and environmental education. Participants also concurred that these actions will be most successful if the current plant research projects are conducted in close partnership with Bahamian institutions, organizations and governmental departments who have natural history and plant conservation as part of their mission.

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