VOYAGES OF DAVID FAIRCHILD TO GUATEMALA AND PANAMA: AN OVERVIEW AND THE 1941 EXPEDITION

Eva Lisio

Institute of the Environment, International Center for Tropical Botany
Department of Biological Sciences and Latin American and Caribbean Center, Florida International University
University Park, Miami, Florida 33199, U.S.A.
https://orcid.org/0009-0007-3707-3608

Alicia Ibáñez, Charlotte Elton

Centro de Estudios y Acción Social Panameño, La Loma, Pueblo Nuevo, Calle Segunda, Duplex 25-B
Ciudad de Panamá, Apartado Postal 0819-10043, PANAMÁ
https://orcid.org/0000-0002-3724-838X (Alicia Ibáñez); https://orcid.org/0009-0009-0220-5097 (Charlotte Elton)

Miguel A. Pérez Farrera

Herbario Eizi Matuda, Laboratorio de Ecología Evolutiva Instituto de Ciencias Biológicas
Universidad de Ciencias y Artes de Chiapas, Tuxtla Gutiérrez, Chiapas 29039, MEXICO
https://orcid.org/0000-0002-5329-1505

Javier Francisco-Ortega

Institute of the Environment, International Center for Tropical Botany
Department of Biological Sciences and Latin American and Caribbean Center, Florida International University
University Park, Miami, Florida 33199, U.S.A. and
Kelly Research Fellow, Montgomery Botanical Center, 11901 Old Cutler Road, Coral Gables, Florida 33156, U.S.A.
ortegaj@fiu.edu (author for correspondence); https://orcid.org/0000-0002-5719-7188

ABSTRACT

Between 1938 and 1954, Dr. David Fairchild (1869–1954) was Director Emeritus of Fairchild Tropical Botanic Garden (FTBG). During this period, he undertook four expeditions in the Old and New World. The second of these took place between June and October 1941 and targeted Panama, Colombia, and Guatemala. Results pertinent to the Central American endeavors are presented. Plant material from 46 species was collected and 108 photos were taken. Due to unknown reasons these collections did not reach FTBG and only 15 of the accessions were sent to the United States Department of Agriculture (USDA) plant germplasm repositories. Upon his return to USA, Fairchild published only one article with highlights of this expedition, it was on cherimoyas of Colombia and Guatemala. Unlike for his other expeditions, Fairchild did not write a journal for the trip; therefore, details of this voyage have been mostly inferred from his plant collection books, scattered correspondence, and photographs. Fairchild's wife, Marian Fairchild (1880–1962), also joined the trip and during the visit to Panama, his son Graham Bell Fairchild (1906–1994) participated in the expedition. Botanists Wilson Popenoe (1892–1975, from United Fruit Company), Paul Allen (1911–1963, from Summit Gardens, Panama), and Walter R. Lindsay (also from Summit Gardens) as well as the family of coffee plantation owner Robert Hempstead (1912–1942) assisted during the trip. An overview of the other expeditions that Fairchild made to Panama (years 1899, 1921, 1924, and 1933) and Guatemala (year 1944) is also provided.

RESUMEN

Entre 1938 y 1954, el Dr. David Fairchild (1869–1954) fue Director Emérito del Jardín Botánico Tropical Fairchild (JBTF). Durante este período realizó cuatro expediciones al Viejo y Nuevo Mundos. La segunda de ellas se llevó a cabo entre junio y octubre de 1941, y tuvo como objetivo Panamá, Colombia y Guatemala. Se presentan los resultados pertinentes al viaje en los dos países centroamericanos. En ellos se recolectó material vegetal de 46 especies y se tomaron 108 fotografías. Por razones desconocidas, el material vegetal no alcanzó el JBTF y solo 15 de las muestras se enviaron a los centros de conservación de germoplasma vegetal del USDA (United States Department of Agriculture). A su regreso, Fairchild publicó un sólo artículo sobre este viaje, sobre las chirimoyas de Colombia y Guatemala. A diferencia de otras expediciones, Fairchild no escribió un diario de este viaje; por lo tanto, los detalles de su itinerario se han inferido principalmente de sus libros de recolección de material, correspondencia dispersa y fotografías. La esposa de Fairchild, Marian Fairchild (1880–1962), también participó en este viaje y durante la visita a Panamá se les unió su hijo Graham Bell Fairchild (1906–1994). Los botánicos Wilson Popenoe (1892–1975, United Fruit Company), Paul Allen (1911–1963, Summit Gardens, Panamá) y Walter R. Lindsay (también de Summit

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Gardens), así como la familia del propietario de plantaciones de café, Robert Hempstead (1912–1942), los asistieron durante su estancia en Guatemala o Panamá. En esta contribución también se proporciona una visión general de las otras expediciones que Fairchild realizó a Panamá (años 1899, 1921, 1924 y 1933) y Guatemala (año 1944).

Key Words: botanical history, Barro Colorado Island, Casa Popenoe, Summit Gardens, plant exploration

INTRODUCTION

The professional trajectory of famous plant explorer David Fairchild (1869–1954) can be divided into four major periods. The first one happened between 1898 and 1903 when, under the sponsorship of wealthy philanthropist Barbour Lathrop (1847–1927), he travelled all over the world to collect plant material for the incipient United States Department of Agriculture (USDA) germplasm repositories. These voyages were jointly made with Lathrop, and happened shortly after Fairchild founded the Section of Foreign Seed and Plant Introduction of the USDA (Lawrence 1964; Pauly 2007; Harris 2015). The second period lasted until 1925, when most of his field work was supported by the USDA. These initial plant hunting expeditions were followed by a third phase (between 1925 and 1933) when Fairchild's plant exploration trips were sponsored by another wealthy magnate, Allison Armour (1863–1941). During this third period most of his field endeavors were undertaken on board the *Utowana* (Fig. 1), a research yacht that was owned by Armour, who also participated in these voyages (Fairchild 1930; Montes Espín et al. 2021). His last activities as a plant hunter started three years after his retirement from USDA, when he joined Fairchild Tropical Botanic Garden (FTBG, then known as Fairchild Tropical Garden) as President Emeritus when this garden was founded in 1938, a position that he had until his death in 1954 (Burgos-Soler in press).

The study that we present in this contribution is part of an undergraduate research program on botanical history that started in 2018 and is being academically supported by two units of Florida International University: the Kimberly Green Latin American and Caribbean Center and the Global Learning Program (thereafter, LACC-GL). Up to now eight students have been involved in this program which has resulted in publications and presentations at meetings (i.e., André et al. 2019; Camas et al. 2020; Chavarria et al. 2020; Marimon et al. 2022; Saliba et al. 2022; Burgos-Soler et al. in press). Most of these projects have been centered on David Fairchild's accomplishments as he was the most influential figure in the development of botanical initiatives in South Florida, and FTBG houses his correspondence, unpublished travelogues, collection books, manuscripts, and photos. As part of the LACC-GL academic aims, the students are encouraged to conduct their research in partnerships with botanists from the Caribbean and Latin American region.

During these studies, we noticed that Fairchild's field work in Latin America was often linked to agricultural, academic, and social developments of the region that were directly influenced by the USA, as the prominent political power of the New World, confirming previous studies on the recent history of biodiversity science in the region by Raby (2017). For instance, we found that the Atkins Institution of the Arnold Arboretum, Harvard University, located in Cienfuegos, Cuba (currently known as the Cienfuegos Botanical Garden) was a major partner when he was performing plant collecting in the Caribbean (Montes Espín et al. 2021). Likewise, the United Fruit Company operations and facilities of Guatemala and Honduras helped him to work in these countries (Burgos-Soler et al. in press). Finally, Fairchild played major/leading roles in the developing of plant or ecological oriented projects in the area then known as Panama Canal Zone, which was under USA jurisdiction between 1903 and 1979 (Elton et al. 2023). Within this Latin American geo-political and historical framework, here we present a study on the voyages that Fairchild undertook to Guatemala and Panama when he was associated either with USDA or with FTBG. As a case study on his work in Guatemala and Panama, our contribution particularly focuses on the trip that he made to these two countries in 1941.

MATERIALS AND METHODS

In total Fairchild made two visits to Guatemala in 1941 and 1944; and five to Panama in 1899, 1921, 1924, 1933, and 1941 (Table 1). The core of our research was based on studies made in the Archive and Library of Fairchild Tropical Botanic Garden (thereafter FTBG Archives) where we studied and interpreted relevant documents and photographs produced by David Fairchild as a result of these expeditions (Fig. 1). We also

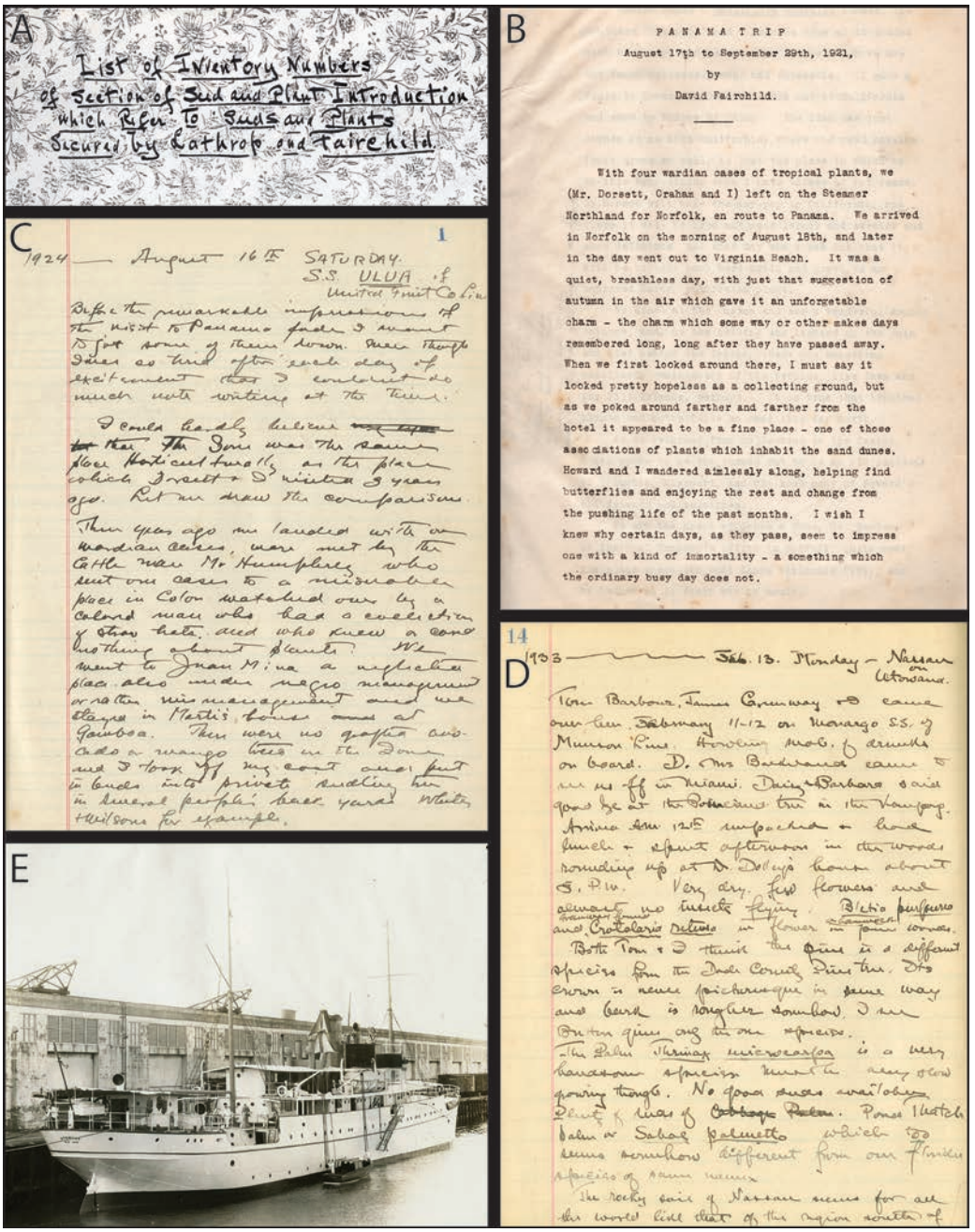

Fig. 1. Archive items pertinent to the expeditions of David Fairchild that visited Guatemala and Panama between 1899 and 1944. **A.** Cover of notebook that has details of itinerary and collected material for the plant exploration expeditions undertook by Barbour Lathrop and David Fairchild between 1898 and 1903. **B.** First page of the travelogue for the 1921 trip to Panama (Fairchild 1921). **C.** First page of document with details of the 1924 voyage to Panama (Fairchild 1924). **D.** First page of the travelogue for the 1933 Caribbean expedition (Fairchild 1932–1942). **E.** Research yacht *Utowana* at the docks of Colon, Panama, January 1928. Fairchild travelled in this boat during the 1933 Caribbean expedition. A–D (courtesy of the Archive and Library of Fairchild Tropical Botanic Garden). E (courtesy of the United States National Archives at College Park, Maryland).

Table 1. Expeditions to Panama and Guatemala by David Fairchild in chronological order.

Country	Date	Organizer or sponsor	Expedition targeted country or region	References
Panama	Jan 1899	Barbour Lathrop	New and Old World	Fairchild without date, 1938
Panama	17 Aug–19 Sep 1921	Unknown	Panama	Fairchild 1921, 1922
Panama	19 Jul–7 Aug 1924[1]	Unknown	Panama	Fairchild 1924
Panama	13–16 Mar 1933	Allison Armour	Caribbean Islands and Panama	Fairchild 1932–1942; Montes Espín et al. 2021
Guatemala	14 Oct–4 Nov 1941[1]	Unknown	Colombia, Guatemala, and Panama	Fairchild 1942
Panama	28 Jun–7 Jul; 8 Oct 1941[1]	Unknown	Colombia, Guatemala, and Panama	
Guatemala	16 Sep–5 Oct; 17 Oct–30 Nov 1944	United Fruit Company	Guatemala and Honduras	Fairchild 1945a, b, c; Burgos Soler et al. in press

[1]Dates inferred from information found in photographic records and Fairchild's collection books.

Table 2. Internet resources available to the project, including online supplementary appendices. All archive documents and photos are housed in Fairchild Tropical Botanic Garden.

Description	Website address	Notes
Online Supplementary Appendix 1	https://archive.org/details/Guatem-Panama-David-Fairchild-Photos-1941	Photos of expedition
Online Supplementary Appendix 2	https://archive.org/details/Guatem-Panama-David-Fairchild-Photo-Index-1941_202404	Table with details of photos of expedition
Online Supplementary Appendix 3	https://archive.org/details/Guatem-Panama-David-Fairchild-Plant-Collect-Index-1941_202404	Table with details of collected plant material
USDA Germplasm Inventories publications (1898–2008)	https://www.ars.usda.gov/northeast-area/beltsville-md-barc/beltsville-agricultural-research-center/national-germplasm-resources-laboratory/docs/plant-inventory-books	Plant material that reached the USDA Germplasm Inventories

performed bibliographic research pertinent to the published and unpublished works that Fairchild wrote on these trips. Three of these voyages (years 1933, 1941, 1944) were part of larger expeditions that included other countries; however, in this paper we only cover the portions of these endeavors that targeted Guatemala and/or Panama. For our research, we used information posted online in the websites indicated in Table 2.

THE FIRST TRIPS TO PANAMA: YEARS 1899, 1921, 1924, AND 1933

The Lathrop expedition (year 1899).—The first visit that Fairchild made to Panama took place between January 18 and 23, 1899. Lathrop and he travelled together as part of a large worldwide expedition that started in New York (31 December 1898). Thirteen New World countries were visited [i.e., in chronological visiting order: Jamaica (6 January 1899), Barbados, Grenada, Trinidad, Venezuela, Colombia, Panama, Ecuador, Peru, Chile, Argentina, Uruguay, and Brazil (4 June 1899), as shown in one of the documents housed in the FTBG Archives (Fairchild without date; Fig. 1)].

During this voyage, Panama was still a province of Colombia, and the Panama Canal was an unfinished project that had been abandoned by French entrepreneurs (Carse 2104). After arriving at Colon from Sabanilla (Colombia) by boat, they took a train across the isthmus to Panama City, and from there they departed to Guayaquil, Ecuador also by sea. Fairchild did not write any specific work about the short stay that he had in this Central American country. However, we could infer some details of this visit through a few pages of his autobiography (Fairchild 1938: 120, 124–126, 465), manuscripts housed in the FTBG archives (Fairchild without date), and from one of the germplasm inventories released by the USDA (Smith 1900).

Panama exposed Fairchild for the very first time to the exuberant neotropical biota of the lowlands as he stated in his autobiography: "The short railroad journey across the Isthmus is a fascinating experience for a

naturalist. The dense, tropical vegetation of Panama has a charm lacking in high mountain scenery in the tropics. Even today, after the depressing destruction which man has brought along the Canal, this ride across the Isthmus of Panama must rank as one of the most interesting short trips in the world" (Fairchild 1938: 126). Lathrop was not feeling well during this portion of the trip, and it seems that Fairchild made most of his botanical surveys by himself. In total, 21 samples for 16 species were collected (Smith 1900). Among the plants encountered, Fairchild was attracted by the calamondin [*Citrus* × *microcarpa* Bunge [identified as *Citrus* × *mitis* Blanco by Fairchild)]. This is an acidic orange, and it seems that the collected material was the first of this type of citrus to reach USA horticulture circuits; thereafter, the species received the common name of Panama orange (Fairchild 1938: 126).

Building natural history and horticulture programs in the Panama Canal Zone (years 1921 and 1924).— Fairchild and Lathrop performed their last trip in 1903, year in which they mostly explored African lands. Upon his return to USA, Fairchild's work was mostly based at the USDA offices in Washington DC, and this Federal agency supported most of the plant hunting expeditions that he coordinated or undertook. The year of his return to USA, the province of Panama broke way from Colombia and obtained its independence. Shortly after this event, the newly formed Central American republic signed the Hay-Bunau-Varilla Treaty that established the Canal Zone under the jurisdiction of the USA. This international development not only paved the way for the construction of the famous waterway between the Pacific and the Atlantic (opened in 1914), but also opened a neotropical territory to natural scientists and horticulturists from USA.

From his autobiography and other sources, we know that Fairchild (Fig. 2), together with entomologists William Morton Wheeler (1865–1937; Fig. 2) and James Zetek (1886–1959; Fig. 3) as well as herpetologist Thomas Barbour (1884–1946; Fig. 3), were instrumental in the establishment of the famous biological research station of Barro Colorado Island (year 1924; Fig. 3), located inside the artificial Lake Gatun (Fairchild 1938: 468; Hagen 1990; Christen 2002; Raby 2015). Fairchild was also a key player in the foundation of a plant introduction garden in the Canal Zone, and as early as 1905 US Army physician and Chief Sanitary Officer of the Canal Zone William Crawford Gorgas (1854–1920) contacted him to have insights to develop this project (Fairchild 1948: 319). Following a proposal made by Fairchild in 1921, this garden was officially opened in 1923. The selected location was situated near the highest point of the railroad that goes from Colon to Panama City, and it was named Canal Zone Plant Introduction Gardens (Fairchild 1938: 467; Croat 1971; Elton et al. 2023; Jacob 2023; Fig. 2). This garden still exists today, it is known as Summit Municipal Park and is managed by Panama City Municipality.

The professional connections that Fairchild had with Panama were mostly carried out from his office in Washington DC, and it was not until 1921 that Fairchild made his second visit to this country. It seems that this was a trip that combined a holiday and a ground visit to learn about the forests of the region and the potential of this area to grow tropical fruits. He travelled with his teenage son Graham Bell Fairchild (1906–1994; Fig. 2) and with one of the most important field botanists of his agency, Palemon H. Dorsett (1862–1943; Fig. 2). We have ample documentation on this trip as Fairchild (1921) wrote an unpublished extensive report with 161 pages and 63 photos (Fig. 1). Furthermore, upon his return to the USA he published an article with an account of the voyage (Fairchild 1922). Germplasm was collected for 14 species (Fairchild 1923a, b, c), and the FTBG Archives have a total of twenty photos (including eleven that were part of his trip report). A selection of the photos taken during this trip are shown in Fig. 2.

The third trip that Fairchild undertook to Panama happened in the summer of 1924; interestingly, shortly before this visit, he wrote an article announcing the imminent opening of the Barro Colorado Tropical Station (Fairchild 1924a). Indeed, this station officially started welcoming biologists on 29 March 1924. The FTBG Archives have a 21-page unpublished document that Fairchild (1924b) wrote on board the passenger-cargo steamer *Ulua* (operated by the United Fruit Company) as he was travelling back from Panama to New York in August 1924 (Fig. 1). This account has some details of the great progress that he found in the Summit Gardens having the following statement: "Today I find a Plant Introduction Garden at Summit [illegible text] which is better planned than many of our own Gardens" (Fairchild 1924b: 2). He also praised the setting for

Fig. 2. Photos pertinent to the 1921 and 1924 expeditions of David Fairchild to Panama. A. Orange tree in the farm of Juan Mina (Panama Canal Zone) from left to right Mr. Molino, Mr. Byrnes, David Fairchild, and Mr. Humphrey. August 26, 1921. B. Entrance of Summit Gardens. Holger Johansen (garden curator) posing. January 1924. C. Nathan Banks (foreground) and William M. Wheeler (background) preparing insect specimen, Barro Colorado Tropical Station. July 29, 1924. D. Wardian cases to transport plants on board S.S. Cristobal, Palemon H. Dorsett (left) and Graham B. Fairchild (right) posing. En route to Panama. August 20, 1921. E. Graham B. Fairchild examining specimens, Barro Colorado Tropical Station. 1924. Courtesy of the Archive and Library of Fairchild Tropical Botanic Garden.

biological studies that he found in Barro Colorado Island. This short report on his trip to Panama does not have any photographs, but the FTBG Archives houses 21 photos that Fairchild took during the trip. Fairchild also collected plant material (for seven species) as reported by Taylor and Fairchild (1927). A selection of photos that he made during the 1924 visit is shown in Fig. 2

***On board* Utowana *(1933).*—**Eight of the biological expeditions undertaken on board *Utowana* targeted the Caribbean Basin, including parts of Central America and Mexico, and took place between 1928 and 1933 (Montes Espín et al. 2021). Four of these voyages included USDA plant explorers, and Panama was visited four times in 1928, 1929, 1931, and 1933; however, only one of these Panamanian trips (year 1933) had Fairchild as a participant. The 1933 voyage (from February to April) encompassed, in chronological order, Bahamas, Haiti, Jamaica, Panama (March 17–18), the Colombian islands of Providencia and San Andres Islands, Grand

Fig. 3. Photos pertinent to the visit made to Panama during the 1933 Caribbean Expedition of David Fairchild. **A.** Thomas Barbour (left) and Allison Armour (right) in Summit Gardens. **B.** View of Barro Colorado Tropical Station from Lake Gatun. **C.** James Zetek posing along one of the trails of Barro Colorado. **D.** Entrance to Summit Gardens. **E.** Unidentified giant tree in the forest of Barro Colorado. Courtesy of the Archive and Library of Fairchild Tropical Botanic Garden.

Cayman, Cuba, and Bahamas. In Panama over 32 plant samples (22 species) were collected. Our preliminary archive searches show that during this expedition at least 60 photos were taken just in Panama (a selection of them is shown in Fig. 3). James Greenway (1903–1989) and the aforementioned Thomas Barbour (Fig. 3), both from Harvard University, also participated in this trip. Furthermore, Allison Armour (Fig. 3), as owner of the yacht and sponsor of this multi-country biological survey, also joined this team of naturalists. Fairchild wrote an unpublished travelogue that only covered the portion of the trip between Miami and Jamaica (Fairchild 1932–1942: 14–78; Fig. 1). Unfortunately, we are not aware of any written accounts describing his 1933 visit to Panama. Upon his return to Miami, Fairchild became ill with rheumatic fever, and was hospitalized in a coma in Miami and Boston for five months (Fairchild 1932–1942: 79–80, 1938: v). Elizabeth D. Kay (1894–1987) and Alfred G. Kay (1889–1973) indicated that after going through this poor health condition Fairchild decided to write his autobiography (Fairchild 1938: v). The Kays lived in Florida, and they were strong advocates for the preservation of the unique environment of South Florida, particularly the Everglades.

THE 1941 TRIP TO COLOMBIA, GUATEMALA, AND PANAMA: BOTANY, FAMILY, AND FRIENDS

During his honorary tenure as President Emeritus of FTBG, Fairchild undertook four plant exploration expeditions. One of them targeted Indonesia and the Philippines in 1939 (Fairchild 1943), the remaining three covered the Neotropics. The first of these Latin American trips took place in 1941 when Colombia, Guatemala, and Panama were visited. Subsequently, in 1944 he travelled to both Guatemala and Honduras (Burgos-Soler in press), finally in 1948 he made a trip to Venezuela and Colombia that was his last plant hunting endeavor (Korber et al. 2016). His wife Marian H. Bell Fairchild (1880–1963; Fig. 4) joined him during these four voyages.

Unlike the other expeditions that he undertook, the 1941 trip seems to have had a different focus and it is not even clear how this trip was funded. We could not determine if it was supported by FTBG, extramural, or Fairchild personal funds. There is no mention of this trip in the annual reports of FTBG, and we have not located any publication or travelogue with details of this long trip that lasted almost five months (Table 1). However, from the FTBG Archive records we are certain that plant material was collected; furthermore, the photographs that were taken clearly show that during the trip Fairchild (Fig. 4) was interested in the flora, gardens (particularly Summit, Fig. 4), and economic botany practices. Therefore, there is no doubt that plant exploration was an important component of this trip.

It seems that this was a long voyage in which a mix of leisure, family, friends, and botany were all equally important. The details that we have of this voyage clearly show that major highlights of the travel were visiting their son Graham (Fig. 4) in Panama, and their daughter Nancy B. Fairchild Bates (1912–1976) in Colombia. The Fairchilds were also hosted in Antigua, Guatemala, by their long-time friend and former USDA colleague, Wilson Popenoe (1892–1975), and that meeting was also a relevant part of this trip. Antigua was already a tourist destination by then, and from his own writings we know that wherever Fairchild went, he not only collected plants but also had an interest in the history and ethnography of the sites visited.

Nancy Fairchild married Harvard graduate and entomologist Marston Bates (1906–1974) in 1939, and one year later they starting to live in the city of Villavicencio, Colombia, until 1948 when they returned to USA (Bates, 1947; Raby 2019: 9, pers. comm.). During this period Bates had a position with the Rockefeller Foundation working on the transmission of yellow fever by mosquitos (Raby 2019). Their first daughter Marian Bates was born in Colombia shortly after their arrival (Rausch 2012; Mosely 2016); therefore, it seems that one of the reasons for David and Marian Fairchild to travel to Colombia was to meet their granddaughter for the first time (Bates 1947: 84–85). As a result of her life in Colombia, Nancy Bates wrote one book and one article describing her time there (Bates 1947, 1948).

Graham B. Fairchild (Fig. 4) joined the Gorgas Memorial Laboratory, Panama City, as an entomologist in 1938. He became a world authority in the taxonomy of the insect family Tabanidae (horse flies, order Diptera), returning to the USA (University of Florida) in 1970 (Burger 1999). It seems that this was the first time that his parents visited him after this scientific appointment in Panama.

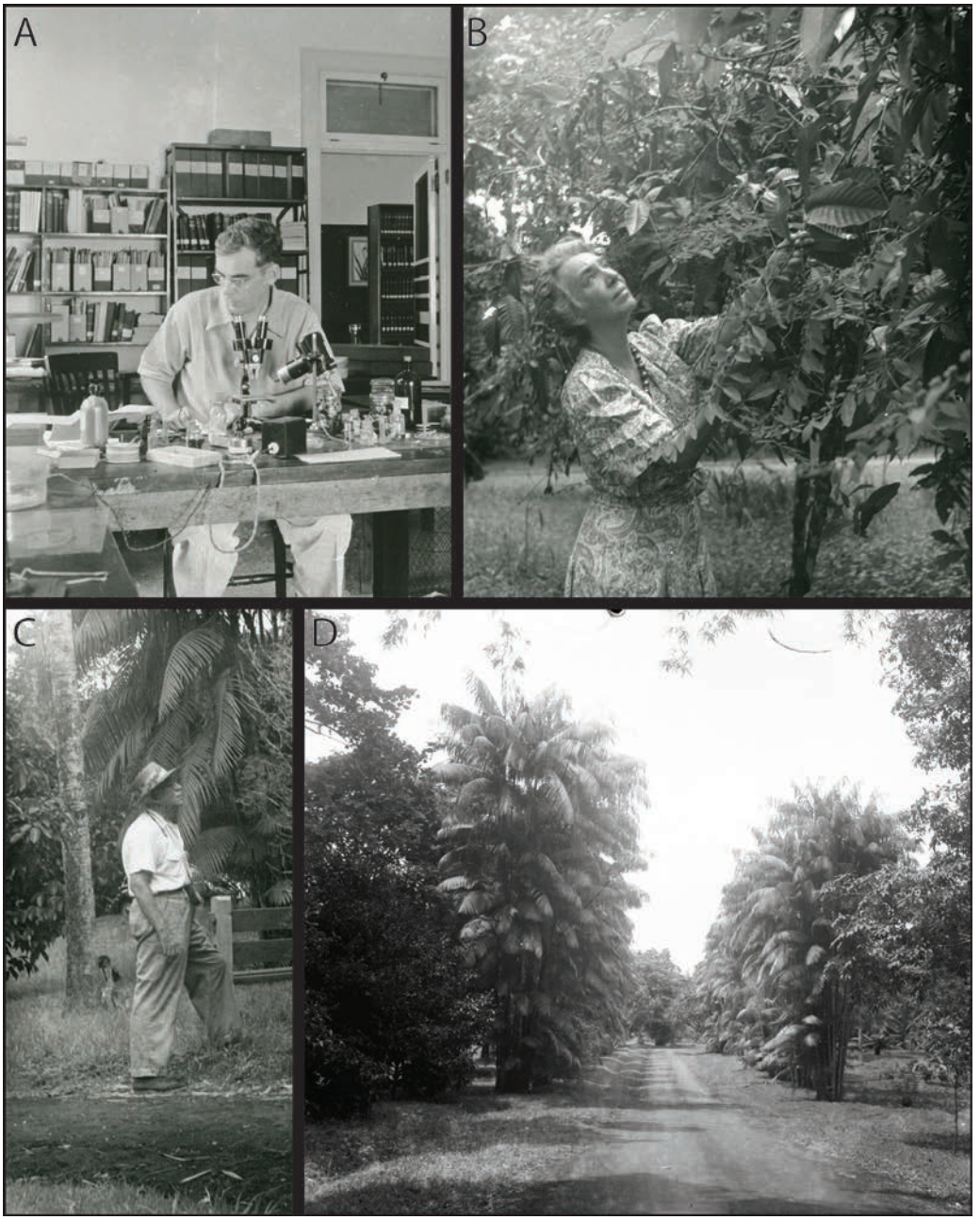

Fig. 4. Photos pertinent to the visit made by David Fairchild to Panama in 1941. **A.** Graham Bell Fairchild in his laboratory, Gorgas Memorial Laboratory, Panama City. **B.** Marian Fairchild with *Warszewiczia coccinea* plants in El Valle. **C.** David Fairchild in Summit Gardens. **D.** *Euterpe edulis* palms along the "*Euterpe* Avenue" of Summit Gardens. Courtesy of the Archive and Library of Fairchild Tropical Botanic Garden.

Wilson Popenoe was a good friend of Fairchild, as between 1913 and 1925 he stood out as one of the best Plant Explorers of the USDA Office of Foreign Seed and Plant Introduction (Fairchild 1923c: Fig. 1). Popenoe left the USDA to join the United Fruit Company as by then he was a well-known expert in plant genetic resources of tropical fruit trees. In 1926, he became director of the Lancetilla Experiment Station (Rosengarten 1991: 19, 90, 97) which was a United Fruit Company facility that actively collaborated with Fairchild when he was working for the USDA (Montes Espín 2021; Raby 2023). Popenoe had a passion for Central America culture and history, and this was shared by his three consecutive wives: Dorothy Hughes Popenoe (1899–1932), Helen Barsaloux Wilson (1904–1961), and Alice Weiss Popenoe. Because of the nature of his appointment with the United Fruit Company, Popenoe had to spend a great deal of time working between Honduras and Guatemala; however, starting in 1930 there were plans for him to be mostly based in Guatemala City. Antigua, the old Spanish capital of Guatemala, is situated near this city, and this was a place that the Popenoes enjoyed visiting; so it is not surprising that in 1930 they bought an old 17th century colonial house there. The house was almost in ruins, and between 1930 and 1936 it was restored first by Dorothy and Wilson and after the sudden death of Dorothy, by Wilson Popenoe (Adamic 1937). The site became famous among Antigua visitors. Currently it is known as Casa Popenoe and is owned and run as a cultural center by the Universidad Francisco Marroquín. The Fairchilds' visit to Guatemala had this house as their base to travel widely in the country.

Because Fairchild did not write a travelogue for this 1941 trip we needed to reconstruct his itinerary, including the sites visited and dates, based on information found in his photographs, USDA germplasm inventories, and collection books; therefore, the dates shown in Table 1 are tentative as we found some contradictory information regarding when a few places were visited, or a few plant samples were collected. In total 73 species were documented in photos or provided germplasm collections (Table 3). Copies of the 108 photos that Fairchild took during the trip are shown in Online Supplementary Appendix 1 (https://archive.org/details/Guatem-Panama-David-Fairchild-Photos-1941), and descriptions of these photos are found in Online Supplementary Appendix 2 (https://archive.org/details/Guatem-Panama-David-Fairchild-Photo-Index-1941_202404). During the voyage only germplasm samples (50 samples for 46 species) were collected, and it seems that no herbarium specimens were gathered. Online Supplementary Appendix 3 (https://archive.org/details/Guatem-Panama-David-Fairchild-Plant-Collect-Index-1941_202404) has details of the collected plant material including USDA accession numbers (15 samples for 14 species) for those samples that reached the germplasm repositories of this agency (Russell 1951a–d). Interestingly, there are no records of any material that reached FTBG for the year 1941. Therefore, we are not certain which of these collections were received and propagated in this garden. One possible reason for this is that the voyage took place during the Second World War and that this might have affected several of the operations of FTBG, including processing new plant material.

Visiting Panama.—The Fairchilds reached Panama by June 28, leaving for Colombia around July 7. During their stay, they travelled both within the Canal Zone and in Panama where they visited the El Valle area. Five localities were explored (Fig. 5), and 34 photos were taken in these sites. Twenty-seven of these images concern plants encountered during this visit. Summit Gardens (14 photos) was the site where most of the pictures were taken (Figs. 4, 6), and all of them showcase particular plants.

Thirty plant species were documented in photographs or were collected during the trip, and 18 germplasm samples (four of them reached the USDA) were gathered (18 species). Among these 30 taxa, 18 are for introduced species, nine are Panama natives, and three of them have uncertain biogeographic status. Figure 7 shows three of the species that were recorded during their stay in Panama. The main botanical highlight of this visit was Summit Gardens where eight germplasm accessions for eight species were gathered. The role of Summit Gardens as a destination for some of the collections that Fairchild made during previous expeditions has already been indicated by Elton et al. (2023), and it is highlighted in the seed collection reports and photo descriptions that Fairchild wrote for the batoko-plum (*Flacourtia inermis*—collected by him in Sri Lanka in 1926) and the durian (*Durio zibethinus*—collected by him in Java in 1926). Among the encountered species, it

TABLE 3. Species for which plant material was collected or photos were taken during the 1941 trip of David Fairchild to Guatemala and Panama. Scientific name is provided followed by locality, biogeography, David Fairchild's plant collection number/USDA germplasm accession number/FTBG Archive photo number. See additional details and notes on these plant entries in Online Supplementary Appendices 2 and 3.

Acrocomia aculeata (Jacq.) R. Keith (Arecaceae)—Guatemala, Rabinal—Native—1147/-/-
Acrocomia sp. (Arecaceae)—Guatemala, Rabinal—Native—-/-/2011
Agave sp. (Asparagaceae)—Guatemala, Cobán—Native—-/-/1989
Annona cherimola Mill. (Annonaceae)—Guatemala, Antigua—Introduced—1138/-/-
Annona cherimola Mill. (Annonaceae)—Guatemala, Chichicastenango, market—Introduced—-/-/1584
Annona cherimola Mill. (Annonaceae)—Guatemala, Popenoe's house—Introduced—1140/-/2013
Annona cherimola Mill. (Annonaceae)—Guatemala, unreported—Introduced—1139/-/-
Anthurium sp. (Araceae)—Guatemala, Antigua, market Guatemala City, Mariano Pacheco´s garden—Native—1156/-/-
Antidesma nigricans Tul. (Phyllanthaceae)—Panama, Summit Gardens—Introduced—-/-/7577
Antidesma nigricans Tul. (Phyllanthaceae)—Panama, Summit Gardens—Introduced—-/-/7579
Antigonon guatimalense Meisn. (Polygonaceae)—Guatemala, Antigua, Mansion Hotel—Native—1126/146197/-
Antigonon guatimalense Meisn. (Polygonaceae)—Guatemala, Antigua—Native—-/-/1739
Antigonon guatimalense Meisn. (Polygonaceae)—Guatemala, Antigua—Native—-/-/1993
Antigonon guatimalense Meisn. (Polygonaceae)—Guatemala, Atitlán—Native—-/-/1961
Antigonon guatimalense Meisn. (Polygonaceae)—Guatemala, Atitlán—Native—-/-/1991
Antigonon leptopus Hook. & Arn. (Polygonaceae)—Guatemala, Antigua market—Native—-/-/2002
Arecaceae sp.—Panama, La Mesa, vicinity of El Valle—Unknown—1010/-/-
Astrocaryum standleyanum L.H. Bailey (Arecaceae)—Panama, Balboa Orchid Garden—Native—1003/-/-
Atalantia citroides Pierre ex Guillaumin (Rutaceae)—Panama, Summit Gardens—Introduced—1013/-/-
Bactris gasipaes Kunth (Arecaceae)—Panama, Balboa—Introduced—-/-/0933
Bactris gasipaes Kunth (Arecaceae)—Panama, Balboa— Introduced —-/-/12153
Bactris gasipaes Kunth (Arecaceae)—Panama, market— Introduced —1123/-/12149
Bactris gasipaes Kunth (Arecaceae)—Panama, Summit Gardens— Introduced —-/-/7570
Bactris gasipaes Kunth (Arecaceae)—Panama, Summit Gardens— Introduced —-/-/7571
Bactris gasipaes Kunth (Arecaceae)—Panama— Introduced — Paul Hermas' house—-/-/3870
Bambusoideae sp. (Poaceae)—Panama, Summit Gardens—Introduced—-/-/7560
Callicarpa sp. (Lamiaceae)—Guatemala, Antigua—Unknown—-/-/1738
Capsicum annuum L. or *C. frutescens* L. (Solanaceae)—Guatemala, Antigua, market—Native—1131/146198/-
Cereus sp. (Cactaceae)—Guatemala, Puerto Barrios to Guatemala City—Native—-/-/1581
Chamaedorea pinnatifrons (Jacq.) Oerst. (Arecaceae)—Guatemala, Antigua, market—Native—-/-/1979
Chamaedorea pinnatifrons (Jacq.) Oerst. (Arecaceae)—Guatemala, Cobán—Native—1146/-/1069
Chamaedorea sp. (Arecaceae)—Guatemala, Antigua, P.G. Cofino's patio—Native—1142/-/-
Chamaedorea sp. (Arecaceae)—Guatemala, Cobán, Mrs, Robert Hempstead's house—Native—1155/145587/-
Chamaedorea sp. (Arecaceae)—Guatemala, Cobán, Mrs. Robert Hempstead's house—Native—1149/145586/-
Chamaedorea sp. (Arecaceae)—Guatemala, Cobán—Native—-/-/1585
Chamaedorea tepejilote Liebm. (Arecaceae)—Guatemala, Santa Catarina—Native—-/-/1590
Chamaedorea tepejilote Liebm. (Arecaceae)—Guatemala, Antigua, market—Native—-/-/1895
Chamaedorea tepejilote Liebm. (Arecaceae)—Guatemala, Antigua, market—Native—-/-/2000
Chamaedorea tepejilote Liebm. (Arecaceae)—Guatemala, Santa Catarina—Native—-/-/0926
Chamaedorea tepejilote Liebm. (Arecaceae)—Guatemala, Santa Catarina—Native—-/-/1965
Chamaedorea tepejilote Liebm. (Arecaceae)—Guatemala, Santa Catarina—Native—-/-/1996
Cissus sp. (Vitaceae)—Guatemala, Antigua, P.G. Cofino's patio—Unknown—1141/-/-
Crataegus mexicana DC. (Rosaceae)—Guatemala, Antigua, San Pedro—Native—-/-/1579
Crinum darienense Woodson (Amaryllidaceae)—Panama, El Valle-Native—1015/142557/-
Dahlia coccinea Cav. (Asteraceae)—Guatemala, Between Antigua and Guatemala City, on road—Native—1136/-/-
Dolichos sp. (Fabaceae)—Guatemala, Antigua—Introduced—-/-/1580
Durio zibethinus Rumph. ex Murray (Malvaceae)—Panama, Summit Gardens—Introduced—-/-/7580
Durio zibethinus Rumph. ex Murray. (Malvaceae)—Panama, unreported—Introduced—-/-/7573
Elaeocarpus serratus L. (Elaeocarpaceae)—Panama, Summit Gardens—Introduced—1002/-/-
Eugenia sp. (Myrtaceae)—Panama—Summit Gardens—Unknown—1004/-/-
Euterpe edulis Mart. (Arecaceae)—Panama, Summit Gardens—Introduced—-/-/7572
Ficus benjamina L. (Moraceae)—Panama, Gaillard Highway—Introduced—-/-/1012
Ficus benjamina L. (Moraceae)—Panama, Gaillard Highway—Introduced—-/-/7581
Flacourtia inermis Roxb. (Salicaceae)—Panama, Summit Gardens—Introduced—1001/-/-
Garcinia mangostana L. (Clusiaceae)—Panama, Summit Gardens— Introduced—1009/-/-
Garcinia mangostana L. (Clusiaceae)—Panama, Summit Gardens—Introduced—-/-/2727
Garcinia mangostana L. (Clusiaceae)—Panama, Summit Gardens—Introduced—-/-/7568
Gongora sp. (Orchidaceae)—Panama, unreported—Native—-/-/7567
Heliconia platystachys Baker (Heliconiaceae)—Panama, Summit Gardens—Native—1017/142216, 146203/-
Hesperocyparis lusitanica (Endl.) Bartel (Cupressaceae)—Guatemala, Tecán—Native—1127/145588/1968

Table 3. continued

Hesperocyparis lusitanica (Mill.) Bartel (Cupressaceae)—Guatemala, El Tejar—Native—-/-/7602
Ipomoea batatas (L.) Lam. (Convolvulaceae)—Guatemala, Antigua, market—Native—1135/142359/-
Malpighiaceae sp.—Guatemala, Amatitlán—Unknown—1133/-/-
Malva sp. (Malvaceae)—Guatemala, Guatemala City, George Armstrong's yard—Introduced—1137/-/-
Musa × *paradisiaca* L. (Musaceae)—Guatemala, Quiriguá—Introduced—-/-/0928
Musa textilis Née (Musaceae)—Panama, Summit Gardens—Introduced—-/-/7569
Noronhia sp. (Oleaceae)—Panama, Summit Gardens—Introduced—1008/-/-
Olmediella betschleriana (Göpp.) Loes. (Salicaceae)—Guatemala, Antigua—Native—-/-/-
Olmediella betschleriana (Göpp.) Loes. (Salicaceae)—Guatemala, unreported—Native—1150/145589/-
Passiflora sp. (Passifloraceae)— Guatemala, Antigua, market—Unknown—-/-/1583
Passiflora sp. (Passifloraceae)—Guatemala, unreported—Unknown—1132/-/-
Pelliciera rhizophorae Triana & Planch. (Tetrameristaceae)—Panama, Paitilla—Native—-/-/1843
Pelliciera rhizophorae Triana & Planch. (Tetrameristaceae)—Panama, Punta Paitilla—Native—1018/142567/-
Persea americana Mill. (Lauraceae)— Guatemala, San Pedro La Laguna—Native—-/-/7604
Persea americana Mill. (Lauraceae)—Guatemala, San Pedro La Laguna—Native—1157/7605/-
Persea schiedeana Nees (Lauraceae)—Guatemala, Cobán, market—Native—1144/142360/-
Phaseolus vulgaris L. (Fabaceae)—Guatemala, Antigua—Native—-/-/1978
Phoenix dactylifera L. (Arecaceae)—Guatemala, Salamá—Introduced—1151/146206/1068
Pinus oocarpa Schltdl. (Pinaceae)—Guatemala, mountains, province of Alta Verapaz—Native—1145/-/1591
Plinia cauliflora (Mart.) Kausel (Myrtaceae)—Panama, Summit Gardens—Introduced—-/-/2721
Pouteria sp. (Sapotaceae)—Panama, Trapiche Island—Native—1019/-/-
Pouteria viridis (Pittier) Cronquist (Sapotaceae)—Guatemala, Antigua, Popenoe's House—Native—-/-/1981
Pouteria viridis (Pittier) Cronquist (Sapotaceae)—Guatemala, Antigua, Popenoe's house—Native—-/-/0932
Pouteria viridis (Pittier) Cronquist (Sapotaceae)—Guatemala, Antigua—Native—-/-/1964
Pouteria viridis (Pittier) Cronquist (Sapotaceae)—Guatemala, Antigua, market—Native—-/-/2001
Pouteria viridis (Pittier) Cronquist (Sapotaceae)—Guatemala, unreported—Native —1128/146195/-
Racinaea pallidoflavens (Mez) M.A. Spencer & L.B.Sm. (Bromeliaceae)—Guatemala, Guatemala City, Mariano Pacheco´s garden—Native—1152/146213/-
Raphia vinifera P. Beauv. (Arecaceae)—Panama, unreported—Introduced—-/-/7574
Cf. *Renanthera* sp. (Orchidaceae)—Guatemala, Cobán, Robert Hempstead's house—Native—1154/-/-
Raphia vinifera P. Beauv. (Arecaceae)—Panama, unreported—Introduced—-/-/7575
Renealmia cf. *aromatica* (Aubl.) Griseb. (Zingiberaceae)—Panama, El Valle—Native—-/-/7566
Renealmia sp. (Zingiberaceae)—Guatemala, El Valle—Native—1006/146209/-
Robinsonella sp. (Malvaceae)—Guatemala, Cobán—Native—-/-/1977
Sicyos edulis Jacq. (Cucurbitaceae)—Guatemala, Antigua, market—Native—-/-/0861
Sicyos edulis Jacq. (Cucurbitaceae)—Guatemala, Antigua, market—Native—1134/-/-
Sicyos edulis Jacq. (Cucurbitaceae)—Guatemala, Santa María de Jesús—Native—-/-/1594
Sicyos edulis Jacq. (Cucurbitaceae)—Guatemala, Santa María de Jesús—Native—-/-/1976
Spondias purpurea L. (Anacardiaceae)— Guatemala, Antigua, market—Native—-/-/7610
Spondias purpurea L. (Anacardiaceae)—Guatemala, Antigua, market—Native—-/-/1563
Spondias purpurea L. (Anacardiaceae)—Guatemala, Antigua, market—Native—1129/-/-
Spondias purpurea L. (Anarcadiaceae)—Guatemala, Antigua, market—Native—-/-/1582
Spondias purpurea L. (Anarcadiaceae)—Guatemala, Antigua—Native—-/-/1980
Sprekelia formosissima (L.) Herb. (Amaryllidaceae)—Guatemala, Cobán, Robert Hempstead's house—Introduced—1148/-/1743
Cf. *Stigmaphyllon sinuatum* (DC.) A.Juss. (Malpighiaceae)—Guatemala, Antigua, George Mann's Garden—Introduced—1130/-/-
Stephelus sp. (we could not find this name in the consulted taxonomic literature)—Panama, El Valle—Unknown—1007/-/-
Swinglea glutinosa (Blanco) Merr. (Rutaceae)—Panama, Summit Gardens—Introduced—1005/-/-
Syzygium grande (Myrtaceae)—Panama, Summit Gardens—Introduced—-/-/7576
Terminalia microcarpa Decne. (Combretaceae)—Panama, Summit Gardens—Introduced—1011/-/-
Terminalia microcarpa Decne. (Combretaceae)—Panama, Summit Gardens—Introduced—-/-/7578
Tillandsia leiboldiana Schltdl. (Bromeliaceae)—Guatemala, Rabinal—Native—-/-/1067
Tillandsia leiboldiana Schltdl. (Bromeliaceae)—Guatemala, Rabinal—Native—-/-/1578
Tillandsia leiboldiana Schltdl. (Bromeliaceae)—Guatemala, Rabinal, market—Native—-/-/1985
Tillandsia sp. (Bromeliaceae)—Guatemala, Guatemala City, Mariano Pacheco´s garden—Unknown—1153/-/-
Urceolina bouchei (Woodson & P. Allen) Traub (Amaryllidaceae)—Panama, El Valle—Native—1014/-/-
Vitis sp. (Vitaceae)—Panama, El Valle—Native—1016/-/-
Warszewiczia coccinea (Vahl) Klotzsch (Rubiaceae)—Panama, El Valle—Native—-/-/2013
Warszewiczia coccinea (Vahl) Klotzsch (Rubiaceae)—Panama, El Valle—Native—-/-/7561

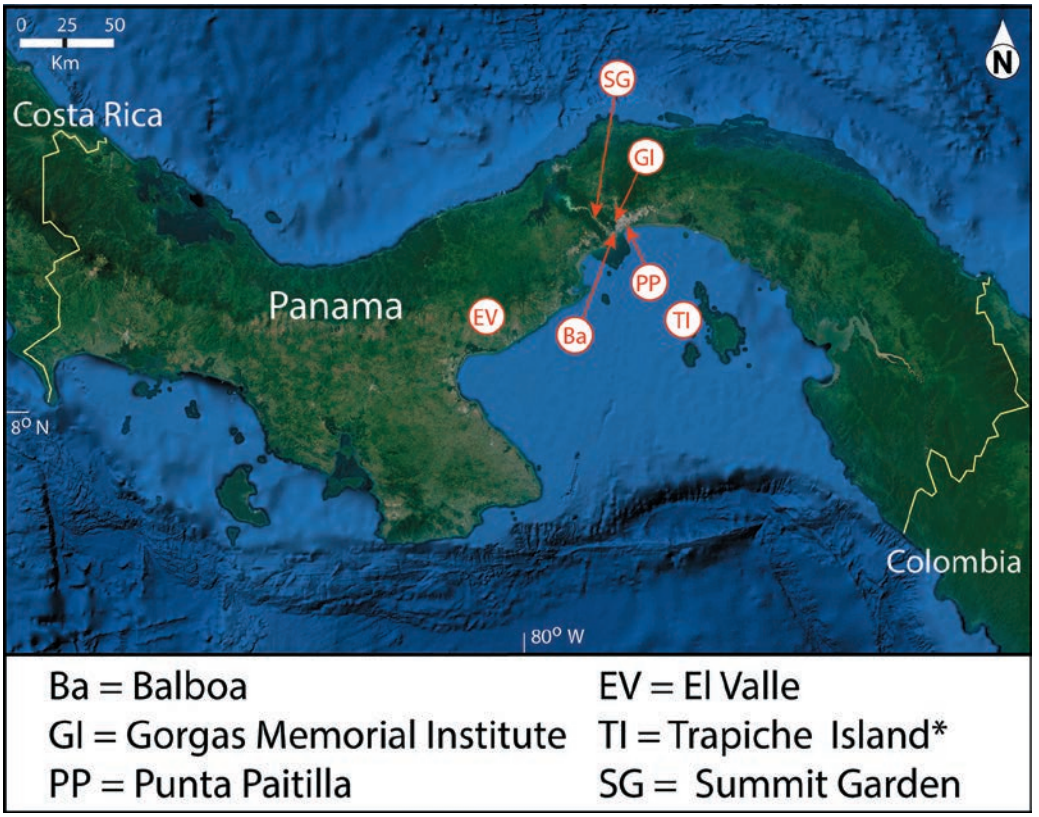

Fig. 5. Sites visited during the 1941 trip of David Fairchild to Panama. * = Trapiche Island was not visited by Fairchild, but it was the germplasm source of *Pouteria* sp. that was collected by Paul Allen.

seems that the mangosteen (*Garcinia mangostana*) was his main botanical interest. The two photos (Fig. 6) and the only sample of this species that was collected in this trip are from Summit Gardens. After his third trip Fairchild (1924b) indicated that a mangosteen orchard was part of the infrastructure of this garden. This is confirmed by the notes that he wrote for this single germplasm collection indicating that it came from the mangosteen orchard at Summit.

Paul Allen (1911–1963), who was superintendent of Summit Gardens (Hodge 1964), hosted them, and he is depicted in six of the photos; unfortunately, these pictures do not have a high-quality and show him mostly as a reference for some trees or landscapes. Orchid expert and director of Summit, Walter R. Lindsay met Fairchild when he visited this botanic garden (Fig. 6).

Visiting Guatemala.—The trip to Guatemala had a wider botanical scope than that to Panama, and 15 sites were explored (Fig. 8). Popenoe and Fairchild exchanged four letters (dates: July 31, 1941; September 1941; September 11, 1941—Addressed to G.S. Bennett from the United Fruit Company; October 11, 1941) with details of the logistics of the voyage. Popenoe was eager to host the Fairchilds as he stated in the July 31 letter: "We are looking forward to your arrival in Guatemala and I promise you more sights of horticultural interests than you will receive anywhere else on this trip." It seems that original plans were for the Fairchilds to fly back from Colombia to USA on September 28; however, Popenoe convinced them to visit Guatemala before their return home (September letter).

The trip to Guatemala led Fairchild (1942) to write one article on cherimoya landraces from Colombia and Guatemala, and this was the only publication that resulted from this 1941 Latin American voyage. During

Fig. 6. Lily pond of Summit Gardens as it appeared in 1941 and as it looks today. **A.** David Fairchild (left) and Walter R. Lindsay (right) near *Garcinia mangostana* trees. **B.** Site shown in (B) in 2024. A (courtesy of the Archive and Library of Fairchild Tropical Botanic Garden). B (photo by Alicia Ibáñez).

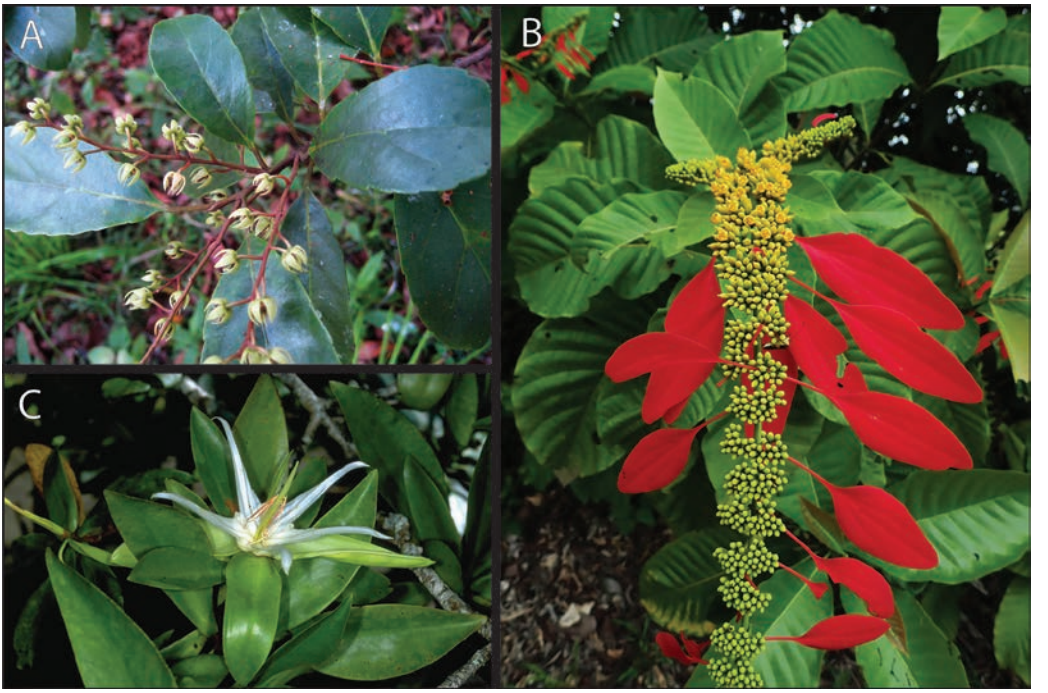

Fig. 7. Three of the species documented by David Fairchild for Panama in 1941 trip to Panama. **A.** *Eleaocarpus serratus*. **B.** *Warszewiczia coccinea*. **C.** *Pelliciera rhizophorae*. Photos by Alicia Ibáñez.

An = Antigua
At = Lake Atitlán
Am = Amatitlán
Ch = Chichicastenango
Co = Cobán
ET = El Tejar
Gu = Guatemala City
Qu = Quiriguá
Ra = Rabinal
Sa = Salamá
SC = Santa Catarina
So = Sololá
SP = San Pedro La Laguna
ST = Santiago Atitlán
Te = Tecpán

Fig. 8. Sites visited during the 1941 trip of David Fairchild to Guatemala.

the trip Fairchild encountered 73 different species (65 natives and eight introduced ones) for which photos were taken or plant material was collected. Seventy-four photos were taken, forty-nine of them depicted plants (46 species). Thirty-two plant collections (28 species) were made, and eleven of them reached the USDA germplasm facilities. The photographic record shows a wide range of topics including markets (Fig. 9), landscapes such as Lake Atitlán, cypress and pine forests, daily life scenes in local villages and the countryside (Fig. 9), Popenoe's house (Fig. 9), as well as documenting economic botany and local agricultural practices, mostly centered on the native palm *Chamaedorea tepejilote* (Fig. 9) whose immature male inflorescence is eaten either raw or cooked. A selection of photos of three of the species that were recorded in Guatemala is shown in Fig. 10.

The Fairchilds were also hosted by the family of Robert Hempstead (1912–1942) who belonged to an important family of coffee growers (Scott 2012). Interestingly, during their stay in Antigua Elizabeth D. Kay, mentioned above, (Fig. 9) was also visiting this old Guatemalan town.

THE 1944 TRIP TO GUATEMALA, HONDURAS AND MEXICO—YUCATAN: THE UNITED FRUIT COMPANY CONNECTIONS

Regarding the Latin American 1944 trip made by the Fairchilds, it was the subject of another undergraduate research project supported by LACC-GL (Burgos-Soler in press). The voyage was sponsored by the United Fruit Company, which invited Fairchild to give the inauguration speech for the opening of its *Escuela Agrícola Panamericana*, Zamorano, Honduras on 12 of October. This international agriculture college was created to train Latin American agronomists and agriculturists. Wilson Popenoe was a key figure in the establishment of this international educational initiative and was its first director. He invited Fairchild not only as the most prominent botanist attending the opening of the *Escuela Agrícola* but also hosted Fairchild, his wife and his son in their colonial house in Antigua. From there David and Marian Fairchild travelled all over Guatemala collecting plant material, visiting gardens and markets as well as documenting details pertinent to the natural history and ethnography of the country. The visit to Guatemala yielded 111 photos and germplasm collections for 34 species. No travelogue was written; however, upon his return he wrote an unpublished report to FTBG and one paper on Guatemalan avocados (Fairchild 1945a, b).

CONCLUDING REMARKS AND FUTURE DIRECTIONS

The trips of David Fairchild to Central America portray him as a professional botanist who had a long-term vision to build programs, networks and collaborations. His achievements go beyond the plant material that was collected, the publications that were produced, and the photographs that were made. David Fairchild was instrumental for the development of the Barro Colorado Island laboratories as a major hub for tropical biology research, and of the Plant Introduction Gardens at Summit, as a magnet for plant introduction programs for the region (Fairchild 1938: 467–468; Croat 1971; Hagen 1990; Elton et al. 2023). Importantly, he contributed to the increasing role of US biological research/survey enterprises in the Caribbean and Central America. He worked closely with botanical centers from the region that were owned and run by academic institutions, governmental agencies, and private companies from USA as the emerging neo-colonial power of the hemisphere (Montes Espín et al. 2021).

In this study we only provide an overview for three of the visits that David Fairchild undertook to Panama, for which there are ample unpublished archive records (years 1921, 1924, and 1933). As a follow-up to this contribution, details of these trips still need further research. As part of our program on undergraduate botanical history research, we anticipate engaging other FIU students to study the aims and scope of these three expeditions. As a plant explorer, most of Fairchild's initiatives focused on the Old World, particularly in Tropical Asia. The undergraduate research that we are conducting in FIU is helping to reveal details of his Latin American and Caribbean trips, which have remained mostly unnoticed to date in botanical history studies. These studies have examined the 1931–1932 voyage across the Caribbean Islands (Camas et al. 2020; Chavarria et al. 2020; Marimon et al. 2022), and the 1944 voyage to Guatemala and Honduras (Burgos-Soler et al. in press). In this contribution we have examined the portion of his 1941 expedition to Colombia, Guatemala, and Panama that explored Central America.

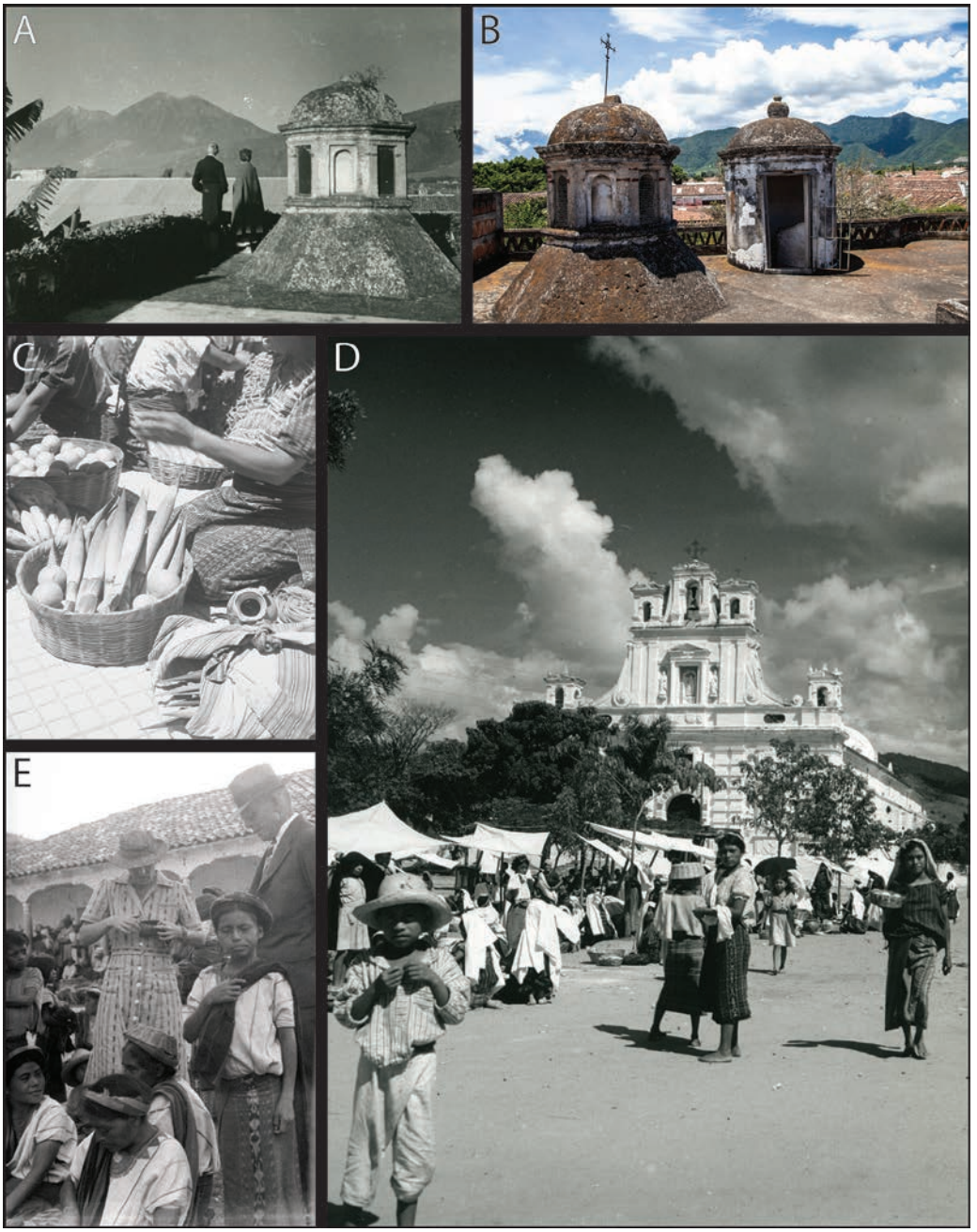

Fig. 9. Photos pertinent to the visit made by David Fairchild to Guatemala in 1941. **A.** Marian Fairchild and Wilson Popenoe on roof of Popenoe's house, Antigua. **B.** Site shown in (A) as it looked in 2020. **C.** Inmature male inflorescences of *Chamaedorea tepejilote* for sale in Antigua market. **D.** Market and San Pablo Church, Rabinal. **E.** Elizabeth Kay and Wilson Popenoe, Santiago Atitlán. A–C, D (courtesy of the Archive and Library of Fairchild Tropical Botanic Garden). B (photo by Rolando Estrada Cuevas through *Casa Popenoe*).

Fig. 10. Species documented by David Fairchild for Guatemala in 1941. A. ***A. Pinus oocarpa*****. B.** ***Tillandsia leiboldiana*****. C.** ***Crataegus mexicana*****. Photos by Miguel A. Pérez Farrera.**

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