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**A CURIOUS BRANCHING INDIVIDUAL OF A SOLITARY SILVER
THATCH PALM (*Coccothrinax argentata*) IN THE BAHAMAS:
WITH FURTHER ASSESSMENT OF THE SPECIES**

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ABSTRACT

Here we report the first record in The Bahamas of an equal-branching (apparently dichotomously-branching) solitary palm in the Subfamily Coryphoideae [Family Arecaceae (syn. Palmae)]. Sandra D. Buckner, while on a research trip to the Exumas, first observed this branching Silver Thatch palm [*Coccothrinax argentata* (Jacquin) L.H. Bailey] in June 1996. Subsequent trips in 1997 and 1998 by Buckner and in 2005 by Joseph A. Wasilewski disclosed the palm had branched a second time. A recent trip by Buckner in March 2011 revealed that the palm was still growing well. Cause of the branching is unknown, but hurricane damage may have triggered the abnormal growth habit. No other branching palms have been observed on the island. Silver Thatch palm was first reported from the Bahamas in the late 1700s. We consider the palm in the context of later collectors and names applied to the species.

INTRODUCTION

During a research trip to the southern Exumas, The Bahamas (Figures 1 & 2), we observed a branching palm in a species that normally has a solitary (unbranched) trunk. This is the first record of an equally branched (apparently dichotomous) Silver Thatch palm [*Coccothrinax argentata* (Jacq.) L.H. Bailey (Family Arecaceae, Subfamily Coryphoideae)].

Nine solitary palm species [Family Arecaceae, (syn. Palmae)] occur naturally throughout the Bahama Archipelago, but not all of them are found on each island (Patterson & Stevenson 1977, pp. 8-11; Correll & Correll 1982, pp. 250-265; Kass 1986, Kass 2009, pp. 128-135). Solitary palms generally have a single trunk with large persistent leaves, which often shed after withering by breaking at the base of the leaf stalk (petiole/rachis). The growing tip (apex) of solitary palms gives rise to the leaves, forming a crown. If the apex is damaged by wind, insects or human harvest, the palm usually dies. Aerial branching in solitary palms is unusual and has only been found naturally in a few palm species (Johnson 1995). Equal dichotomous branching (non-axillary) has been reported in the genera *Nypa*, *Hyphaene*, and *Chamaedoria*, as well as in the rattan genera *Eugeissona*, *Korthalsia* and *Raphia* (Dransfield et al. 2008, table 1.1, p. 3).

Though rare, aerial branching in solitary palms has been known to occur abnormally, typically in areas of frequent hurricanes. Among the nine Bahamian palm species, branching has also been reported in Coconut palm (*Cocos nucifera* L.) growing in India (Geddada et al. 2010), and in Sabal palm [*Sabal palmetto* (Walter) Lodd. ex Schult. & Schult. f.] growing in the Caribbean (Grassia 2008), and in Florida (Presley 1934). Mr. Tracey Styles of Williams Town, Little Exuma, The Bahamas, mentioned (personal communication, 30 March 2011) that a friend of his had

talked about a “two headed coconut” palm on Cat Island, but Styles had never seen it.

Since species of solitary palms seldom branch, those that do are of special interest. We therefore searched for information on this unusual individual relative to others of *Coccothrinax argentata* in the Bahamas and among palms as a whole. While searching the literature for characters to identify the branching palm in a vegetative state, we learned that a new palm species was collected in The Bahamas during the late 1700s, when Emperor Joseph II of Austria had sent botanists Franz Maeter and Franz Boos to the New World to collect plants (Coker 1905, p. 187). Boos collected seeds of the new palm in 1784 and sent these back to Austria, where decades later, Nikolaus Joseph Jacquin named the plant *Palma argentata* in a finely illustrated work published in six parts from 1800 to 1809 (Jacquin 1800-1809, fasc. 3, 1802-1804). This new palm, commonly known today as Silver Thatch, Silver Top or Bay Top palm, was subsequently collected in The Bahamas and identified by various botanical and common names (Table 1). By 1939, L.H. Bailey had compared published accounts and specimens of Silver Thatch palm and transferred the species to *Coccothrinax* as *C. argentata* (Bailey 1939).

METHODS AND RESULTS

Branching Palm. On 8 June 1996, one of us (SDB) first observed and photographed a branching palm on Sandy Cay (=White Cay) while surveying the status of the rare Rock Iguana (*Cyclura rileyi cristata*) that is restricted to this small island (Hayes 1997). Sandy Cay is a 14.9-hectare (about 37 acres) cay at the southern end of Exuma Sound on the Great Bahama Bank (Figures 1 & 2). This same palm was observed again on 19 October 1997 and 4 May 1998 by SDB, and by J. A. Wasilewski (JAW) on 17 Nov. 2005. In October 1997, a year following our first observation, we unexpectedly observed a second division on the westernmost branch. The palm has continued to grow well over the next 14 years (Figures 3 & 4).

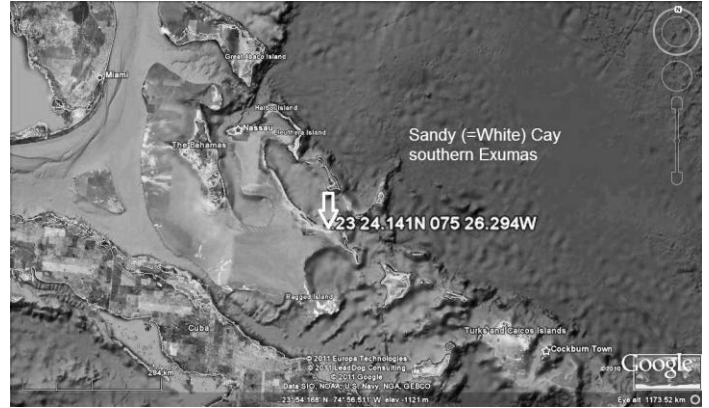


Figure 1. Map of the Bahama Archipelago; arrow indicates location of Sandy Cay (=White Cay), southern Exumas, where branching *C. argentata* palm was first found [image © Google].

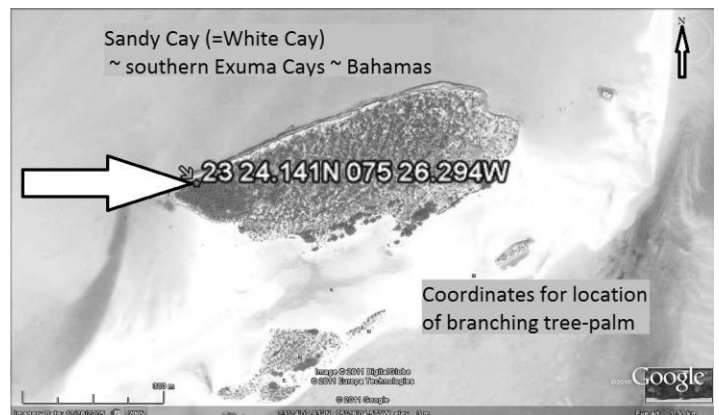


Figure 2. Sandy Cay (=White Cay), southern Exumas; arrow indicates locality of branching *C. argentata* palm [image © 2011 Digital Globe; © 2011 Europa Technologies; Google Earth © 2011 Google; annotated by SDB].

Study Plant Identification. To verify the species, its location, and survival, SDB returned to the Cay on 30 March 2011, along with Tracey Styles (TS). They measured the trunk and branching sections with a Lufkin Hi-Viz tape and the diameters using outside calipers. They also collected voucher specimens (Figure 5) for the Bahamas National Herbarium (BNH). The branching palm had been part of a thick stand of Silver Thatch palms prior to Hurricane Lili (October 1996). Subsequently, it was easier to access the stand, due to loss and decay of many shrubs and palms, presumably downed by the hurricane. Previous flowering was evident from remaining dried pieces of inflo-

rescence (Figure 5). Other palms in the Silver Thatch stand had flowered previously and fruits were evident.



Figure 3. Branching Silver Thatch palm, *C. argentata*, on Sandy Cay (=White Cay), southern Exumas, 30 March 2011. First and second equal branching is clearly visible (see Figure 4) [image © by S. Buckner].

We identified the branching palm (Figure 3) as *Coccothrinax argentata* (Jacquin) L.H. Bailey [Family Arecaceae (Syn. Palmae), Subfamily Coryphoideae] using key characters described by Bailey (1939) and others (Correll & Correll 1982, pp. 252-255; Kass 1986; Zona 2000; Dransfield et al. 2008, pp. 57, 226-227; Kass 2009, p. 130). Although the branching individual was not in flower and no fruits were available, a key character used to identify the palm was that the bases of the petioles were definitely not split (Zona 2000; Figure 6), thus distinguishing it from *Thrinax morrisii* H. Wendl [now *Leucothrinax morrisii* (H. Wendl.) C.E. Lewis & Zona (Dransfield et al. 2008, pp. 230-232)]. *C. argentata* is often confused with *T. morrisii*; we use the name *T. morrisii* throughout this report for ease of comparison with the literature.

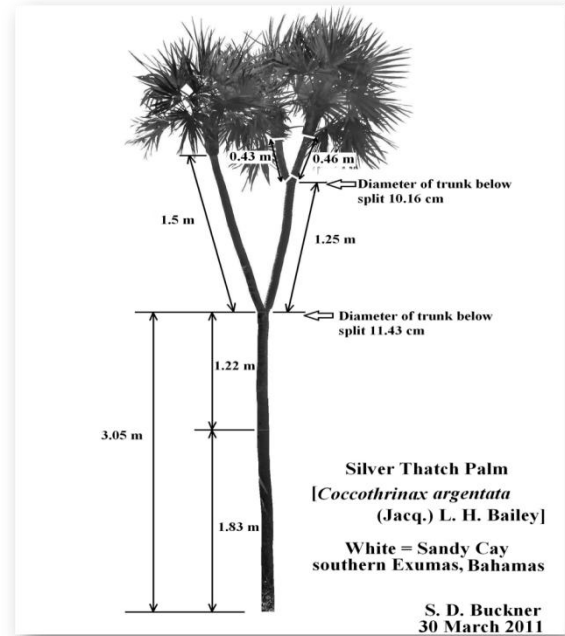


Figure 4. Schematic of branching palm, *C. argentata*, to show length and width of branching trunk (see Figure 3) [© H. Buckner].

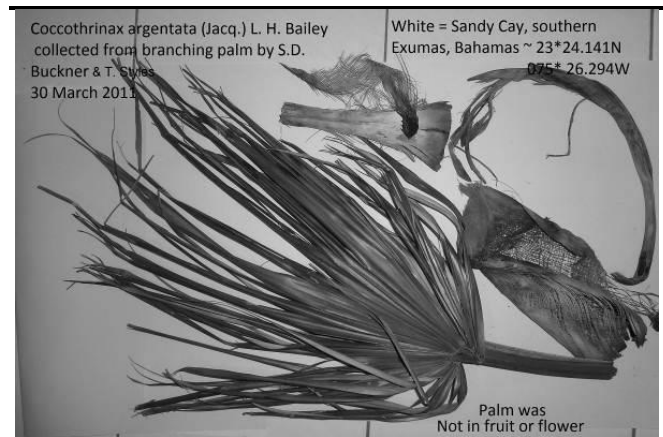


Figure 5. Dried specimens collected from branching Silver Thatch palm on Sandy Cay: frond, petiole, spathe (inflorescence bracts) and part of the persistent fibrous sheath (matting) of the expanded leaf petiole base [specimens will be deposited at BNH; collected 30 March 2011 by TS & SDB; image © by S. Buckner].

The branching *C. argentata* trunk measured 3.1 m high to the first branch, and one of these branches measured 1.5 m to the base of the crown of leaves (Figures 3 & 4). The distance from the first branch to the second branch is 1.25 m. The length of the second set of branches aver-

aged 44.5 cm (Figure 4). The trunk diameter measured 11.4 cm just below the first branch and 10.2 cm just below the second branch.



Figure 6. Branching Silver Thatch Palm, *Coccothrinax argentata*, on Sandy Cay; petiole base is not split, a key character for distinguishing this palm from *Thrinax* [image © by S. Buckner, 30 March 2011].

Records of Silver Thatch palm in the Bahamas. While searching the literature to identify the palm and locate the type specimen of *C. argentata*, we found several records for specimens of Silver Thatch palm collected in The Bahamas and Florida, USA. We examined specimens at the L. H. Bailey Hortorium Herbarium (BH), searched online herbarium databases, and communicated with herbarium curators where historical specimens of *Palma argentata*/*C. argentata* might be deposited.

The first Silver Thatch palm was collected in The Bahamas during the late 1700s (Coker 1905, p. 187), and was described and named *Palma argentata* by Jacquin (1800-1809, fasc. 3, p. 38). Jacquin's description was based on a living specimen growing in the botanical garden at Schönbrunn, near Vienna, Austria (Bailey 1939) and was accompanied by a colored illustration of a partial leaf (Jacquin 1800-1809, fasc. 3, t. 43, fig. 1). Jacquin's illustration may ultimately be considered a lectotype if an herbarium specimen cannot be found at the Naturhistorisches Museum in Vienna (W), or elsewhere. We have recently learned that most palm specimens at W were destroyed during World War II, and Curators at BM,

BHUPM, GE, K, LINN, W and WU have informed us that no specimens of *Palma argentata* collected by Jacquin or Boos can be located in their herbaria.

Our search for herbarium specimens of Silver Thatch/Silver top palm from The Bahamas during the 18th and 19th centuries revealed the palm was subsequently collected there by Eggers in 1888 (Thiselton-Dyer 1888, Eggers 1892; Millspaugh 1902, p. 455), John and Alice Northrop in 1890 (Northrop 1902, Kass 2005), and later by Coker in 1903 (Coker 1905), and others. Their herbarium labels and published reports identified the palm by various botanical and common names (Table 1).

In 1925, Liberty Hyde Bailey and his daughter Ethel Zoe Bailey photographed and collected a species of *Coccothrinax* growing in southern Florida, USA, and compared it with other published descriptions and the illustration published by Jacquin. Bailey's observations of these palms on New Providence and Andros Islands, The Bahamas, and in southern Florida, USA, led him to conclude they were the same species.

In 1939, Bailey assigned Jacquin's palm to a different genus, proposing the new combination *Coccothrinax argentata* (Jacquin) Bailey, from names previously published by C.S. Sargent and Jacquin. Bailey's paper included three photographs of the living palm that he and Ethel had observed and collected in Florida. One photograph depicts a "small form" of the palm "with young plants about the base as if they were seedlings." These he explained are "really offshoots or suckers ... soon detaching from the parent" and recently described by Presley in 1934 (Bailey 1939, figure 142). Bailey did not mention that he had also made specimens to voucher his photographs (Bailey 1939). We recently found the Baileys' Florida specimens at Cornell University [(BH); Table 1; see Figure 7, Bailey's herbarium specimen of fruits of Silver palm, which he had photographed for figure 143].

Plant Survey of Sandy Cay. In 1980, John B. Iverson, while conducting a population survey of the Rock Iguana (*Cyclura rileyi cristata*), collected voucher specimens of the plants on Sandy Cay

(Kass et al. 1998). The species collected were confirmed by SDB in June 1996, and a few records were added during later visits to the Cay following Hurricane Lili (October 1996). Voucher specimens are or will be deposited at BNH.



Figure 7. Infructescence/Fruits of *Coccothrinax* collected by L.H. Bailey and Ethel Zoe Bailey in 1925, Coconut Grove, Florida. Their photograph of the live specimen was published in May 1939. Bailey annotated the herbarium sheet in September 1939, with the new palm name, *Coccothrinax argentea*, Bailey.[specimen is currently at BH, Cornell University; image © L.H. Bailey Hortorium, Cornell University].

Plants found on Sandy Cay (Table 2), including Silver Thatch palm, are typically those associated with a Coastal Coppice Community [Correll & Correll 1982, p (20)] and have been sub-classed with a *Coccothrinax*-shrub Subcommunity (Smith 1993, p. 11). *C. argentea* was the only palm species recorded for Sandy Cay in 1980 by Iverson and confirmed by SDB in subsequent visits to the Cay. We have not observed *T. morrisii* on this Cay (Table 2), although it has been reported there (Fry 2001).

DISCUSSION AND CONCLUSIONS

Although *C. argentea* is usually found with a solitary stem, it has been reported from Florida to produce multiple stems (Presley 1934, Zona 2000), and may also produce offshoots or suckers, from the trunk base, or along its trunk (Presley 1934, Bailey 1939, Zona 2000). In February 2012 on San Salvador Island, Bahamas, Susan Danforth and LBK observed very young plants growing close to the trunks of *C. argentea*, as mentioned by Bailey (1939). Upon removing soil from around these young plants, they observed no attachments to the parent plants and found cotyledons and seed coats still attached to the seedlings (unpublished results).

We found no previous reports of equal branching in this species, and believe this is the first record of a twice-branching *C. argentea* palm in the Bahamas, or elsewhere. Until we have anatomical evidence that the palm is branching dichotomously, and branch development is non-axillary, we prefer to use the term “apparently equal branching.”

The cause of branching in our palm is not known, but hurricane damage to the apex may have triggered the abnormal growth habit. *C. argentea* was the only palm species recorded on Sandy Cay in 1980 (Table 2). The first branching palm was observed in 1996, and following Hurricane Lili (October 1996), a second branch was observed in October 1997. Since these palms are known to be very slow growing (Davis et al. 2007) damage to the apex may have occurred much earlier. Or possibly a mutation caused the branching, which may be hereditary. We plan to collect and germinate fruits of the branching palm to study this possibility. Molecular studies of tissue from branched and unbranched forms may also help resolve this question, as previously applied to a study of varietal forms (Davis et al. 2007). Bailey (1939) noted a “small” form of this palm, and recent molecular studies of living Florida populations (Davis et al. 2007) have shown little evidence that tall (6-8 m) and short (<1 m to 2 m) forms are separate taxa. *Coccothrinax argentea* is distributed throughout all regions of The Bahamas and in Florida, USA

(Correll & Correll 1982, Areas 1-11, see map inside cover), and we have observed both forms throughout the Bahamas (Kass & Buckner, unpublished). We plan to survey *C. argentata* populations on Sandy Cay for size variations, and for trunk offshoots and suckers, as seen in Florida by Bailey (1939), and by Presley (1934).



Figure 8. Distribution map (ca. late 1970s) of *C. argentata* in the southern Exumas [Gillis 197?/unpublished].

Ethnobotany. Silver Thatch palm has important economic uses in the Bahamas (Kass 2009, p. 130). Early collectors (Table 1) noted its use in weaving hats, and currently it is also used for weaving placemats, baskets, and handbags, and for thatching roofs. On San Salvador, it has been used as a famine food (White 1985, p. 18; McCormack et al. 2011, p. 249). It is essential, therefore, that one distinguish *C. argentata* from *T. morrisii*, which is primarily used for roof thatching in the Bahamas (Kass 2009, p. 134). Gillis (197?) recorded *T. morrisii* in the northern Exumas, and found *C. argentata* in the southern Exumas (Figure 8), which is the vicinity of our branching palm study area (Figures 1 & 2). Correll & Correll collected *T. morrisii* on Great Exuma (FTGVH, *Leucothrinax*); Sandy Cay is not on the list of islands where they or others collected specimens from the Exumas (Correll & Correll 1982, Area 6, p. 1557; FTGVH, *Leucothrinax*). Fry (2001) reported a small forest of *T. morrisii* on Sandy Cay, but we have not observed or col-

lected it in the area of the branching *C. argentata*, and it was not recorded on Sandy Cay in 1980 (Table 2). Correll & Correll [1982, p. (20)] mention that “silver palms” (*C. argentea* [sic]) are commonly found in the Coastal Coppice. Smith (1993, p. 11) lists “Silver thatch palm,” *C. argentata*, as one of the “more common species” of the “*Coccothrinax*-shrub” Subcommunity (see below) on San Salvador Island, The Bahamas. One of us (LBK) has records to support Smith’s account, and SDB has records for *C. argentata* on many other cays in the Exumas. We plan to survey all palm species on Sandy Cay during our forthcoming trip to the island.*



Figure 9. Tracey Styles using fibers from the leaves of *C. argentata*, demonstrates how to plait (braid) the strands for weaving [image © by S. Buckner].

Bahamians often decide whether a palm is Silver Thatch (*Coccothrinax argentata*) or Brittle Top (*Thrinax morrisii*) by crunching up the fronds in their hands - if they break into strands for plaiting (braiding) they are Silver Thatch palm - if they crumble into pieces they are Brittle Top palm. Plaited strands from the palm next to the branching palm found on Sandy Cay are shown in Figure 9. Induced abnormal aerial branching in solitary palms for economic purposes is limited

(S. Zona, personal communication, 22 June 2011) and a disadvantage is that palms are usually propagated by seed (Johnson 1995). Branching palms produce more leaves than do solitary palms. If offspring from such palms can produce more branching palms it would provide another economic asset for the Bahamas.

Reproductive Biology. Silver Thatch palm is assumed to be either wind- or insect-pollinated (Tomlinson 2001, p. 344; Davis et al. 2007). Coryphoid genera are apparently insect-pollinated (Moore unpublished, in Uhl & Moore 1977). Recent experimental studies in Florida populations of *C. argentata* support the hypothesis that insects may play a role in its pollination (Khorsan-Rosa & Koptur 2009). A recent review of palm pollination reveals that beetles may be the most important group of pollinators, followed by bees and flies (Barford et al. 2011). Although we did not observe flower visitors to the Sandy Cay *C. argentata* palms, LBK observed beetles visiting inflorescences on a young *C. argentata* on San Salvador Island, The Bahamas, in June 2010 (Kass unpublished). This observation provides additional support for the idea that insects and perhaps beetles may play a part in pollinating this palm. Furthermore, Birds and Iguanas are potential dispersers of Silver Thatch palm fruits and seeds (Bailey 1939, Iverson 1979, Hines 2011, JAW unpublished). If the branching mutation is heritable, we might expect to find progeny in outlying areas.

We plan a study of the reproductive biology of *C. argentata* in The Bahamas, which will supplement our earlier and current studies of the reproductive biology of Bahamian species (Rathcke et al. 1996; Rathcke et al. 2001a; Rathcke et al. 2001b; Rathcke & Kass 2003; Rathcke et al. 2005; Landry et al. 2005; Kass et al. 2007; Kass et al. 2011c).

C. argentata is not threatened in the Bahamas as it is in Florida, USA (Davis et al. 2007; FTGVH, *Coccothrinax*). Coker (1905, p. 251, plate 43, figures 1 & 2) observed the palm all over The Bahamas, collected it (as *C. jacunda* Sarg. identified by O.F. Cook), and photographed large stands growing along the shores of Watlings Is-

land (now San Salvador Island), The Bahamas. At least three major *Coccothrinax*-shrub communities are still extant on San Salvador (Smith 1993, p. 11; Kass 2009), and many such areas are found throughout The Bahama Archipelago (Correll & Correll 1982, Kass 2009, Kass & Buckner unpublished), including Sandy Cay, as reported here. Study areas for our investigations of *C. argentata* populations in The Bahamas, therefore, should not be limited.

Attendees at scientific meetings were intrigued by the oddity of our findings (Kass et al. 2011a, b), and encouraged us to pursue the work further. Since hurricanes are quite prominent in The Bahamas, we suggest that more careful observations continue to be made throughout the region to assess *Coccothrinax*-shrub communities for additional instances of branching in *C. argentata* and other solitary Bahamian palms.

ADDENDUM

Since submitting this paper, it was observed on 13 April 2012 that the Branching Palm had snapped off at its base most probably during the passage of Hurricane Irene in late August 2011.

* A survey of Sandy Cay palms made by SDB on 13 April 2012 revealed that *C. argentata* was the only palm growing on the cay. No species of any other palms were observed (SDB logbook entry 13 April 2012).

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Table 1. EARLY COLLECTORS of SILVER THATCH PALM [*Coccothrinax argentata* (Jacquin) L.H.Bailey] in THE BAHAMAS.* The palm was first collected in the Bahamas by F. Boos in 1784 and grown from seed in the greenhouse gardens at Schönbrunn near Vienna. Decades later it was described and named by N. Jacquin (1800-1809, fasc. 3 1802-1804). L.H. Bailey observed the palm in The Bahamas and collected it in Florida (1925). Bailey (1939) recombined older names and renamed the palm *Coccothrinax argentata*, which is currently accepted. [Columns one and two: synonyms and common names used by collectors or given on herbarium labels or descriptions; column three: *collectors, collection number*, herbarium where specimen is deposited, and herbarium barcode(s); column four: reference and/or herbarium where specimen is described/deposited. BM= Natural History Museum Herbarium, London; BH=Bailey Hortorium Herbarium; K=Kew Herbarium; NY= New York Botanical Garden Herbarium; US=U.S. National Herbarium; s.n.= without number].

| <u>Botanical Name</u> | <u>Common Name</u> | <u>Collector, Number (Herbarium)</u> | <u>Reference</u> |
|--|---|---|--|
| <i>Palma argentata</i> Jacquin | Silver-palmito King-palmito | <i>Frans Boos, s.n.</i> , seed collected in The Bahamas 1884, specimen not located | Jacquin 1802-1804, illustration t.43, fig 1 |
| <i>Thrinax; Palma</i> [<i>Thrinax argentea</i> Lodd, (under label, by unknown author)] | Silver top | <i>Eggers 4134</i> , Hog Island, Bahamas, growing together with 4141 [at K] 21 Feb. 1888 (BM) BM000948891 | Eggers 1892, Silver top used for the preparation of fibers. annotation BM image |
| <i>Coccothrinax jucunda</i> Sarg. <i>Coccothrinax sp.</i> [protologue] | Silver Thatch | <i>J.I. & A.R. Northrop 284</i> , Nassau, New Providence, 13 Feb 1890 (NY) NY01129198 | Northrop 1902, 1910 “used for weaving into hats and baskets, form and venation of <i>C. Garberi</i> (Chapman),” Palms determined by O.F. Cook NY image |
| <i>Coccothrinax jucunda</i> Sarg. | Silver-leaf palm, Silver-thatch palm | <i>Coker 248</i> (fertile) “for leaf see 249,” Green Cay, Bahamas, 1 July 1903 (NY) NY01129196; US00014192 <i>Coker 249</i> (leaf) “over” Green Cay, Bahamas, 1 July 1903 (NY) two sheets NY01129193, NY01129194; US00014193 <i>Coker 306</i> (fruits) “for leaf see 307,” St Georges Cay [Spanish Wells, George Island], Bahamas, 4 July 1903 (NY) NY01129200 <i>Coker 307</i> (leaf) St Georges Cay, Bahamas 4 July 1903 (NY) NY01129197; US00014190 [one sheet for 306 & 307] | Coker 1905, pg. 251, palms determined by O.F. Cook NY images, NY labels by N.L. Britton, Geog. Soc. of Baltimore labels by Coker; US images, Specimens at US were labeled by Cook at USDA then transferred to US. It seems likely that paired collections made on the same date, on the same island, were made from the same individuals |

| | | | |
|--|--|--|---|
| | | <p><i>Coker 490</i> (fruit) “for leaf see 528,” Watlings Island [San Salvador], Bahamas 13 July 1903 (NY) NY01129186 <i>Coker 528</i> (leaf) Watlings Island, Bahamas 13 July 1903 (NY) NY01129185 <i>Coker 529</i> (leaf) Watlings Island, Bahamas 13 July 1903 (NY) NY01129192</p> | <p>Britton and Millspaugh (1920, pp. 651, 659) mention that Coker’s plants were deposited at NY.</p> |
| <p><i>Coccothrinax</i> sp. Silver palm [<i>Coccothrinax argentata</i> Florida Silver palm Bailey, L.H. Bailey, 16 Sept. 1939, (annotation label)]</p> | | <p><i>L.H. Bailey & Ethel Zoe Bailey 6293</i> Coconut Grove, Florida, USA 29 Jan. 1925 (BH) four sheets fruits, buds, flowers, leaf, BH000042991, BH000042992 BH000042993, BH000042994</p> | <p>Bailey 1939 [May 31], fig. 143 Bailey [fruits of silver palm]. Sheets examined by LBK at BH, 2 May 2011; see Figure 7.</p> |
| <p>*Early Bahamian collections not included here are A.S. Hitchcock (1893, MO), L.J.K. Brace (NY, US), G.V. Nash (NY), M.A. Curtis (NY), N.L. Britton & C.F. Millspaugh (1920, NY).</p> | | | |

Table 2. PLANTS of SANDY CAY (=White Cay) east of Hog Cay Cut, southern Exumas. Of the 18 species listed, 14 were collected by Dr. John B. Iverson in 1980. In June 1996, an additional three species were collected by S. D. Buckner, and all specimens were deposited in the Bahamas National Herbarium (BNH). The plants are associated with a *Coccothrinax*-shrub Community. The major plant in the community is *Coccothrinax argentata*. *Strumpfia maritima* and *Coccoloba uvifera* are the other two most abundant plants. Note that *Thrinax morrisii* is not present.

| <u>Botanical Name</u> | <u>Common Name</u> | <u>Family</u> |
|--|--------------------|---------------|
| <i>Antirhea myrtifolia</i> | Antirhea | Rubiaceae |
| <i>Casasia clusiifolia</i> | Seven-year Apple | Rubiaceae |
| <i>Casuarina equisetifolia</i> | Casuarina | Casuarinaceae |
| <i>Coccoloba uvifera</i> | Sea Grape | Polygonaceae |
| <i>Coccothrinax argentata</i> | Silver Thatch palm | Arecaceae |
| <i>Conocarpus erectus</i> var. <i>sericeus</i> | Silver Buttonwood | Combretaceae |
| <i>Erithalis diffusa</i> | Low Black Torch | Rubiaceae |
| <i>Erithalis fruticosa</i> | Black Torch | Rubiaceae |
| <i>Ernodea littoralis</i> | Golden Creeper | Rubiaceae |
| <i>Euphorbia mesembryanthemifolia</i> | Coast Spurge | Euphorbiaceae |
| <i>Gundlachia corymbosa</i> | Horse Bush | Asteraceae |
| <i>Rachicallis americana</i> | Sandfly Bush | Rubiaceae |
| <i>Reynosia septentrionalis</i> ** | Darling Plum | Rhamnaceae |
| <i>Scaevola plumieri</i> * | Inkberry | Goodeniaceae |
| <i>Sesuvium portulacastrum</i> | Sea Purslane | Aizoaceae |
| <i>Strumpfia maritima</i> | Strumpfia | Rubiaceae |
| <i>Suriana maritima</i> | Bay Cedar | Surianaceae |
| <i>Uniola paniculata</i> | Sea Oats | Poaceae |
| Unidentified grasses | | Poaceae |
| Unidentified sedges | | Cyperaceae |

* observed but not collected

***Reynosia septentrionalis*: only one plant was found in 1996 located at the edge of the palm grove in the central part of the cay.

Nomenclature updated from Tropicos.org. Missouri Botanical Garden. 26 Nov 2011

(<http://www.tropicos.org/Name/27500170>).

and Wunderlin, R. P & B. F. Hansen. 2008. *Atlas of Florida Vascular Plants* (<http://www.plantatlas.usf.edu/>).