

The Collections of Albert Commons on Delmarva, 1861-1901, with Attention to August 4-5, 1874 and September 9-10, 1875

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When Albert Commons died in 1919, his nephews, Frank W. and Howard W. Commons, donated his herbarium to the Academy of Natural Sciences of Philadelphia. Francis Pennell (1943) called these collections the "most ample botanical collections ever assembled from Delaware." Robert Tatnall (1946) stated: "It gives evidence of care and discrimination on the part of the collector in the identification of his specimens, and of his keenness in detecting new or rare material in the field." At his death, Albert Commons was also known as a mycologist, having collected 1300 species of fungi (now at the Carnegie Museum of Natural History, and the Academy) and 160 species of lichens (Harshberger 1899). Many duplicates of Commons' collections were sent out, notably to the Plant Pathology Herbarium of Cornell University, Herbarium Universitatis Florentinae, Gray Herbarium of Harvard University, Missouri Botanical Garden, New York Botanical Garden (639 sheets), and the Smithsonian Institution (Lanjouw and Stafleu 1954). His importance was such that Ashe (1898) named *Panicum commonsianum* after him.

Albert Commons was born the son of John and Ann (Phipps) Commons in the village of Doe Run, Chester Co., PA on January 23, 1829. Albert was sickly and greatly influenced by his older brother Franklin. In 1839, Albert, while a student at the Academy at Unionville, purchased a copy of Darlington's 'Flora Cestrica,' and had a tin collecting box made (Harshberger 1899). At his brother's demise in 1842, they had collected about 500 specimens. Albert's first botanical trip in Delaware appears to have been in 1842, soon after he moved to the Commons farm near Centreville, New Castle Co., DE.

The 4262 specimens of Albert Commons that we have located are of great interest for botanists to understand the historical flora of the Delmarva Peninsula. His collections of *Rhynchospora knieskernii* and *Eupatorium resinosum* in 1874 and 1875 are of concern due to the potential status of these taxa as federal endangered or threatened species. This paper reconstructs Commons' field activities for this period and concludes that both species were collected by Commons in Delaware.

THE CASE OF *RHYNCHOSPORA KNIESKERNII*

Albert Commons never knew that he had collected *Rhynchospora knieskernii*. He died without making such a claim, leaving us his notebook (now at the Claude E. Phillips Herbarium) with this species marked as something to be sought in Delaware. The facts in the case are these: (1) On August 5, 1874 Albert Commons collected a specimen that he labelled "*Rhynchospora* (?) *capillacea*. Torr. swamps near Gumboro, Delaware" (PH540107). (2) On September 10, 1875, he collected a specimen that he labelled "*Rhynchospora axillaris microcephala*. Britt. swamps, (Baltimore Hundred) Sussex County, Delaware" (PH540117). (3) Both of these specimens languished under these names for 67-68 years until Shirley Gale annotated them in 1941 as *R. knieskernii* Carey (see Gale, 1944).

What floras did a collector use in 1874 and 1875? Wood (1861) and Gray (1867) were widely available, but the latter would have been more commonly used. Gray (1867) does not have keys, and illustrations are given only for genera. *Rhynchospora knieskernii* is lumped together with *R. capillacea* under “spikes chestnut-colored or darker . . . , few-several flowered; stamens 3; bristles usually 6.” The other name that Commons used, *R. axillaris* var. *microcephala*, was not published by Britton until 1892 and did not appear in Gray’s Manual until the seventh edition (Gray 1908). The handwriting for this specimen is on a different slant, indicating that it was added later, probably between 1908 and Commons’s death in 1919. A key to *Rhynchospora* and an illustration of *R. knieskernii* were also published by Britton and Brown (1913), but Commons apparently did not check his sheets of *R. knieskernii*.

Rawinski and Cassin (1986) stated of *R. knieskernii*, “the 1875 record may have actually been collected from NJ.” This speculation later was noted in the *Endangered Species Technical Bulletin*, a publication of the US Department of the Interior, Fish and Wildlife Service: “It is believed to be endemic to the Pinelands area of southern New Jersey . . .” and “Historically, it was found at 38 confirmed sites in New Jersey.” (Anonymous 1990, 1991), without mention of Delaware. The official report from Delaware to the federal government (Trew and Clancy 1991) furthermore stated: “There is doubt as to the validity of these records.”

How did these two specimens of Albert Commons assume doubtful status? Conversations with some individuals hired by a private conservation group revealed their belief that Delaware lacked any real importance in rare plants and that Commons actually collected many of his rare plants in New Jersey. Tracing this claim further revealed the rumor that Bayard Long (1885-1969) had remarked that Albert Commons did not always label his specimens until later and that he often confused his collections. No one has offered proof, however, that Albert Commons actually did this. Bayard Long was only 16 at the time of Commons’ last collection from Delmarva in 1901. We must also remember that *R. knieskernii* is found in early successional wetlands within oak/pitch pine forest stands. Even in New Jersey, only 27 out of 38 sites for this species still exist (Anonymous, 1991).

THE CASE OF *EUPATORIUM RESINOSUM*

On August 5, 1874, Albert Commons collected *Eupatorium resinsum* from “wet places, near Gumboro” (PH542918). On September 10, 1875, Commons collected *E. resinsum* from “low pine barrens (Baltimore Hundred), Sussex Co.” (PH542917). Note also that Commons misidentified a collection of *E. hyssopifolium* as *E. resinsum* collected in sandy woods of Rehoboth on August 1, 1895 (PH542901). The 1874 and the 1875 specimens of this composite were collected on the same dates as *Rhynchospora knieskernii*. In his report on *Eupatorium resinsum* Torrey ex D.C. for the US Fish and Wildlife Service, Mowbray (1986) reported this species as once found in Delaware but now extirpated. A similar report was made by Rawinski and Cassin (1986).

In our study of the floristic geography of Delmarva, we have come to realize that rarity is often a natural and successful “strategy” for survival. We have also come to appreciate the Delmarva Peninsula as a significant link in the Long Island-New Jersey-Delmarva-Carolinas-Georgia chain of pinelands, wetlands, and coastal habitats.

We rediscovered *Oxypolis canbyi* in 1980 in South Carolina, and established its taxonomic status as a distinct species (Tucker *et al.* 1983). We later rejoiced at the discovery of *O. canbyi* in Maryland (Boone, Fenwick, and Hirst, 1984). We have explored *R. knieskernii* sites in New Jersey and *E. resinsum* sites in New Jersey, South Carolina, and

Kentucky (Tucker and Dill, 1989b). We have reconstructed, at least in part, Rafinesque's lost *Florula Delawarica* (Tucker and Dill 1989a), and we have no problem accepting his collection of *Drosera filiformis* in Sussex Co., Delaware, especially since Clyde Reed has re-collected this species (personal communication, 1985). *Aeschynomene* species, sedges, and many other rare plants also share this distribution on Delmarva (Broome *et al.* 1979; Carulli, Tucker, and Dill 1988; Naczi *et al.* 1986; Tucker *et al.* 1979).

We therefore have no problem with the collections of Albert Commons. In fact, we noted (Dill and Tucker 1986) that "... contrary to the classic philosophical problem of science being able to establish the negative but not the positive, the biogeographer establishes concretely the presence of a taxon through voucher collections but is never able (over large areas) to state that a taxon is not present. 'Extirpated' taxa have an uncanny (and embarrassing) way of reappearing."

RETRACING THE STEPS OF ALBERT COMMONS

In order to assimilate the flora of Delmarva for his book, Tatnall (1946) compiled a card file of all Delmarva herbarium records of the Academy of Natural Sciences, his herbarium, and the herbarium of the Society of Natural History of Delaware (the latter two now at the Claude E. Phillips Herbarium). Manual examination of this card file revealed many other species that had been collected on the same dates as the *Rhynchospora knieskernii* and *Eupatorium resinosum*. Robert Tatnall did not have access to the herbarium of Edward Tatnall, which had been sent out to Colorado College in 1902 (Anonymous, 1902), but these specimens were returned on permanent loan to the Claude E. Phillips Herbarium in 1980. We also acquired the Delmarva specimens of the Langlois Herbarium at Catholic University upon its dissolution in 1986 (Tucker, Poston and Iltis, 1989). In addition, we have examined specimens of Commons at the New York Botanical Garden and the Smithsonian Institution.

The vascular plant collections of Commons, totalling at least 4262 specimens, were collated for computer analysis. These records were then sorted by date, species, and location. In addition, we are fortunate to have Commons' notebook, which is actually an annotated copy of Edward Tatnall's 1860 *Catalogue*.

Our first record of a Commons herbarium specimen from Delmarva is *Tephrosia virginiana*, collected near Centreville. Commons made this collection in 1861 at the age of 32. Many of his collections were near the family farm in Centreville, but many excursions were made as far south as Salisbury, MD. The last recorded collections were made on September 9, 1901, when Commons was 72, from the Stanton-Ogletown area of Delaware. Our computerized records comprise a nearly complete survey of Albert Commons' activities in Delmarva over a 40-year period. This resource makes it possible for us to compare and contrast Commons' botanical travels with his collections of *R. knieskernii* and *E. resinosum*.

On August 3, 1874, Albert Commons collected *Potamogeton nodosus* from the Red Clay Creek at Greenbank (probably while waiting for the train).

On Tuesday, August 4, he collected the following specimens (names have been modernized to Kartesz and Kartesz (1980) but not all sheets have been annotated recently): *Polypodium polypodioides*, near Gumboro, Cypress Swamp; *Chasmanthium laxum* (*Uniola laxa*), Gumboro, sand; *Eleocharis robbinsii*, Laurel, bank of Broad Creek; *Paronychia fastigiata*, Laurel, Peppers Mill; *Centrosema virginianum*, near Laurel; *Clitoria mariana*, near Gumboro; *Phyllanthus caroliniensis*, near Laurel, sandy soil, road to Peppers Mill; *Toxicodendron toxicarium* (*Rhus quercifolia*), Laurel, pine woods south; *Vitis aestivalis*,

near Gumboro, Cypress Swamp; *Vitis rotundifolia*, Gumboro; *Oenothera fruticosa*, near Gumboro; *Nyssa sylvatica*, near Gumboro; *Monotropa uniflora*, Gumboro; *Symplocos tinctoria*, near Gumboro; Cypress Swamp; *Polypremum procumbens*, Gumboro; *Verbena officinalis*, Gumboro, sandy soil; *Pycnanthemum setosum*, Laurel, dry pine woods; *Utricularia juncea*, Laurel; *Lobelia nuttallii*, near Gumboro, sand; and *Senecio tomentosus*, Gumboro.

On Wednesday, August 5, 1874, he collected the following specimens: *Potamogeton epihydrus*, Laurel, Broad Creek at wharf; *Najas gracillima*, Laurel, Broad Creek; *Cyperus compressus*, Laurel, sand; *Cyperus dentatus*, sandy swamps, Sussex Co.; *Eleocharis equisetoides*, ponds between Gumboro & Laurel; *Eleocharis melanocarpa*, between Gumboro & Laurel, wet sand; *Rhynchospora gracilentia*, near Laurel; ***Rhynchospora knieskernii*, near Gumboro, swamp**; *Rhynchospora torreyana*, near Laurel; along road to Gumboro; *Scirpus etuberculatus*, ponds, Sussex Co.; *Smilax pseudo-china*, Laurel; *Xerophyllum asphodeloides*, near Laurel, dry pine woods, rare; *Lophiola aurea*, pine barren bogs between Gumboro & Laurel; *Tipularia unifolia* near Laurel; *Myrica cerifera* Laurel; *Myrica pensylvanica* Laurel; *Quercus ilicifolia* near Laurel; *Quercus marilandica* near Laurel; *Paronychia fastigiata* Gumboro, dry woods; *Minuartia caroliniana* (*Arenaria caroliniana*) near Little Hill, dry sand; *Desmodium marilandicum* Laurel; *Rhynchosia tomentosa* Pepperbox, $\frac{3}{4}$ mi NE, sandy pine barrens, Little Hill Church; *Hypericum denticulatum* var. *denticulatum* var. *ovalifolium*), near Laurel, pine barrens; *Viola pedata*, Laurel, pine barrens; *Chimaphila maculata*, Laurel; *Vaccinium stamineum*, Gumboro, woods; ***Eupatorium resinatum*, near Gumboro, wet places**; and *Pityopsis graminifolia* (*Chrysopsis graminifolia*), Laurel, pine barrens SE. By August 7, he returned to Centreville, where he collected *Vitis vulpina*, *Physalis alkekengii*, and *Lobelia cardinalis*.

On September 3, 1875, Albert Commons collected *Impatiens capensis*, *Solanum nigrum*, and *Scrophularia marilandica* at Mt. Cuba and near Centreville. On the morning of Thursday, September 9, he collected *Leersia virginica* from Centreville, and, on continuing his travels south that day, he collected the following specimens: *Lycopodium appressum*, Cedar Neck, sandy bogs; *Scleria reticularis* (*S. muhlenbergii*), Felton; *Ilex glabra*, Frankford; *Eryngium aquaticum*, Felton, sandy ditches; *Bartonia virginica*, near Frankford, Cypress swamp; and *Pluchea camphorata*, Gumboro, cypress swamp E. He probably arrived in Sussex Co. late in the day on September 9, so his list for that day is quite naturally short.

On Friday, September 10, he collected the following specimens: *Ruppia maritima*, Cedar Neck; *Triglochin striata*, salt marshes below mouth Indian River; *Eragrostis refracta*, Cedar Neck, moist sand; *Aristida lanosa*, Cedar Neck; *Paspalum dissectum*, Cedar Neck, pond 2 ft deep; *Paspalum floridanum* var. *glabratum*, Rehoboth, S; *Panicum amarum*, Cedar Neck; *Dichantherium aciculare* (*Panicum angustifolium*), Frankford; *Cenchrus tribuloides*, Cedar Neck, seashore; *Schizachyrium scoparium* var. *scoparium* (*Andropogon scoparius*), Cedar Neck; *Schizachyrium scoparium* var. *littorale* (*Andropogon littoralis*), Cedar Neck (N of Ocean View); *Cyperus tenuifolius*, moist soil, Baltimore Hundred; *Eleocharis tortilis* (*E. simplex*), Baltimore Hundred; *Psilocarya scirpoides*, Baltimore Hundred; *Rhynchospora capitellata*, Frankford, moist soil; ***Rhynchospora knieskernii*, Baltimore Hundred**; *Scleria reticularis* (*S. muhlenbergii*), Cedar Neck; *Scleria pauciflora*, Baltimore Hundred; *Eriocaulon decangulare*, Cedar Neck, ocean shore; *Xyris difformis*, Baltimore Hundred; *Juncus acuminatus*, Frankford; *Juncus roemerianus*, salt marsh of Indian River; *Lachnanthes caroliniana* (*L. tinctoria*), Cedar Neck; *Spiranthes tuberosa*, Frankford; *Quercus falcata*, Frankford; *Polygonum glaucum*, sea shore S of Indian River; *Polygonum ramosissimum*, dry sand, S of Indian River, Baltimore Hundred; *Amaranthus pumilus*, Baltimore Hundred,

sea beach; *Atriplex arenaria*, sandy seashore, Baltimore Hundred; *Salicornia virginica* (*S. bigelovii*), Cedar Neck, salt marsh; *Salicornia europaea*, Cedar Neck, salt marsh; *Suaeda linearis*, Cedar Neck, salt marsh; *Desmodium laevigatum*, near Frankford, woods; *Kosteletzkya virginica*, Cedar Neck, salt marsh; *Hudsonia tomentosa*, Cedar Neck, S of Indian River; *Viola lanceolata*, Cedar Neck; *Lythrum lineare*, Cedar Neck; *Oenothera humifusa*, dry sand, coast S of Indian River Inlet; *Myriophyllum pinnatum*, Cedar Neck, ponds; *Eryngium aquaticum*, Cedar Neck, wet places; *Centella erecta*, Cedar Neck, S of Indian River; *Chimaphila umbellata*, Frankford; *Polypremum procumbens*, near Frankford; *Sabatia stellaris*, Cedar Neck near Ocean View; *Centaureum pulchellum*, Cedar Neck N of Ocean View; *Gentiana autumnalis* (*G. porphyrio*), Sussex Co. pine barrens; *Asclepias lanceolata*, Cedar Neck N of Ocean View; *Gratiola pilosa*, Frankford, sandy soil; *Agalinis maritima* (*Gerardia maritima*), below Indian River Inlet, salt marsh; *Utricularis inflata*, Cedar Neck, Baltimore Hundred; *Galium pilosum*, Frankford, sandy soil; *Lobelia puberula*, Cedar Neck, N of Ocean View; ***Eupatorium resinosum*, Baltimore Hundred, low pine barrens;** *Eupatorium serotinum*, Baltimore Hundred; *Pityopsis graminifolia* (*Chrysopsis graminifolia*), sandy pine barrens, Sussex Co.; *Solidago erecta*, Baltimore Hundred; *Euthamia galetorum* (*Solidago tenuifolia*), Cedar Neck, salt marsh; *Aster concolor* Baltimore Hundred, dry sand; *Aster nemoralis* Frankford, swamp E; *Aster novi-belgii* Frankford; *Aster tenuifolius* Baltimore Hundred; *Pluchea foetida* Cedar Neck, swamps; and *Prenanthes autumnalis* Ocean View, N, Baltimore Hundred. By September 15, he had returned to New Castle Co., where he collected *Heliopsis helianthoides* from Mt. Cuba.

Students of Delmarva plant geography may wish to note that there is a Salisbury in Kent Co., Delaware and a Centerville in Sussex Co., Delaware (Heck *et al.*, 1966). According to Robert Tatnall's card file, there are also two Cedar Necks; one between Cedar Creek and Mispillion R., the other south of Indian River Bay, between White Creek and the ocean. All but one of Commons' 'Cedar Neck' records (18 in number) are under date of 10 Sept 1875 as are also his 'Baltimore Hundred' or 'seashore S. of Indian R.' (10 in number). The one exception is *Spergularia marina* (A.C. 'Cedar Neck' 16 Jy 1896), but *Heliotropium* (Slaughter Beach 16 Jy '96) shows that Commons was in upper Sussex Co. at that time. It seems clear that all Cedar Neck records of 10 Sept '75 refer to the Indian River locality.

We have assembled the location information from these specimens and correlated them with Beers (1868) and Delaware place names (Heck *et al.* 1966). Two putative routes are revealed on today's highway maps. The trip August 4-5, 1874 was apparently east from Laurel on Rt. 24, south on Rd. 422A, east on Rd. 422, east on Rd. 427, south on Rt. 26 to Gumboro, and then east on Rt. 54 to the Cypress Swamp. The trip on September 9-10, 1875 was apparently east from Gumboro on Rt. 54, north through the Cypress Swamp on the "South West Bridge" (no longer extant), north on Rd. 406, south on Rd. 405 to Frankford, south on Rd. 376, north on Rd. 375 to Omar, east on Rd. 54 to Clarksville, east on Rt. 26, north on Rd. 357 through Cedar Neck, east on Rd. 360, and then north on Rt. 1 to Rehoboth.

We can also postulate potential habitats along these routes. Many of the species, particularly *R. knieskernii* and *E. resinosum*, could have been collected from wet meadows on the edges of forests and in forest clearings, such as those which persisted until recently east of Ellendale, DE. Atlantic white cedar swamps in this area are particularly important for rare species on the Delmarva Peninsula (Dill *et al.* 1987). We note that the current site of Ryan's blueberry farm, just north of the Cypress Swamp, is dominated by *Panicum hemitomon*, a species which we have only otherwise found correlated with Delmarva Bay or bay-like habitats.

Much environmental change has occurred in the Cypress Swamp since Commons' trips in 1874 and 1875. The standing cypress trees were extensively harvested for shingles. After the Civil War, the buried logs were mined. Then, in 1930, a devastating fire hit the Cypress Swamp; it burned for eight months. After the fire, attempts were made to drain the swamp and farm it. In 1961, Edmund H. Harvey formed Delaware Wild Lands, Inc. and subsequently purchased 11,000 acres of the Cypress Swamp.

SUMMARY AND CONCLUSIONS

Our research supports the hypothesis that Albert Commons collected *Rhynchospora knieskernii* and *Eupatorium resinsum* in Delaware in 1874 and 1875:

(1) Nineteenth century field botanists travelled by foot, horse and buggy, boat, and/or train, all of which facilitated close botanical observation and collection. The roads of this era were dirt with few highway markers. Consequently, labels of this era were also vague.

(2) Information from specimen labels and notes conclusively place Albert Commons in Delaware on August 5, 1874 and September 10, 1875. At this time we find no evidence that he was in New Jersey on either of these dates. *Polypodium polypodioides*, *Symplocos tinctoria*, *Rhynchosia tomentosa*, *Pityopsis graminifolia*, *Triglochin striata*, *Eragrostis refracta*, *Scirpus etuberculatus*, and *Juncus roemerianus* were all collected by Commons on August 4-5, 1874 and September 9-10, 1875. These species reach their northern limit in Delaware and have never been collected from New Jersey.

(3) Many of the sites of Albert Commons' botanizing have succumbed to residential, industrial, recreational, and agricultural development, especially in the vicinity of the Great Cypress Swamp in Sussex Co. Habitats, communities, and ecosystems may be extirpated as well as local populations of species. The failure to find *R. knieskernii* and *E. resinsum* today in Delaware does not mean that Albert Commons mislabelled his collections, either intentionally or accidentally.

(4) The 4262 Delmarva specimens which Albert Commons collected from 1861 to 1901 represent a significant portion (estimated 78%) of the 2259 vascular taxa listed by Tatnall (1946). Albert Commons' collections, often of overlooked taxa such as grasses and sedges, represent an historical treasure painstakingly assembled over a lifetime. His work firmly establishes him, along with Edward Tatnall and William M. Canby, as a member of the trinity of founding botanists of the Delmarva Peninsula.

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