

2022

## A Question of Priority: *Pterospora andromedea* Nuttall vs. *Monotropa procera* Torrey ex Eaton (Monotropoideae, Ericaceae)

Gary D. Wallace  
*California Botanic Garden, Claremont*

Follow this and additional works at: <https://scholarship.claremont.edu/aliso>



Part of the [Botany Commons](#)

---

### Recommended Citation

Wallace, Gary D. (2022) "A Question of Priority: *Pterospora andromedea* Nuttall vs. *Monotropa procera* Torrey ex Eaton (Monotropoideae, Ericaceae)," *Aliso: A Journal of Systematic and Floristic Botany*: Vol. 40: Iss. 1, Article 3.

Available at: <https://scholarship.claremont.edu/aliso/vol40/iss1/3>

A QUESTION OF PRIORITY: *PTEROSPORA ANDROMEDEA* NUTTALL VS. *MONOTROPA PROCERA* TORREY EX  
EATON (MONOTROPOIDEAE, ERICACEAE)

GARY D. WALLACE<sup>†</sup>

California Botanic Garden, 1500 North College Avenue, Claremont, California 91711

<sup>†</sup>Died 26 June 2022. (Correspondence to: Travis Columbus, [jtcolumbus@calbg.org](mailto:jtcolumbus@calbg.org)).

ABSTRACT

Clarity is lacking on the priority of the names *Pterospora andromedea* Nutt. versus *Monotropa procera* Torr. ex Eaton, both of which were published in 1818, and the suggested clear answer may not be the correct answer. *Taxonomic Literature*, second edition, provides a publication date of 14 July 1818 for Nuttall's *Genera of North American Plants* and a publication date of June 1818 for Eaton's *Manual of Botany ed. 2*. However, upon closer scrutiny, the situation is more complex. The sources for these publication dates are discussed in order to trace the likely sequence of events leading up to publication. Findings suggest that it is unlikely that Eaton's *Manual ed. 2* was published in June 1818. Additional evidence included in Eaton's *Manual ed. 2* and correspondence make it clear that Eaton was in possession of a published copy of Nuttall's *Genera* as he was writing his *Manual ed. 2*. Consequently, regardless of exact date of publication of either of the works, Nuttall's *Genera* was published before Eaton's *Manual ed. 2*, so *Pterospora andromedea* Nutt. has priority over *Monotropa procera* Torr. ex Eaton and should remain the correct name.

Keywords: Eaton, Ericaceae, *Monotropa*, Monotropeoideae, Nuttall, priority, *Pterospora*.

INTRODUCTION

The mycoparasitic pinedrops has long been treated as *Pterospora andromedea* Nutt. The genus and species were described by Thomas Nuttall in *Genera of North American plants* [henceforth *Genera*] (Nuttall 1818, vol. 1: 269–270) based on material collected by Mr. C. [Charles] Whitlow “In upper Canada near the falls of Niagara.” I was unable to locate any specimen that matched this description and consequently selected a neotype, collected by E.B. Copeland near Jonesville, Butte County, California (Wallace 1975: 64). The specimen is in the herbarium of the California Botanic Garden (RSA). There are duplicates in several other herbaria. During the course of my studies of the Monotropeoideae (Ericaceae) for my dissertation I encountered the name *Monotropa procera* Torr. ex Eaton in Amos Eaton's *Manual of botany for the northern and middle states, second edition, corrected and enlarged* [henceforth *Manual ed. 2*] (Eaton 1818: 324). The type was based on a specimen collected by Dr. E. [Edwin] James at Greenbush, now known as Rensselaer, New York. The specimen is in the herbarium of the New York Botanical Garden (NY). I treated *Monotropa procera* as a synonym of *Pterospora andromedea* (Wallace 1975: 64), having considered Eaton's *Manual ed. 2* to have been published after Nuttall's *Genera*. In the *Flora of North America* (FNA; Flora of North America Editorial Committee 1993+) treatments, the citation of synonyms is not extensive. As the FNA is a flora and not a taxonomic treatment, I did not include synonyms in the treatment of *Pterospora andromedea* (Wallace 2009: 389).

I recently received an email from Dr. Kanchi Gandhi, Senior Nomenclatural Registrar at Harvard University Herbaria,

forwarding a suggestion from Dr. Tom Lammers of the University of Wisconsin through Dr. Gordon Tucker of Eastern Illinois University, FNA Ericaceae family editor, that *Monotropa procera* Torr. ex Eaton had priority over *Pterospora andromedea* Nutt., and as such a new combination would be required for the FNA treatment. Dr. Gandhi kindly deferred to me as FNA author of the Monotropeoid Ericaceae treatments to make the taxonomic call. I agreed to look into the matter and make the new combination if necessary. Dr. Gandhi stated that publication dates for the two works in question had been settled a long time ago by *Taxonomic Literature, second edition* (TL-2; Stafleu and Cowan 1976, 1981). Nuttall's *Genera* and Eaton's *Manual ed. 2* were both included in the first edition of *Taxonomic Literature* (Stafleu 1967: 122, 340). I wanted to look closer before publishing a new combination for *Pterospora* and started by looking at the sources that served as the basis of the publication dates of the two works given in *Taxonomic Literature* (Stafleu 1967) and TL-2 (Stafleu and Cowan 1976, 1981).

The basic question of nomenclatural priority is which of the two works, Nuttall's *Genera* or Eaton's *Manual ed. 2*, was published first. The rules guiding establishment of nomenclatural priority are outlined in Article 11 of the *International code of nomenclature for algae, fungi, and plants* (ICNFP) (Turland et al. 2018: 32–39). The exact date of publication for either work is still, as yet, unknown. Ultimately, the timing of publication of these two works relative to one another is more relevant than the exact date of publication of either work. What follows, as background, is an accounting of various reports relating to the dates of publication of the two works, a discussion of Eaton's *Manual ed. 2*, an outline of evidence of the availability of the two works and relation to each other, and concluding remarks about which name has priority.

NUTTALL'S *GENERA OF NORTH AMERICAN PLANTS*

*Date of Publication of Nuttall's Genera*

The date of publication of Nuttall's *Genera* is given as 1818 on the title page of volume 1 (Fig. 1), and 27 May 1818 is the

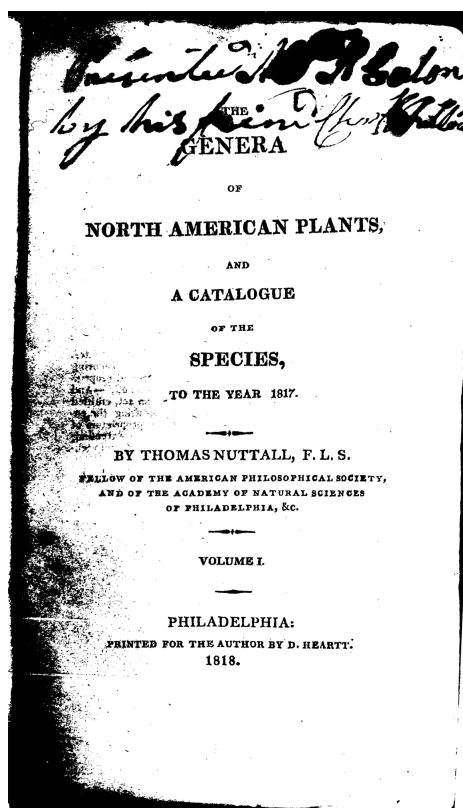


Fig. 1. Title page of Nuttall's *Genera*. This copy is inscribed to Amos Eaton by Thomas Nuttall. Used by permission of Rensselaer Polytechnic Institute.

date given at the end of the preface in the same volume (Nuttall 1818: viii). The title page of volume 2 of Nuttall's *Genera* also gives 1818 as the date of publication.

The specific date of publication of Nuttall's *Genera* is, as yet, unknown but is given as "end of Mai or early June 1818" in *Taxonomic Literature* by Stafleu (1967: 340) who cites Rickett and Stafleu (1961*b*) as a reference. Rickett and Stafleu published a series of articles documenting the circumstances of rejection and conservation of plant generic names. Rickett and Stafleu (1961*b*: 121) list the date of publication of the two volumes of Nuttall's *Genera* as "...end of Mai 1818." They provide references to Barnhart, Bull. Torrey [Bot.] Club 24: 409, 1897 [= Barnhart 1897: 409] and Kuntze, Rev. Gen. 3(2): 160, 1898 [= Kuntze 1898: 160]. Barnhart states that Nuttall's *Genera* must have been published after the middle of May because the preface is dated 27 May.

Moreover, Barnhart refers to another publication, Barton's *Compendium florae Philadelphicae* 1818 (henceforth *Compendium*), that provides clues to the publication date of Nuttall's *Genera*. In his *Compendium* Barton repeatedly cites Nuttall's *Genera* and, in the preface, acknowledges Nuttall's kindness for letting him use it (Barnhart 1897: 409. *TL-2* (Stafleu and Cowan 1976: 130) lists the date of publication of Barton's *Compendium* as "Early Aug 1818" referring to [Joseph] Ewan's copy and quoting remarks by J.H. Barnhart (Barnhart 1899: 379): "The *Compendium* was copyrighted 9 July 1818, the preface was dated 11 July 1818, Nuttall is cited throughout, but it is apparent from the preface that this was possible by

access to the Nuttall manuscripts or proof-sheets ...; the work [*Compendium*] was probably issued in early August 1818." "The book [*Compendium*] did not antedate Nuttall's *Genera*." (Stafleu and Cowan 1976: 130).

Graustein (1967: 117) concurs that Barton had prepublication sheets of Nuttall's text of *Genera*. In fact, Barton (1818, vol. 1: 64) cites for the grass genus *Windsoria* "Nuttall, Gen. Am. pl. vol. 1: 70 (Graminae)", the exact volume and page number where *Windsoria* is described in the published version of Nuttall's *Genera*. Kuntze (1898: 160) also cites the publication date of Nuttall's *Genera* as the end of May [1818].

The date of publication of Nuttall's *Genera* in *TL-2* (Stafleu and Cowan 1981: 785) is given as "14 July 1818 (Graustein 1967: 120, 122)". Jeannette Graustein (1967) wrote a biography of Thomas Nuttall that includes a chapter on his publications. Graustein (1967: 120) states: "At the July 14, 1818 meeting of the Academy [of Natural Sciences, Philadelphia], the author [Nuttall] presented a copy of his classic work on the taxonomy of North American plants." This fact was verified in the minutes of the meeting of the Academy of Natural Sciences, Philadelphia for 14 July 1818, a copy of which was kindly provided to me by Jennifer Vess, Archivist of the Academy. No additional information was provided in the minutes, just the note that Nuttall presented the work to the Academy. Vess indicated that there was no other mention of Nuttall or his *Genera* in the minutes of the Academy for May or June 1818 and that it appeared that meetings of the Academy were weekly during that period. Graustein (1967: 122) states: "He [Nuttall] did not apply for the copyright until April 3, 1818; the Preface was dated May 27, and the book, priced at two dollars, was issued by mid-July." Graustein did not indicate a specific date of publication. To be available for presentation, Nuttall's *Genera* was likely published prior to 14 July 1818. The meeting of the Academy of Natural Sciences, Philadelphia, on 14 July 1818, may have been the earliest opportunity Nuttall had to make the presentation.

In the early 1800s, *The North-American Review and Miscellaneous Journal*, reportedly the first literary periodical in the United States, periodically issued lists of new publications in the United States in the fields of history, law, natural history, education, divinity, etc. The lists were issued every other month or quarterly. Nuttall's *Genera* was included in a list titled *American publications in the months of July and August*, as was Eaton's *Manual ed. 2* (Anonymous 1818*b*). Neither Nuttall's *Genera* nor Eaton's *Manual ed. 2* was included in a similar list covering publications in May and June [1818] published in the previous issue of the same journal (Anonymous 1818*a*).

The date of publication of Nuttall's *Genera*, 14 July 1818, provided in *TL-2* (Stafleu and Cowan 1981: 785) seems warranted at this time.

#### Reviews of Nuttall's *Genera*

Nuttall's *Genera* was praised for his use of his extensive firsthand knowledge of the plants and his accurate descriptions based on personal observations. "Throughout the *Genera* there are critical assessments based mostly on personal observation in the field and firsthand acquaintance with the plants" (Ewan 1971: ix). A review by Rafinesque (1819) praised Nuttall's *Genera*, adding that it was not just a compilation and that it "includes a more correct account of our genera than had ever been published."

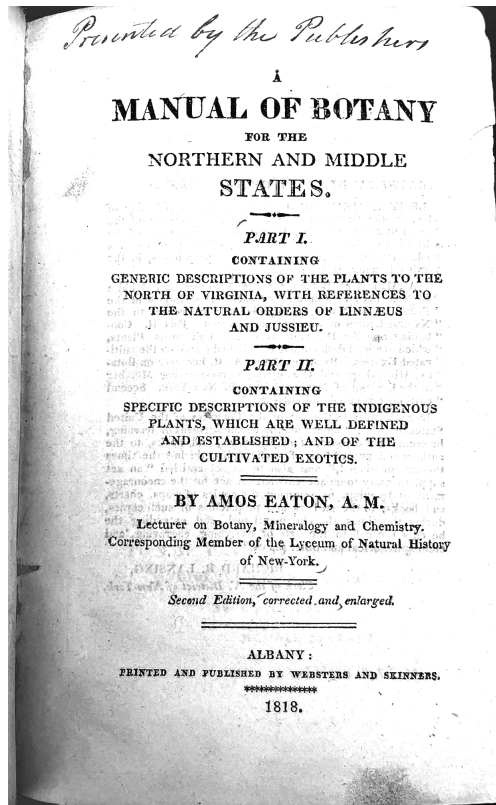


Fig. 2. Title page of Eaton's *Manual ed. 2*. This is most likely the copy sent to John Torrey by the publisher at the request of Amos Eaton. Used by permission of the New York Botanical Garden.

#### EATON'S *MANUAL OF BOTANY*, SECOND EDITION

##### *Date of Publication of Eaton's Manual Ed. 2*

The date of publication of Eaton's *Manual ed. 2* is given as 1818 on the title page of the volume (Fig. 2).

The specific date of publication of Eaton's *Manual ed. 2* is, as yet, unknown but is given as "June 1818" in *Taxonomic Literature* (Stafleu 1967: 122), who cites Rickett and Stafleu (1961a) as a reference. The date of publication given in *TL-2* (Stafleu and Cowan 1976: 718) is likewise "June 1818". The only reference specific to the *Manual ed. 2* is "t. p. [title page] see MD" which refers to Margadant (1968). *TL-2* (Stafleu and Cowan 1976: 719) provides additional references to the *Manual* editions in general, two of which, McAllister (1941) and Merrill and Reeder (1946 [1947]), are relevant to Eaton's *Manual ed. 2*.

I will discuss each of these references more or less in order of their citations in *Taxonomic Literature* (Stafleu 1967) and *TL-2* (Stafleu and Cowan 1976). Rickett and Stafleu (1961a: 81) cite dates of publication of Eaton's *Manual ed. 2* as "1818, Jun (Sayre; July according to Barnhart mss. at the New York Botanical Garden)." Stephen Sinon, Curator of Special Collections, Research and Archives at the New York Botanical Garden, was unable to locate the Barnhart manuscript referred to by Rickett and Stafleu (1961a). The reference "Sayre" refers to a publication, *Dates of publications describing musci, 1801-1821* (Sayre 1959). Sayre identifies possible dates and references for publication as "June 1818, from letters in McAllister; Sept. 1818, North Amer. Rev." (Sayre 1959: 55). The McAllister

(1941) and *North-American Review* (Anonymous 1818b) references are discussed below. Ethel McAllister (1941) wrote a biography of Amos Eaton, who by her account was a very colorful character who wanted to popularize botany. She discusses some of Eaton's eight editions of his *Manual*. McAllister has several citations of correspondence and periodicals relating to preparation of Eaton's *Manual ed. 2*; however, I found no reference in McAllister 1941 to letters or other material that indicates that the *Manual ed. 2* was published in June 1818 as claimed by Sayre (1959). McAllister (1941: 223) cites but mischaracterizes the text of a September 8, 1818 notice with regard to the timing of publication of Eaton's *Manual ed. 2*, stating: "A year later [1818], when the second edition was about to make its appearance, the following notice appeared in an Albany newspaper." The associated reference footnote reads: "Albany Gazette & Daily Advertiser, Sept. 8, 1818". The cited notice provides information related to the date of publication of Eaton's *Manual ed. 2* and starts: "Eaton's Manual of Botany. The second edition of this work has been recently published at Messrs. Websters and Skinners." (Rafinesque 1818). The notice attributed to Rafinesque was signed with an initial "C". The author of the notice was likely Constantine Samuel Rafinesque who signed other notices with just his initials. The notice (Rafinesque 1818) indicates that Eaton's *Manual ed. 2* had already been published prior to 8 September 1818, but McAllister (1941: 223) implies that Eaton's *Manual ed. 2* had not yet been published by that date. Neither McAllister (1941) nor the sources attributed to McAllister support a June 1818 publication date as claimed by Sayre (1959).

The *North American Review* (Anonymous 1818b) is the source for the publication date of September 1818 cited by Sayre (1959: 55) and was published in September 1818 but is a notice of new American publications in the preceding months of July and August 1818.

Merrill and Reeder (1946) provide an extensive list of plant names published in the eight editions of Eaton's *Manual* with references to synonymy. They also note Eaton's utter lack of documentation, extraordinarily high percentage of errors in citing authorities of accepted names and apparent lack of full appreciation that he was creating a new name when he moved a species from one genus to another. Merrill and Reeder (1946: 66) list "*Monotropa procera* Torr. ex Eaton, Man. ed. 2, 324. 1818 = *Pterospora andromedea* Nutt. Found at Greenbush by Mr. Edwin James; named and described by Dr. John Torrey." The authors state: "This is cited as a synonym of *Pterospora andromedea* Nutt. (1818) by Britton & Brown, Ill. Fl. North. U.S. ed. 2, 2:673. 1913, and the statement is there made that while the two works involved were both printed in 1818, Nuttall's *Genera* appeared earlier than this edition of Eaton's *Manual*." Britton and Brown (1913, vol. 2: 673) list *Monotropa procera* Torr. as a synonym of *Pterospora andromedea* Nutt. and include the statement: "As regards the two names given to this plant in 1818, Nuttall's '*Genera*' appeared before the second edition of Eaton's '*Manual*'." Their basis for this statement is as yet unknown.

Margadant's (1968) dissertation is a descriptive bibliography of early publications dealing with mosses. Margadant (1968: 102) does not state that Eaton's *Manual ed. 2* was published in June 1818 but rather provides references to four possible dates of publication, first as 1818 according to the title page of the book. The other dates are listed as: "aft[er] 2[sic] June [1818] (letter

from Eaton to Torrey: “not yet published” quoted by McAllister: *Amos Eaton* 226. 1941); Jul (Rickett & Stafleu: *Taxon* (3): 81. 1941[sic, should read 1961]); bef[ore] 8 Sep. (*Albany Gazette & Daily Advertiser*, quoted by McAllister: *Amos Eaton*, 223. 1941).”

There are errors in Margadant’s account. There is no letter from Eaton to Torrey dated 2 June 1818 in the archives of the New York Botanical Garden. The letter cited by Margadant as being quoted by McAllister (1941: 226) was in fact dated 20 June 1818. I did not find the statement “not yet published” or reference to a June publication date in the portion of the letter quoted by McAllister. The full text of Eaton’s 20 June letter to Torrey likewise makes no mention of publication of the *Manual ed. 2* (Eaton 1818 June 20) as claimed by Margadant. The 20 June 1818 letter does, however, contain useful information I will mention later. Moreover, Margadant does correctly interpret the inference to time of publication of Eaton’s *Manual ed. 2* as being before 8 September 1818 in the notice in the *Albany Gazette* attributed to Rafinesque (Rafinesque 1818).

Margadant (1968: 102) attributes a review of Eaton’s *Manual ed. 2* to “R[afinesque]: *N. Am. Review*, 1818 Sep.” Strictly speaking, this is not a review but rather a notice of new American publications in the months of July and August 1818 (Anonymous 1818b).

Among the several references to dates of publication cited here, there does not appear to be any verifiable support for June 1818 as the date of publication of Eaton’s *Manual ed. 2*. Additional evidence casting doubt on the possibility of a June 1818 publication date for Eaton’s *Manual ed. 2* is presented below.

Eaton’s *Manual ed. 2* was likely published before 4 August 1818. In a letter to John Torrey, Eaton (4 August 1818) notes: “I put up a book for Webster [the publisher] to send you, also one for the (Lyceum).” Stephen Sinon of the New York Botanical Garden stated in an email to me that their copy two of Eaton’s *Manual ed. 2* is inscribed “Presented by the publishers”. It is a former Columbia College volume (Fig. 2). This is undoubtedly one of the two copies mentioned in Eaton’s letter to Torrey (Eaton 1818 August 4).

#### Notices and Correspondence About Eaton’s *Manual Ed. 2*

Unlike the praise afforded to Nuttall’s *Genera*, Eaton’s *Manual ed. 2* was criticized as being just a compilation of the works of others and fraught with errors. “Amos Eaton produced the first popular descriptive botanical manual for North America in 1817 [Eaton 1817], although this was admittedly incomplete, being almost wholly a compilation from the works of other authors” (Merrill and Reeder 1946: 26). These authors further state (1946: 35): “Clearly, no edition was based to any considerable degree on an examination of actual herbarium material; all editions remained basically in the category of compilations.”

The content and preparation of Eaton’s *Manual ed. 2* have direct bearing on its publication timeline. Eaton sent portions of the *Manual ed. 2* to John Torrey, who had recently graduated from Columbia College in New York. “I send you for correction our *Manual [ed. 2]* as far as it is struck off” (Eaton 1818 May 6). Eaton’s letter to John Torrey dated 20 June 1818 contains several statements of interest: “Why do you not write lately? I expected a long scolding letter before this time about the *Manual*. I sent you 264 pages, stitched up, some time ago. I send you the continuation to the 348<sup>th</sup> page.” (Eaton 1818 June 20).

In the same letter Eaton states: “I intend to have an alphabetical addenda [sic].” On the second page of the 20 June 1818 letter, Eaton writes, “I have many reflections to make, and I wish you to send me all you know, whether to add or to correct.”

Several facts are evident from the 6 May 1818 and 20 June 1818 letters. Eaton had sent Torrey 264 pages of the *Manual ed. 2* on 6 May 1818 for Torrey’s review and had not received any comments from Torrey as of 20 June 1818. Eaton sent Torrey an additional 84 pages on 20 June 1818 and was waiting for Torrey’s comments on the pages of the *Manual ed. 2* sent to him. Eaton may have prepared only 84 pages between 6 May and 20 June 1818. Unless he held back some pages from Torrey, by 20 June 1818 Eaton may have finished only 348 pages of the 524-page *Manual ed. 2*, and had not received, considered or incorporated Torrey’s comments and corrections. As late as 20 June 1818, Eaton was asking Torrey to send him additional information and corrections.

Based on the information in the 20 June 1818 letter from Eaton to Torrey and the assessment above, for the *Manual ed. 2* to have actually been published in June 1818 as is stated in TL-2 (Stafleu and Cowan 1976: 718), the following would have had to occur within the last ten days of June 1818: Eaton would have had to write and print up the last 176 pages of the *Manual ed. 2* (more than twice as many as he had prepared for Torrey between 6 May and 20 June 1818), send them to Torrey, receive and consider Torrey’s comments on all 524 pages of the *Manual ed. 2*, and get the entirety of the *Manual ed. 2* printed and bound. This seems highly improbable. It is difficult to imagine that the *Manual ed. 2* could have been published in June 1818 as stated in TL-2 (Stafleu and Cowan 1976: 718).

#### DISCUSSION

##### *Evidence That Eaton Was in Possession of a Copy of Nuttall’s Genera While He Was Still Working on His Manual Ed. 2*

I located Eaton’s copy of Nuttall’s *Genera* in the library of the Rensselaer Polytechnic Institute, in Troy, New York. It is inscribed to Amos Eaton by Thomas Nuttall; however, there is no date indicating when Nuttall sent it to Eaton or when Eaton received it. In a letter to John Torrey (Eaton 1818 August 4), Eaton listed the array of resources he had spread before him as he prepared the *Manual ed. 2* including “...Nuttall’s *Genera* after I received it.”

In the section of the *Manual ed. 2* titled Additions and Corrections, Eaton states:

“But this addenda [sic] is more particularly necessary on another account. After 432 pages were struck off, I received Nuttall’s *genera* of North American plants \* On comparing his generic characters and remarks, with those given in this *Manual*, I found he had greatly improved them in some of those natural assemblages, which are always the most difficult. These improvements will be found here.” (Eaton 1818: 502).

The asterisk refers the reader to a footnote on the same page in which Eaton recommends: “Every teacher of botany who adopts this [Eaton’s] *Manual*, is advised to procure Nuttall’s most excellent work on North American *Genera*.” Eaton notes Nuttall’s extensive notes and remarks which are the result of long experience. The 432 pages struck off referred to would have included page 324 listing *Monotropa procera* Torr. ex Eaton.

Eaton describes Nuttall's disposition of genera where they differ from his own 11<sup>th</sup> Class, Dodecandria (Eaton 1818: 503). While including Nuttall's descriptions and comments, Eaton did not consider that Nuttall used sufficiently technical terms and language and stated: "For I depart from his [Nuttall's] language in all cases where it is necessary, for the purpose of making the language of this Manual uniform." (Eaton 1818: 504). In the Additions and Corrections section of the *Manual ed. 2*, Eaton attributes changes or additions to 22 generic descriptions to Nuttall's *Genera* (Eaton 1818: 502–509). The text is variously directly quoted from Nuttall's *Genera*, rearranged, or paraphrased.

A change in the description of *Arabis* between Eaton's first and second editions to more closely resemble the entry in Nuttall's *Genera* may serve as an example. The corresponding entry in Nuttall's *Genera* vol. 2, p. 70 reads: "464. *Arabis*. Silique linear (mostly compressed) crowned with a subsessile stigma; valves venose or nerved. Seeds disposed in a single series. Cotyledones accumbent. Calix [sic] erect. R. Brown. Hort. Kew 4. P. 104." In the *Manual ed. 2* (Eaton 1818: 503) the text is: "*Arabis*. Nuttall. Silique linear, mostly compressed, crowded [sic], with a subsessile stigma: valves veined or nerved: seeds disposed in a single series: calyx erect."

Some of the 22 genera for which Eaton acknowledged Nuttall's descriptions are found in volume 1 of the *Genera* while others are from volume 2. It seems clear that Eaton had a published copy of both volumes of Nuttall's *Genera* while he was still working on his *Manual ed. 2*.

In the Additions and Corrections section, for the entry *Calistachya*, Eaton indicates that the description was improved by Nuttall and states: "See Nuttall's genus *Leptandra*, which is a synonym of this genus" (Eaton 1818: 504). *Leptandra* was described by Nuttall in his *Genera* (Nuttall 1818, vol. 1: 7). Additional evidence that Eaton was in possession of a copy of Nuttall's *Genera* while he was writing his *Manual ed. 2* is an instance of his specific reference in his *Manual ed. 2* to a text page in Nuttall's *Genera*. Eaton describes the leaves of *Cymbidium hyemale* as "radical, in pairs, many-nerved" (Eaton 1818: 224). In the Additions and Corrections section (Eaton 1818: 505) Eaton includes the entry "*Cymbidium, hiemale* (sic), erase the words "in pairs." and insert "solitary." and "Mr. Nuttall has corrected the error. See his *Genera*, vol. 2: 198." Eaton notes that Nuttall recognized this species and two others as members of the genus *Corallorhiza*. The entry for [*Corallorhiza*] *hiemalis* (Nuttall 1818, vol. 2: 198) reads: "3. *hiemalis*. *Cymbidium hiemale*. Leaf solitary, ovate, striate."

#### *Eaton Accepted Pterospora andromedea* Nutt. As the Correct Name

Eaton followed the classification system of Linnaeus' Classes and broad generic descriptions. Torrey's description of *Monotropia procera* would have satisfied Eaton's genus concept. Apparently, there is no evidence to indicate that Eaton realized that when he moved a species from one genus to another, he was publishing a new name. According to Merrill and Reeder (1946: 27) "He was, in general, violently opposed to such changes, even as he was equally opposed to innovations, although from edition two (1818) to edition eight (1840) he did accept the majority of new species published by reputable botanists such as Nuttall, Torrey, Hooker and others." For example, Eaton

(Eaton 1818 August 10) in a letter to Torrey, states: "You and E. [Edwin] James will be obliged to give up your *Monotropia procera*. It is the *Pterospora andromedea* of Nuttall. It is now in flower here." Eaton was acknowledging his acceptance of the separation of *Pterospora* from *Monotropia*. He likely had no knowledge or interest in the concept of nomenclatural priority as now used. Eaton wrote this letter within about a month after his *Manual ed. 2* was presumably published. Had Eaton effectively published this statement he would have established *Pterospora andromedea* Nutt. as the correct name and relegated *Monotropia procera* Torr. ex Eaton to synonymy in accordance with Article 11.5 of the ICNAPF (Turland et al. 2018: 35). This was clearly Eaton's intent expressed in his 10 August 1818 letter to Torrey.

In the third edition of his *Manual*, Eaton lists *Pterospora andromedea* with *Monotropia procera* in a footnote as a synonym (Eaton 1822: 414). Eaton's genus concept and his distain, but reluctant acquiescence, for what he would now call splitters is expressed specifically with regard to *Monotropia procera* and *Pterospora andromedea* previously referenced, in part, by Merrill and Reeder (1946: 27). Eaton's full statement expresses his disdain but reluctant acceptance of *Pterospora* as a genus separate from *Monotropia*:

"Certainly, the *Monotropia*, *Hypopithis* and *Pterospora*, ought to be united in one genus with some extension of the generic description, if the genus is to give the character, according to the maxim of Linneus [sic]. The present rage for cutting up genera has gained such an ascendancy, that I am compelled to yield to it, though with pain and regret. Every artificial character is seized with greediness and applied with great ingenuity in mangling the Linnean system of genera. I consider it the ephemeral reign of innovators, which our successors will remember but to despise. And most of these new names which are founded on artificial characters will soon sleep with their authors." (Eaton 1822: 414).

#### CONCLUDING REMARKS

##### *Fine-Tuning the Dates of Publication of Nuttall's Genera and Eaton's Manual Ed. 2*

TL-2 (Staffeu and Cowan 1981: 785) indicates that the date of publication of Nuttall's *Genera* was 14 July 1818 citing Graustein 1967 as the basis for that date. Graustein 1967: 120) states that was the date Nuttall presented a copy of *Genera* to a meeting of the Academy of Natural Sciences, Philadelphia. This presentation was confirmed by a copy of the minutes from that meeting. Nuttall's *Genera* would likely have had to be published before 14 July 1818.

TL-2 (Staffeu and Cowan 1976: 718) indicates the date of publication of Eaton's *Manual ed. 2* was June 1818, citing MD [Margadant 1968] as the basis for that date.

However, Margadant does not give June as the date of publication but rather provides four different referenced dates of publication. The first is simply 1818, referencing the title page of the book. The other dates are listed as being after 2 June [1818], July [1818], and before 8 September [1818] with supporting references for each date. The 2 June [1818] reference is apparently a typographical error for a 20 June [1818] letter; moreover, that letter makes no reference to a June publication date. The July [1818] date is attributed to Rickett and Staffeu (1961a) based on a manuscript by Barnhart that as yet has not

been located. Rickett and Stafleu (1961a) also note a June publication date referencing Sayre (1959). Sayre (1959) notes two dates and references to the publication, June 1818 referencing letters in McAllister (1941) and September 1818 referencing the review in the *North American Review* (Anonymous 1818b). McAllister does not cite a publication date of June nor a letter that so states. Furthermore, the referenced “review” cited as the basis for a September 1818 date of publication is actually a notice published in September 1818 listing new American publications published in the months of July and August [1818]. No reference cited in Margadant (1968) supports the claim of Eaton’s *Manual ed. 2* being published in June 1818.

Stafleu and Cowan (1976: 718) cite two additional references relevant to Eaton’s *Manual* editions in general—McAllister (1941) and Merrill and Reeder (1946). As noted above, McAllister (1941) does not include any reference to June 1818 being the date of publication of Eaton’s *Manual ed. 2*. Likewise, Merrill and Reeder (1946) make no reference to the date of publication beyond the year 1818. They do, however, specifically note that *Monotropa procera* Torr. ex Eaton is a synonym of *Pterospora andromedea* Nutt. citing the statement in Britton and Brown 1913 that although both Eaton’s *Manual ed. 2* and Nuttall’s *Genera* were issued in 1818, Nuttall’s *Genera* appeared earlier than this edition of Eaton’s *Manual*.

None of the references cited in *TL-2* (Stafleu and Cowan 1976: 718–719) supports the claim that Eaton’s *Manual ed. 2* was published in June 1818. Considering this, the time-consuming review process depicted in Eaton’s correspondence with Torrey, and the status of the work in late June 1818, it seems highly unlikely that Eaton’s *Manual ed. 2* could have been published in June 1818.

#### *Likely Publication Windows for Nuttall’s Genera and Eaton’s Manual Ed. 2*

The date of publication of Nuttall’s *Genera* given as “14 July 1818” by Stafleu and Cowan (1981: 785) appears to be supported as the latest possible date of publication. The publication date of “June 1818” for Eaton’s *Manual ed. 2* reported by Stafleu and Cowan (1976: 718) is not supported based on an assessment of all of the references they provided. On the contrary substantial evidence is provided here that Eaton was in possession of and used a copy of Nuttall’s *Genera* in preparing his *Manual ed. 2*. Based on the data available, the date of publication of Eaton’s *Manual ed. 2* was after 14 July 1818, at the earliest, and probably before 4 August 1818 at the latest.

#### *Nuttall’s Genera Must Have Been Published Before Eaton’s Manual Ed. 2*

Regardless of specific dates of publication of Nuttall’s *Genera* and Eaton’s *Manual ed. 2*, Nuttall’s *Genera* must have been published before Eaton’s *Manual ed. 2*. This was stated for *Pterospora andromedea* by Britton and Brown (1913, vol. 2: 673) over 100 years ago, although no supporting evidence was provided. Eaton was in possession of, cited and used Nuttall’s *Genera* during preparation of his *Manual ed. 2*. Eaton incorporated descriptions from Nuttall’s *Genera* in his *Manual ed. 2* and in at least one instance cited a specific page in Nuttall’s *Genera* as a reference.

#### *Pterospora andromedea Nutt. Has Priority Over Monotropa procera Torr. ex Eaton*

I believe the evidence presented here shows that Nuttall’s *Genera* was published and available before Eaton’s *Manual ed. 2* was published. Therefore, *Pterospora andromedea* Nuttall was published first and consequently has priority over *Monotropa procera* Torr. ex Eaton and as such should remain the correct name.

The natural recourse of reexamining presumed established facts in science has been made easier by technology. Tracing the ultimate sources of the *TL-2* references and incorporating evidence from archived correspondence and published notices provided the evidence needed in this instance. There may be other names published in Eaton’s *Manual ed. 2* that are similarly impacted by this correction in the date of publication of Eaton’s *Manual ed. 2* relative to that of Nuttall’s *Genera*.

#### *Biographical Addendum on Amos Eaton*

Occasionally one encounters peripheral information that is delightful as well as informative. Such is the case in McAllister’s book on Amos Eaton (McAllister 1941). On 26 August 1811 Eaton was convicted of forgery, and sentenced to life in prison at hard labor. The charges and conviction were apparently questionable. He was to serve his sentence in New York State at Newgate Prison, in Greenwich, part of Manhattan. The agent in charge of the prison was a William Torrey. Eaton, an educator at heart who made and kept friends easily, befriended William’s son, John, and taught him about the structures of flowers and plants. John, who was a teenager at the time, supplied Eaton with botanical books. They forged a long-lasting friendship and young John Torrey, at the age of about 20 years old, contributed some of his first plant descriptions to Eaton’s *Manual ed. 2*, including that of *Monotropa procera* Torr. ex Eaton. The Governor of New York, Daniel Tompkins, granted Eaton a partial pardon on 17 November 1815 on the condition that he leave the state of New York and never return. The first of eight editions of Eaton’s *Manual of botany for the Northern States* was published in June 1817. The next Governor of New York, De Witt Clinton, praised Eaton for his teaching and granted him a full unconditional pardon on 15 September 1817.

#### ACKNOWLEDGEMENTS

I would like to thank Irene Holiman, librarian at the California Botanic Garden for her amazing ability and willingness to locate and retrieve copies of obscure references and newspaper articles. Thank you to Jennifer Vess, Brooke Dolan Archivist, Academy of Natural Sciences, Philadelphia for finding and copying the Academy minutes for July 14, 1818, and to John Dojka, Institute Archivist and Head of Special Collections at the Folsom Library, Rensselaer Polytechnic Institute, Troy New York for finding Eaton’s inscribed copy of Nuttall’s *Genera*. Thanks are also extended to the New York Public Library, Pennsylvania Horticulture Society, and the University of Oregon, Illinois, for supplying copies of difficult to find materials. The digitized materials available from the Biodiversity Heritage Library make work like this possible. Thanks to Stephen Sinon, William B. O’Connor, Curator of Special Collections, Research and Archives, at the New York Botanical Garden for pointing

out the extensive digitized correspondence of John Torrey from the New York Botanical Garden and for looking for the Barnhart manuscript. Travis Columbus of the California Botanic Garden was the first person I thought of who might find this an interesting puzzle and be able to tell me if I was correct in my assessment. Thank you, Travis, for your review and comments. Lastly thank you to Tom Lammers, Gordon Tucker, and Kanchi Gandhi for causing me to reexamine this taxonomic problem. This story may serve as a reminder to go to the original sources.

## REFERENCES CITED

- ANONYMOUS. 1818*a*. New publications in the United States, in May and June, 1818. *N. Amer. Rev. Misc. J.* 7(20): 285–288. July 1818.
- . 1818*b*. American publications in the months of July and August [1818]. *N. Amer. Rev. Misc. J.* 7(21): 434–436. Sep 1818.
- BARNHART, J. H. 1897. Nomenclatural notes. *Bull. Torrey Bot. Club* 24(8): 409–411.
- . 1899. Nomenclatural notes II. *Bull. Torrey Bot. Club* 26(7): 376–380.
- BARTON, W. P. C. 1818. Compendium florae Philadelphicae, vol. 1. M. Carey and Son, Philadelphia. 251 p.
- BRITTON, N. L. AND A. BROWN. 1913. An illustrated flora of the northern United States, Canada and the British possessions, ed. 2., vol. 2. Amaranthaceae to Loganiaceae. Charles Scribner's Sons, New York.
- EATON, A. 1817. Manual of botany for the northern states. Websters and Skinners, Albany, New York. 164 p.
- . 1818. Manual of botany for the northern and middle states, second edition, corrected and enlarged. Websters and Skinners, Albany, New York. 524 p.
- . 1818 May 6. Letter to J. Torrey, 3 pp. Amos Eaton and John Torrey correspondence, 1816–1840, contributed by the New York Botanical Garden (accessed at Biodiversity Heritage Library, *biodiversitylibrary.org*, 21 July 2021).
- . 1818 June 20. Letter to J. Torrey, 3 pp. Amos Eaton and John Torrey correspondence, 1816–1840, contributed by the New York Botanical Garden (accessed at Biodiversity Heritage Library, *biodiversitylibrary.org*, 21 July 2021).
- . 1818 August 4. Letter to J. Torrey, 4 pp. Amos Eaton and John Torrey correspondence, 1816–1840, contributed by the New York Botanical Garden (accessed at Biodiversity Heritage Library, *biodiversitylibrary.org*, 21 July 2021).
- . 1818 August 10. Letter to J. Torrey, 2 pp. Amos Eaton and John Torrey correspondence, 1816–1840, contributed by the New York Botanical Garden (accessed at Biodiversity Heritage Library, *biodiversitylibrary.org*, 20 July 2021).
- . 1822. Manual of botany for the northern and middle states, third edition, revised and corrected. Websters and Skinners, Albany, New York.
- EWAN, J. 1971. Introduction, pp. ix–xxxvii. In T. Nuttall, Genera of North American plants. Facsimile of the 1818 edition, vol. 1. Hafner Publishing Co., New York.
- FLORA OF NORTH AMERICA EDITORIAL COMMITTEE. 1993+. Flora of North America north of Mexico, 21+ vols. Oxford University Press, New York.
- GRAUSTEIN, J. E. 1967. Thomas Nuttall naturalist explorations in America 1808–1841. Harvard University Press, Cambridge, Massachusetts.
- KUNTZE, O. 1898. Revisio generum plantarum vol. 3, part 2, p. 160. Arthur Felix, Leipzig, Germany.
- MARGADANT, W. D. 1968. Early bryological literature. Hunt Botanical Library, Pittsburgh, Pennsylvania. 277 p.
- MCALLISTER, E. M. 1941. Amos Eaton scientist and educator 1776–1842. University of Pennsylvania Press, Philadelphia.
- MERRILL, E. D. AND J. R. REEDER. 1946 [1947]. New plant names published by Amos Eaton between the years 1817 and 1840. *Bartonia* 24: 26–79. 1946 [1947].
- NUTTALL, T. 1818. The genera of North American plants, and a catalogue of the species to the year 1817, 2 vols. D. Heartt, Philadelphia, PA.
- RAFINESQUE, C. S. 1818. Eaton's manual of botany. *Albany Gaz. & Daily Advertiser*, 8 Sep 1818.
- . 1819. [Review of] The genera of North American plants and a catalogue of the species to the year 1817. By Thomas Nuttall, 2 vols. 1818. *Amer. Monthly Mag. & Crit. Rev.* 4(3): 184–196. Jan 1819.
- RICKETT, H. W. AND F. A. STAFLEU. 1961*a*. Nomina generica conservanda et rejicienda spermatophytorum VII bibliography. *Taxon* 10(3): 70–91. Mar/Apr 1961.
- AND ———. 1961*b*. Nomina generica conservanda et rejicienda spermatophytorum VIII bibliography. *Taxon* 10(4): 111–121. May 1961.
- SAYRE, G. 1959. Date of publications describing musci, 1801–1821. Russell Sage College, Troy, New York.
- STAFLEU, F. A. 1967. Taxonomic literature, a selective guide to botanical publications with dates, commentaries and types. International Bureau for Plant Taxonomy and Nomenclature, Utrecht, Netherlands.
- AND R. S. COWAN. 1976. Taxonomic literature, ed. 2, vol. I: A–G. Bohn, Scheltema and Holkema, Utrecht, Netherlands.
- AND ———. 1981. Taxonomic literature, ed. 2, vol. III: Lh–O. Bohn, Scheltema and Holkema, Utrecht, Netherlands.
- TURLAND, N. J., J. H. WIERSEMA, F. R. BARRIE, W. GREUTER, D. L. HAWKSWORTH, P. S. HERENDEEN, S. KNAPP, W.-H. KUSBER, D.-Z. LI, K. MARHOLD, T. W. MAY, J. MCNEILL, A. M. MONRO, J. PRADO, M. J. PRICE AND G. F. SMITH (EDITORS). 2018. International code of nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. Regnum Vegetabile 159. Koeltz Botanical Books, Glashütten, Germany.
- WALLACE, G. D. 1975. Studies of the Monotropoideae (Ericaceae): Taxonomy and distribution. *Wasmann J. Biol.* 33(1&2): 1–88.
- . 2009. *Pterospora*, p. 389. In Flora of North America Editorial Committee, Flora of North America north of Mexico, vol. 8, Magnoliophyta: Paeoniaceae to Ericaceae. Oxford University Press, New York.