
Identification and Typification of *Ternstroemia lineata* de Candolle (Theaceae)

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ABSTRACT. The lone high-elevation species of *Ternstroemia* that occurs in central Mexico has gone for many years under the name *Ternstroemia pringlei* (Rose) Standley. The much older name *Ternstroemia lineata* de Candolle, based on a painting of a plant from the same general area, has mostly been overlooked or considered to be unidentifiable. This article provides typification for the relevant taxa, synonymy, and documentation for the identity of *T. lineata*.

I. TYPIFICATION

Ternstroemia lineata de Candolle, Mém. Soc. Phys. Hist. Nat. Genève 1: 409, pl. 1. 1823 ["1822"]; [reprint, de Candolle, Mém. Ternst. 17, pl. 1. 1823].

KEY TO THE SUBSPECIES OF *TERNSTROEMIA LINEATA*

- 1a. Main lateral leaf veins not impressed on the adaxial surface *T. lineata* subsp. *lineata*
1b. Main lateral leaf veins impressed on the adaxial surface *T. lineata* subsp. *chalicophila*

Ternstroemia lineata subsp. ***lineata***. *Ternstroemia lineata* DC., as to type. TYPE: Mexico. Morelos or México: "ad clivum vulgo del Toto in itinere Sanctuarii Chalmensis," M. Sessé & J. M. Moçino *lc. Fl. Mex.* 233, the holotype, a painting in the Torner Collection of Sessé and Moçino Biological Illustrations (Hunt Institute of Botanical Documentation, accession number 6331.1617).

Ternstroemia cuneifolia Sessé & Moçino, *Fl. Mex.* ed. 2, 128. 1894, non Gardner (1845). TYPE: Mexico. Morelos or México: "In anfractibus de el Toto haud procul a Quauhnhuaca [Cuernavaca]," *Herb. Sessé & Moç.* 2330 (the lectotype, here designated, MA (the specimen from which F negative 48444 was taken); isolectotypes, MA, 2 sheets; F, P).

Taonabo pringlei Rose, *Contr. U.S. Natl. Herb.* 8: 322.

1905. *Ternstroemia pringlei* (Rose) Standley, *Field Mus. Nat. Hist., Bot. Ser.* 4: 234. 1929. TYPE: Mexico. Morelos: Sierra de Tepoxtlán, 2300 m, 18 Mar. 1899, C. G. Pringle 8013 (holotype, US; isotypes, A, AC, BM, C, CAS, CM, F, G, GH, K, MEXU, MICH, MO, MSC, NY, PH, POM, S, UC, VT).

Distribution. Mexico (Guerrero, Jalisco, México, Michoacán, Morelos, Oaxaca, Sinaloa).

Ternstroemia lineata subsp. ***chalicophila*** (Loesener) B. Bartholomew, *Phytologia* 64: 458. 1988. *Ternstroemia chalicophila* Loesener, *Bull. Herb. Boissier sér.* 2, 3: 213. 1903. TYPE: Mexico. Chiapas: "in clivo calcareo supra Huitztan," 10 Mar. 1896, C. & E. Seler 2276 (holotype, B (destroyed); lectotype, designated by Bartholomew (1988), GH).

Distribution. Mexico (Chiapas, Oaxaca), Honduras.

II. IDENTIFICATION OF THE SPECIES *TERNSTROEMIA LINEATA*

A. P. de Candolle (1823) described *Ternstroemia lineata* after study of paintings made by the artists of the Royal Botanical Expedition to New Spain (the "Sessé & Moçino expedition"), probably in 1789. For a description of the expedition and its aims, its travels, collections, paintings, and botanical accomplishments in general, see especially articles by McVaugh (1977, 1980, 1987, 1990). Suffice it to say here that the paintings made by the artists of the expedition, some 2000 in number, were carried by José Mariano Moçino, the surviving botanist of the expedition, when he fled from Spain to France in 1812. These were the paintings that had been prepared to accompany a grand new *Flora Mexicana*, which never came to fruition. Moçino brought the paintings to the attention of the botanist A. P. de Candolle, who studied them first when he lived at Montpellier, France, and later at Geneva,

to which he moved in 1816. De Candolle recognized that many species and genera new to science were represented among the paintings. He and his most favored contemporaries, between 1813 and 1850, proposed approximately 370 new specific names based wholly or in large part on the paintings. It was his practice to write his determination on each painting, usually but not always the name that was eventually published. If the Expedition's artists made more than one copy of any individual painting, as they often did, de Candolle customarily annotated each one.

When Moçiño left Geneva in 1817 to return to Spain, planning to take the paintings with him, he presented to de Candolle all the "duplicates," to the number of about 309. De Candolle at once arranged to have copies hastily made in Geneva, of all the rest except about 200, these latter representing what he considered to be well-known species. More than 100 artists took part in this work. Moçiño reached Barcelona, where he died in 1820, and the paintings were lost to science until 1979, when they were discovered in a private library and acquired by the Hunt Institute in Pittsburgh, Pennsylvania, where they now constitute the Torner Collection of Sessé and Moçiño Biological Illustrations [about a tenth of them are devoted to zoological subjects]. De Candolle's copies, in the meantime, remained at Geneva in the library of the Conservatoire Botanique and have continued to be the subjects of much study.

After the original paintings had been lost for a century or so, most botanists took it for granted that the examples in the de Candolle collection (whether later copies, or duplicate originals by the original artists) had to be treated as the types, or even holotypes, of Candollean species that were based solely on these illustrations without reference to additional specimens. With the Torner collection available and essentially complete, the perspective has changed somewhat. The reasoning is about as follows: All the paintings in the Torner Collection are those made by the original artists while the Expedition was in America. When there is an example in the Torner Collection of some particular painting and no copy at all in Geneva, as in the case of *Ternstroemia lineata*, the Torner example must be the holotype. When there is a Torner example and also an "original" copy at Geneva, the Torner example cannot ordinarily be a holotype but can be a lectotype, because de Candolle's annotations usually show that he saw and presumably studied both. Often the Torner example proves to be more complete or more representative, thus making it a preferable choice for lectotypification. If the copy at

Geneva is not an "original," but one of those commissioned by de Candolle in 1817, the Torner copy is usually the better choice for lectotypification unless there are extenuating circumstances. Sometimes it may be argued that in this situation the Torner example is a holotype because de Candolle probably studied it and made up his mind (and his description) before the later copy existed.

In the particular case under consideration, the argument seems straightforward. De Candolle had access to, and annotated as *Ternstroemia lineata*, two original paintings now in the Torner Collection. Each bears a contemporary annotation, "233" in Moçiño's hand (in McVaugh's opinion), the number designating its position in the *Icones Florae Mexicanae*, which was a selected group of about 460 paintings that were numbered in this way in 1791 or before (McVaugh, 1980). One of the paintings, no. 6331.1617, is a more complete drawing than the other, no. 6331.0003, which lacks details of the fruit and has a different rendering of the bark texture. No. 6331.1617 was copied directly for publication as Plate 1 of de Candolle's *Mémoire* (1823), where it served as the illustration of *Ternstroemia lineata*. The other painting, no. 6331.0003, bears the contemporary name *Ternstroemia meridionalis*, and thus was doubtless the basis for de Candolle's citation "*Ternstroemia meridionalis* Moç. et Sessé fl. mex. ined. ic. et descr." (de Candolle, 1823). It seems clear that no. 6331.1617, having been de Candolle's primary basis for the new name, is to be treated as the holotype of the name *Ternstroemia lineata*. Painting no. 6331.0003 does not have any type status in that the code does not have a provision for this situation.

Identification of the plant illustrated in the holotype is a little less straightforward. Although no scale is indicated on the drawing, the leaf shape, the attenuated leaf base, and the size of the pedicels and flowers in relation to the leaf size, all agree with the plant that has been called *Ternstroemia pringlei*, that is to say with the only species of the genus known from the type-region of both *T. pringlei* and *T. lineata*. Students who have worked subsequently with the group have questioned the identity with *T. pringlei*, but have failed to make any other disposition (Kobuski, 1942), because the original illustration in the protologue shows two features that are not known in any other species of *Ternstroemia*, viz. a distinct transverse line across the petals, and the absence of any bracteole scars or bracteoles below the sepals. De Candolle himself, working from the original colored drawings, noted these features: "Corolla subglobosa albida

cum linea rubra transversali in medio loborum picta," and "Bracteolae nullae aut deciduae."

Both these questionable features can be explained away: first the absence of bracteoles. Reference to the synonymy given above shows clearly that *Ternstroemia lineata* and *Ternstroemia cuneifolia* Sessé & Moçino are based on the same collections, taken by Sessé and Moçino at the same time, the only difference being that *T. lineata* was based not on specimens but on a colored painting made from them. It is only necessary to examine the original detailed description of *T. cuneifolia* to establish the fact that the want of bracteoles or their scars on the drawing was the fault of the artist, not a feature of the plant. In the protologue of *T. cuneifolia* the description reads, "Bracteolae duae, oppositae, in apice pedunculorum, membranaceae, obtusae, deciduae." Because the bracteoles of *Ternstroemia* are in fact deciduous, the artist who made the paintings very probably did not see them. The scars are ordinarily conspicuous after the bracteoles fall, and their omission must be attributed to an oversight on the part of the artist.

The red line across the petals, which shows only in such petals as have been fully colored by the artists, is apparent in both the paintings in the Torner Collection, and shows as a black line in the black-and-white plate published by de Candolle. The line corresponds approximately to where the ends of the sepals would have pressed against the petals in the bud. All the calyces in both paintings are shown as reflexed, as was noted by de Candolle. In the living condition the sepals are reflexed only after the capsule is mature and begins to dry. It is evident that the artist was illustrating a plant whose flowers had at least started to dry. The lines may have been caused by pressure of the sepals against the petals in pressed botanical specimens, or by earlier pressure against the petals in the young

flowers. The artists were always under a certain constraint of time, as they were traveling with a moving expedition under primitive field conditions, and doubtless were often obliged (especially where more than one species was to be illustrated during a stay of limited duration) to work with detached specimens that were no longer fresh. Among the paintings of other plant species in the Torner Collection, some of the "duplicate" paintings in fact include a fresh specimen and another with partially wilted leaves. We regard the red lines on the petals as artifacts, not as natural features of the plants.

In conclusion, we think there can be no doubt that *Ternstroemia lineata* and *Ternstroemia pringlei* are one and the same species, and that the earlier name must be reinstated.

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