



Typification of the Linnaean name *Empetrum album* (Ericaceae)

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The genus *Corema* D. Don (1826: 63) (Ericaceae Jussieu 1789: 159) comprises two species. *Corema album* (Linnaeus 1753: 1022) D. Don (1830: 460) (incl. *C. febrifugum* Boissier ex Willkomm & Lange 1877: 512) occurs on the west coast of the Iberian Peninsula (subsp. *album*) from Gibraltar to Finisterre (Willkomm & Lange 1877, Webb 1972, Cabezudo 1987, Villar 1993, Boratyński & Vera de la Puente 1994, López González 2001, Ruiz de la Torre 2006, Gil-López 2011), the Azores (subsp. *azoricum* Pinto da Silva 1966: 86), and the Mediterranean Basin (Spain, Alicante province, one population) (Solanas 1996, Solanas & Crespo 2001, Serra 2007, Aguilera *et al.* 2009). *Corema conradii* (Torrey 1837: 83) Torrey (1842: 1092) occurs on the eastern coast of North America from Newfoundland to New Jersey (Redfield 1884, McEwen 1894, Elisens 2009), and can be distinguished from *C. album* by its very small fruits which are devoid of fleshiness and covered with elaiosomes (oily appendages associated with ant dispersal) (Redfield 1884, McEwen 1894, Martine *et al.* 2005). *Corema album* subsp. *azoricum* exists on six of the nine islands of the Azores, and below 200 m (Franco 1984) this taxon has been recognized by some authors at the species level as *C. azoricum* [*“azorica”*] (Pinto da Silva 1966) Rivas Martínez, Lousã, Fernández Prieto, E. Días, J.C. Costa & C. Aguiar (in Rivas-Martínez, Fernández-González, Loidi, Lousã & Penas 2002: 700).

Corema album is a dioecious, perennial shrub with numerous branches. The male plants have erect branches, whereas in the female plants the branches are shorter and more procumbent. The leaves are in whorls of three or four, with short petioles which tend to lie against the stem, and the fruits are white or pinkish white, berry-like drupes, 5–8 mm in diameter, usually with three (ranging from 2 to 9) pyrenes (seeds) c. 0.48 mm long with a thick woody endocarp. This species grows mainly on sand dunes, but will also inhabit coastal rocky sites and cliffs, and, in the Azores Islands, volcanic lava and ash fields. In the sand dunes, it occurs in partially fixed dunes at both pioneer and mature stages of scrub succession (Webb 1972, Cabezudo 1987, Villar 1993, Guitian *et al.* 1998, Calvino-Cancela 2002, 2004, Bras de Oliveira & Dale 2012).

Linnaeus published at the rank of species two names in *Empetrum*, *E. nigrum* Linnaeus (1753: 1022) and *E. album* Linnaeus (1753: 1022); the latter is the basionym of *Corema album*. The lectotype of *E. nigrum* was designated by Good (1927), but *E. album* is as yet untypified (see Jarvis 2007). Here we contribute to the stability of the nomenclature by lectotypifying this name. The designation of the lectotype is based on the consultation of Linnaeus's original material and the literature cited in the protologue. Herbarium acronyms are cited in the text in accordance with Thiers (2016 [continuously updated]).

Typification of *Empetrum album*

Linnaeus's protologue consists of a *nomen specificum legitimum*, “EMPETRUM erectum”, quoted from both an earlier Linnaean work (Linnaeus 1738) and Van Royen (1740), and followed by three synonyms (Linnaeus 1753). The protologue for this species also includes “*Habitat in Lusitanias*”. The first synonym cited, “*Empetrum lusitanicum, fructu albo*”, was from Tournefort (1700), the second synonym “*Erica erecta, baccis candidis*” from Bauhin (1623), and the third synonym “*Erica coris folio X*” from Clusius (1601). An illustration provided by Clusius (1601, p. 45), is considered original material (Fig. 1).

Only one herbarium sheet among the original material was found (see Jarvis 2007), i.e., Herb. Linn. No. 1160.1 (LINN); image available at <http://linnean-online.org/12008/>. This sheet is annotated as “*Empetrum*” and “1 *album*” by Linnaeus, the original Linnaean species number in the *Species Plantarum* (Stearn 1957, Turland & Jarvis 1997, Turland 2006, Jarvis 2007, pp. 41–46). The sheet contains three fragments of *Corema album* that are very well preserved, with leaves and fruits.

In the LINN herbarium there are two additional herbarium sheets of this species, i.e., LINN 1517.5.1 (LINN-HS) (image available at <http://linnean-online.org/48597/>) and LINN 1517.5.2 (LINN-HS) (image available at <http://linnean-online.org/48597/>).

online.org/48598/), but they are part of Smith's collection (Herb. Smith at LINN) and thus cannot be the original material for the name *Corema album* because Smith's collections were made after 1753 (Jarvis 2007).

In the herbarium of the Bergius Foundation (SBT) at the Royal Swedish Academy of Sciences at Stockholm (Sweden) there is a sheet that contains a specimen of this species (a well preserved fragment) collected by P. Löfling in Portugal (SBT barcode 14298), but this sheet lacks Linnaeus's number from *Species plantarum* or any annotation of Linnaeus, and it is not clear that it was used for the description of *Empetrum album*. Another sheet collected by Löfling (country unknown) is preserved at S (code S07-7080); the sheet bears a fragment with fruits, and on the back side has annotations by D. Solander "erectum", "Herb. Casströmii", "Lofl." and "*Empetrum erectum*. Lin. Spec. plant. 1022.1". The sheet is also annotated with "(*Empetrum album* Linn.)" and "*Corema alba* Don" at the base of the specimen, but not by Linnaeus, and with "*Empetrum*" on the top, apparently in the hand of Samuel Niklas Casström, who may have possessed the specimen while working at the Botanical Museum in Stockholm. (images available at <http://andor.nrm.se/kryptos/fbo/kryptobase/large/S07-007001/S07-7080.jpg> and http://andor.nrm.se/kryptos/fbo/kryptobase/large/S07-007001/S07-7080_a.jpg).



FIGURE 1. Linnaeus's original element of *Empetrum album*, Clusius' illustration "Erica Coris folio X" (1601, p. 45).

Finally, a sheet at the Swedish Museum of Natural History (S) with the accession identification S08-2361 was also collected by Löfling, and is annotated with "Habitat in Lusitania. Specimen ibi lectum ex Hispania misit S...Cathol. Ma... olim Botanicus Dns Petrus Loeffling, anno 1752" and "Herb. Montinii". However, both specimens at S lack Linnaeus's annotations, and therefore cannot be considered original material of *Empetrum album* (Jarvis 2007, p. 494). We have been unable to trace any original material that may have been used as part of the species description in any of the other Linnaean or Linnaean-linked herbaria (e.g., at L [van Royen's synonym]) and UPS [Bauhin's synonym]).

Among the original elements, i.e., the Clusius illustration (1601, p. 45) and the herbarium sheet at LINN), we prefer to designate the herbarium sheet Herb. Linn. No. 1160.1 (LINN) as lectotype of this name because, although the illustration

from Clusius is identifiable as Linnaeus's *Empetrum album* and is in agreement with the Linnaean diagnosis, the sheet at LINN is the more complete and informative element of the original material and makes a much better lectotype than the illustration. It represents the traditional concept (e.g. Linnaeus 1753, Redfield 1884, McEwen 1894) and current use of the name *Corema album* (e.g. Webb 1972, Villar 1993, Boratyński & Vera de la Puente 1994).

Empetrum album Linnaeus (1753: 1022)

≡ *Corema album* (Linnaeus) D. Don (1830: 460).

Type:—(lectotype, designated here): Herb. Linn. No. 1160.1 (LINN) (Image available at <http://linnean-online.org/12008/>).

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