



## Neotypification of the name *Juglandites bergomensis*, basionym of the fossil-species *Juglans bergomensis* (*Juglans* sect. *Cardiocaryon*, Juglandaceae)

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### Abstract

*Juglans bergomensis* is the name of a fossil-species belonging to *Juglans* sect. *Cardiocaryon* that is based on the basionym *Juglandites bergomensis*, whose type material, represented by a single fruit, is missing. However, the type locality can be indicated with certainty in the Early Pleistocene brown coal bearing sediments of Leffe, in northern Italy, which yielded several other fossil fruits with characters corresponding to the missing holotype. In the same site fruits of Juglandaceae of different fossil-species occurred. We select a specimen from a collection stored in Padua, with dimensions and sculpture most closely approaching those of the missing holotype, as neotype for the name *Juglandites bergomensis*, in order to fix the application of the name *Juglans bergomensis*. Even if the nuts of this species show “seemingly quite minor” differences from those of *J. cinerea* (smaller seeds, more shallow seed lobes, and generally more elongate shape), it is not convenient to use for these fossils, occurring in Eurasia, the name of the extant North American species. The use of the fossil-species name *J. bergomensis*, taking priority over *J. tephrodes*, permits to establish a clear relationship among several hundreds of Eurasian fossils assignable to sect. *Cardiocaryon*, and to highlight the morphological distinction from a few other fossil-species.

**Key words:** Italy, Leffe, nuts, palaeontological collections, Pleistocene

### Introduction

*Juglans bergomensis* (Balsamo-Crivelli 1840: 291) Massalongo (1852a: 256) is the name currently applied (Van der Ham, in press) to a fossil-species (see Art. 1.2. of the ICN, McNeill *et al.* 2012) belonging to *Juglans* sect. *Cardiocaryon* Dode (1909: 22) (Juglandaceae), whose nuts occur throughout Europe (Sordelli 1896, Palamarev 1993, Geissert *et al.* 1990, Martinetto in press, Van der Ham in press). It is worth reporting here some information to clear up that *J. bergomensis* has priority over another name still used in recent papers (e.g. Aradhya *et al.* 2007), *Juglans tephrodes* Unger (1850: 469), as already discussed by Sordelli (1874, 1896) and Palamarev (1993). In the first report of this species in the palaeontological record (Castell'Arquato, northern Italy, probably Pliocene), it was assigned by Bronn (1838) to the extant North American species *Juglans cinerea* Linnaeus (1753: 997). Actually, according to the comparative observations of Manchester (1987), the fossil nuts of *J. bergomensis* are more similar to those of the extant *J. cinerea* than to those of the other two extant East-Asian species of sect. *Cardiocaryon* (see Lu *et al.* 1999), i.e. *J. ailantifolia* Carrière (1878: 414) and *J. mandshurica* Maxim. in Maximovicz et Ruprecht (1857: 128). The potentially diagnostic characters of *J. bergomensis* are “smaller seeds, more shallow seed lobes, and generally more elongate shape” (Manchester 1987).

Section *Cardiocaryon* is indicated as a monophyletic group, in which *J. cinerea* is sister to *J. ailantifolia* plus *J. mandshurica* (Fjellstrom & Parfitt 1995, Stanford *et al.* 2000, Stone *et al.* 2009). However, the phylogeography of this section and the divergence time of the single New World species *J. cinerea* are not yet sufficiently known according to