(2420) Proposal to conserve the name *Cathaya* Chun & Kuang against *Cathaya* Karav. (*Gymnospermae: Pinales*)

Alexander B. Doweld

National Institute of Carpology (Gaertnerian Institution), 21 Konenkowa Street, 127560 Moscow, Russian Federation; nicar-sekretariat@yandex.ru; sekretariat@doweld.pro

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(2420) *Cathaya* Chun & Kuang in Acta Bot. Sin. 10: 245. Sep 1962 [*Pin.*], nom. cons. prop. Typus: *C. argyrophylla* Chun & Kuang

 (H) Cathaya Karav. in Trudy Moskovsk. Obshch. Isp. Prir. 3: 127.
28 Jan 1961 [Foss.], nom. rej. prop. Typus: C. jacutica Karav. When it originally appeared in print (in Bot. Zhurn. (Moscow & Leningrad) 43: 464. 9 Mai 1958), "*Cathaya* Chun & Kuang", proposed for a distinctive Chinese conifer, was not a validly published name since its authors failed to designate the type of the new generic name under which three species were included, two extant: "*C. argyrophylla* Chun & Kuang" (1.c. 1958: 464) and "*C. nanchuanensis* Chun & Kuang" (1.c. 1958: 466), and one fossil, but also invalidly recombined "*C. loehri* (Engelh. & Kink.) Chun & Kuang" (1.c. 1958: 464, 467) due to the lack of a direct reference to its basionym. Later, Chun & Kuang (1.c. 1962) validated *Cathaya*, based on extant material, by including only one species, *C. argyrophylla* Chun & Kuang (1.c. 1962: 245), with "*C. nanchuanensis* Chun & Kuang" listed as a synonym of *C. argyrophylla*.

Being impressed by this new discovery by Chinese botanists of another living gymnosperm similar to the fascinating discovery of the living fossil *Metasequoia* (cf. Miki, Metasequoia: 1. 1953), Karavaev (l.c.) attributed some of his newly found fossil cones from the Miocene deposits of the famous plant fossil locality of Mammut Hill (Mamontova Gora) in Central Yakutia (Siberia) to what he regarded as the new genus *Cathaya*. Consequently he validly described a single fossil species, *C. jacutica* Karav. (l.c.: 127), thereby providing a generico-specifica diagnosis for *Cathaya*, thus creating the fossil genus *Cathaya* prior to the validation of extant *Cathaya* by Chun & Kuang (l.c. 1962).

This nomenclatural situation, with Cathaya validated on fossil material before its validation on the basis of extant plants was overlooked by all subsequent researchers on conifer taxonomy (Dallimore & Jackson in Harrison, Handb. Coniferae & Ginkgoaceae, ed. 4: 136-137. 1966; Gaussen in Trav. Lab. Forest. Toulouse, tome 2, sect. 1, vol. 1, chap. 11: 481. 1966; Hu & al. in Acta Phytotax. Sin. 14: 73. 1976; Cheng & Fu in Cheng, Fl. Reipubl. Pop. Sin. 7: 120-123. 1978; Silba in Phytologia Mem. 7: 75. 1984; Frankis in Notes Roy. Bot. Gard. Edinburgh 45: 527. 1988; Page in Notes Roy. Bot. Gard. Edinburgh 45: 385. 1988; Farjon in Regnum Veg. 122: 111. 1990 & World Checklist & Bibl. Conifers, ed. 2: 130. 2001; Nimsch & Liu, Cathaya: 1. 1990; Van Gelderen, Conifers, Illustr. Encycl. 1: 8. 1996; Fu & al. in Wu & Raven, Fl. China 4: 37. 1999; Callaghan in Int. Dendrol. Soc. Yearbook 2006: 151-164. 2007). Cathaya Karav. non Chun & Kuang was recovered only recently when contributing to the International Fossil Plant Names Index (IFPNI) (http://fossilplants.info/ about), a recently initiated global registry of the scientific names of fossil plants, algae, fungi and prokaryotes traditionally covered by the International Code of Nomenclature for algae, fungi, and plants (McNeill & al. in Regnum Veg. 154. 2012). As recorded in IFPNI, extant Cathaya Chun & Kuang (non Karav.), based on C. argyrophylla, at present comprises also 23 fossil species based on variously preserved fossil remains: 7 fossil species based on foliage or cones, C. abchasica Sveshn., C. multiserialis (Weyl.) Z. Kvaček & Wilde and C. roseltii W. Schneider (fossil foliage); C. europaea Sveshn., C. bergeri (Kirchheim.) W. Schneider ex Mai, "C. vanderburghii Gossm. ex Mai", nom. inval., and "C. loehri (Engelh. & Kink.) Chun & Kuang", nom. inval. (cones); and a number of ill-defined species based on dispersed pollen (C. erdtmannii Sivak, C. vancampoaea

Sivak, C. gaussenii Sivak, C. krutzschii Sivak, C. wilsonii Sivak, C. potoniei Sivak, C. scheuringii Sivak, C. uenoi Sivak, C. millayi Sivak, C. zagwijnii Sivak, C. ponsii Sivak, C. tingii Sivak, "C. zhejiangensis Y.-S. Liu, Zetter & D.K. Fergus.", nom. inval., C. antiqua W. Klaus, C. pseudocristata Nagy, and C. pulaensis Nagy, although some of them were recently transferred into a specialized fossil pollen genus for the receipt of dispersed fossil pollen, Cathayapollis Ziemb.-Tworz. (in Stuchlik & al., Atlas Pollen Spores Polish Neog. 2: 14. 2002).

The overall nomenclatural situation is unexpectedly complicated by the fact that Karavaev's sole fossil species C. jacutica is not definitely related to Chun & Kuang's genus Cathaya, either the extant C. argyrophylla or the fossil species described on the basis of cones (C. europaea, C. bergeri, "C. vanderburghii", "C. loehri"); Karavaev overestimated the resemblance of his material to the Chinese genus. In revising known fossil remnants attributed to Cathaya, Kolakovsky (in Bot. Zhurn. (Moscow & Leningrad) 55: 850. 1970) emphasized that the fossil cones of Karavaev's materials are quite distinct from the cones of extant C. argyrophylla, the type of Cathaya Chun & Kuang, by their larger sizes (5 cm long and 1.9 cm wide), bearing numerous seed scales arranged in 3 series along one side of cone, having a wide cuneate basis, and rounded-ovoid bract scales, apically attenuate into a short point. These distinct characters of the Siberian fossil cone, except for somewhat similar morphology of bract scales, definitely points to a lack of close relationships with C. argyrophylla. Indeed the fossil taxon probably represents an extinct endemic genus of its own with putative relationship to the modern genus Pseudotsuga Carrière. In sum, it would be better that fossil Cathaya Karav. non Chun & Kuang should receive either a new generic designation separate from extant Cathaya, or else placed in Pseudotsuga, but as Cathaya was first validly published for this fossil taxon, this cannot be done without official rejection of Cathaya Karav. in favour of the later homonym Cathaya Chun & Kuang that has a non-fossil type.

The aim of the proposal is to fix the status quo, i.e., to legitimize the modern wide usage of the illegitimate later homonym *Cathaya* Chun & Kuang, based on the non-fossil type *C. argyrophylla* with 23 related fossil species, by conservation against its senior homonym, the fossil *Cathaya* Karav. Otherwise, a new name for the extant Chinese conifers and their associated fossil forms based on foliage, cones or pollen (if the distinct pollen genus *Cathayapollis* Ziemb.-Tworz. is not accepted, and the pollen species are retained in *Cathaya* by conservative systematists) would be required which would lead to destabilization of modern conifer nomenclature by the necessary transfer of the names of 1 extant and 23 fossil species into a new genus.

The publication dates for works published in the former U.S.S.R. were extracted from the print archive of the Russian Book Chamber that served as a governmental authority for obligatory (immediately after their publication) bibliographic registration of all newly published print materials in the former Soviet Union: Chun & Kuang (1958): 9 May 1958 [Record of State registration No. 178] (not April, 1958, as stated on title), Karavaev (1961): 28 January 1961 [Record of State registration No. 56] (not 1960, as stated on title).