

## A review of the nomenclature and typification of the Canary Islands endemic palm, *Phoenix canariensis* (Arecaceae)

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**Abstract** The nomenclature of the Canary Island endemic palm, *Phoenix canariensis*, is reviewed. It is concluded that Hermann Wildpret is the correct author of *Phoenix canariensis*. *Phoenix canariensis*, *P. cycadifolia* Regel and *P. jubae* (Webb & Berthel.) Webb ex H. Christ. are lectotypified.

**Keywords** Canary Islands date palm; horticulture; nomenclature; *Phoenix*; *Phoenix canariensis*; *Phoenix cycadifolia*; *Phoenix jubae*; *Phoenix tenuis*; *Phoenix vigieri*; typification

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### ■ INTRODUCTION

Pliny the Elder (1st century AD) mentioned the presence of palms in the Canary Islands, citing Juba: “*autem copia pomorum et avium omnis generis abundent, hanc et palmetis caryotas ferentibus ac nucis pinarum abundare ...*” (Book 6, Ch. 61, Mayhoff, 1906). In the chronicles of the European conquest of the islands (15th century), palms and dates appear as a recurrent theme (Sierra & Cioranescu, 1959–1968). Since then palms of the Canary Islands remained almost forgotten until the gardener Hermann Wildpret distributed throughout the world thousands of seeds through European seed companies and nurseries around the 1860s. Previously Christen Smith, a Norwegian botanist, and Leopold von Buch, a German geologist, visited the Canary Islands in 1815. Smith was working for the new botanical garden in Oslo. Until 2000 (year in which the trunk collapsed in proximity of the apex, and died) the Oslo garden possessed a large canary palm, *Phoenix canariensis*, that had originated from seeds collected in the wild in autumn 1815 by Smith, during his stay in Tenerife [they visited several islands during a few months] (Sunding, 2003; Hansen, 2005). However, the collections by Smith and von Buch did not lead to the publication of new taxa.

Later in the 19th century several names were published to refer to the palm species now widely known as *Phoenix canariensis*. These names are analyzed by chronological order of publication and those validly published are lectotypified.

### ■ MATERIALS AND METHODS

For the present study the following herbaria have been searched: FI-B (Odoardo Beccari), FI-W (Webb), MA, NICE, ORT, P, TLON. Since several names were originally published in, now rare, horticultural catalogues, main horticultural and botanical libraries were consulted (Royal Botanic Gardens, Kew; National Botanic Garden of Belgium & Royal Botanical Society of Belgium; RHS Lindley Library; Botanischer Garten und Botanisches Museum, Berlin; Conservatoire et Jardin botaniques, Genève). In order to clarify the role of Hermann Wildpret in the genesis of the name *Phoenix canariensis*, the archives of correspondence of Odoardo Beccari were consulted from the Biblioteca del Dipartimento di Biologia Vegetale, Università degli Studi di Firenze and the archives of the Wildpret family in Tenerife (Spain). The names are arranged chronologically by date of publication. Names accepted as validly published are in *bold-face italics*.

### ■ ANALYSES AND TYPIFICATIONS

*Phoenix canariensis* H. Wildpret in Prov. Agric. Hort. Ill. 2: 293–295, fig. 67–68. Oct. 1882, nom. cons. prop. – **Lectotype (designated here)**: [illustration in] Chabaud in Prov. Agric. Hort. Ill. 2: fig. 67. Oct. 1882 [reproduced as Fig. 1 herein].

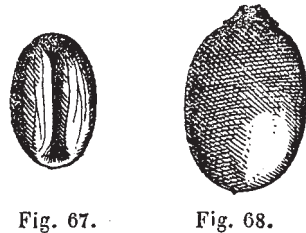
The name is being proposed for conservation (vide Rivera & al. in Taxon 62: 1337. 2013 [this issue]).

Figure 67 represents one seed collected by H. Wildpret and sent to Chabaud by Schenkel (Fig. 1). Figure 68 represents one fruit that possibly was part of the same shipment, as seen in the samples sent by Wildpret to Beccari (FI-B), but it is not certain if it corresponds to the same specimen as fig. 67 and is therefore excluded. Also excluded is fig. 66 (p. 294), which represents a palm that was not part of the notes sent by H. Wildpret to Schenkel, since it was grown in SE France and was never actually seen by H. Wildpret (Fig. 2).

Since 1871, the horticulturist Schenkel (Hamburg, Germany) offered for sale seeds of *Phoenix canariensis* collected by Wildpret. In October 1871, Schenkel had sent seeds of this palm species to Chabaud, which were set to germinate, and the most robust seedling was planted in the garden of Saint Mandrier (France). After eleven years, the plant reached a height of four meters, the crown being comprised of leaves three meters long (fig. 66 of Chabaud, 1882; Fig. 2).

The description of *Phoenix canariensis* (Chabaud, 1882) was based on living specimens from the Canary Islands (manuscript by Wildpret cited by Chabaud, 1882). It can be invoked in the same sense as the illustration of an adult individual of *Phoenix canariensis* almost simultaneously published by Drude (1882) and referred to Wildpret and Schenkel

**Fig. 1.** Illustration of seed and fruit of *Phoenix canariensis* from Chabaud (1882: 295, figs. 67 and 68), fig. 67 designated as lectotype of *Phoenix canariensis* H. Wildpret.



**Fig. 2.** Illustration of *Phoenix canariensis* from Chabaud (1882: 294, fig. 66). This is not original material because it represents a palm grown in Saint Mandrier (France) by Chabaud and was not examined by H. Wildpret.



**Fig. 66.** — *Phoenix canariensis* du Jardin de la Marine à Saint-Mandrier.

(Fig. 3). Chabaud (1882) explicitly mentioned (p. 293) a note that H. Wildpret addressed to Schenkel (Hamburg) and which later Schenkel redirected to Chabaud. This note, according to Chabaud (1882), contained statements on different features of the species, including the antiquity of the plants living in the Canary Islands and the height of the stems (12–15 m) that was equal to those of *Phoenix dactylifera*. In fact Wildpret’s home in Tenerife was near “Palma de la Conquista” at La Orotava (a monumental male individual, which, when died at the beginning of the 20th century, reached a height of 28.6 m



**Fig. 42.** *Phoenix dactylifera* var. *canariensis*.

(Abbildung von Wildpret & Schenkel in Orotava, Albert Schenkel in Hamburg.)

**Fig. 3.** Illustration of *Phoenix canariensis* H. Wildpret (Drude, 1882: 183, fig. 42). Note the attribution of the figure to Wildpret & Schenkel in Orotava.

according to Bois, 1918). At the time of publication, *Phoenix canariensis* individuals in SE France were too young (11–17 years) and thus the stems scarcely surpassed one or two meters (Fig. 2) (fig. 66 in Chabaud, 1882). We had not access to the aforementioned note, but Chabaud (1915: 143) gave new information on its content: “car l’Introducteur du *P. canariensis*, M. Wildpret, directeur du Jardin d’acclimatation d’Orotava, disait dans sa notice, lorsqu’il a envoyé les premières graines du *P. canariensis*: Parmi les *P. canariensis* il y a aussi des exemplaires mâles don’t la tige est élançée et la feuille d’un vert bleu, ave des folioles plus minces.” Chabaud compared this view with his own data based on palms he cultivated in the garden of Saint Mandrier near Toulon and others cultivated in the French Riviera, raised from seeds sent by Hermann Wildpret from La Orotava Botanic Garden, in 1863–1864, to Ch. Huber et Cie. horticulturists at Hyeres. Almost all the palms of this species grown in France around the 1880s were derived from these seeds. Chabaud mentioned two individuals: one with a 1.15 m high stem, planted in 1869 by M. Gensollen at Hyeres (France), and another with a 2 m high stem, planted in 1865 by Vigier in Nice (France). Chabaud (1915) mentions specimens arrived to the property of viscount Vigier in Nice in 1864 under the name of *Phoenix reclinata* Jacq., sold by the horticulturist J. Linden (Ghent, Belgium) and, presumably, from Kew. Wildpret would have introduced in Europe, from La Orotava, with the cooperation of Schenkel, the first seeds of a *Phoenix* species, under the name *Phoenix canariensis*. The seedlings were sold under this name by Huber et Cie. (Hyeres, France) and difficulties met in the acceptance of this name

against *Phoenix reclinata* led Chabaud (1882) to publish the description of the plant.

It is evident that Chabaud (1882) was publishing the description of *Phoenix canariensis* H. Wildpret as insert text (based on the note by H. Wildpret) and simultaneously in the main text was explicitly questioning the status as species of the new taxon. Accordingly (Art. 36.1(a) Ex.3, McNeill & al., 2012) *Phoenix canariensis* H. Wildpret was validly published in the paper by Chabaud even though Chabaud himself did not accept it as a new species. That H. Wildpret persisted in the acceptance of his taxon is shown in a letter accompanying a parcel of samples sent to the Italian botanist Odoardo Beccari on 3 December 1886 (Fig. 4). This letter is kept in the Library and Archives of the Botany Department of Florence University (Series I, Folder 18, number 42) along with a much later letter responding to a query made to Wildpret by Beccari (Biaggoli, 2009). The letter is written in Spanish and French:

“... Victor Pérez / Very dear friend, with the mail I sent you a box with different samples of fruits, bunches and palm leaves for the gentleman that request it from Florence. He will also be convinced that our Palmera Canaria is very different from others and will always be the *Phoenix canariensis* or *Phoenix tenuis*. At the back of this letter the contents of the box, whose note you must send to that gentleman, and ask him news of his examination ...” At the back (in French), after the list of materials: “Note: There is a very significant difference between all *Phoenix* and our type, *P. canariensis*, or *P. tenuis* as was named by Mr. Linden, Ghent. Hermann Wildpret. Orotava Acclimatization Garden. December 3, 1886”.

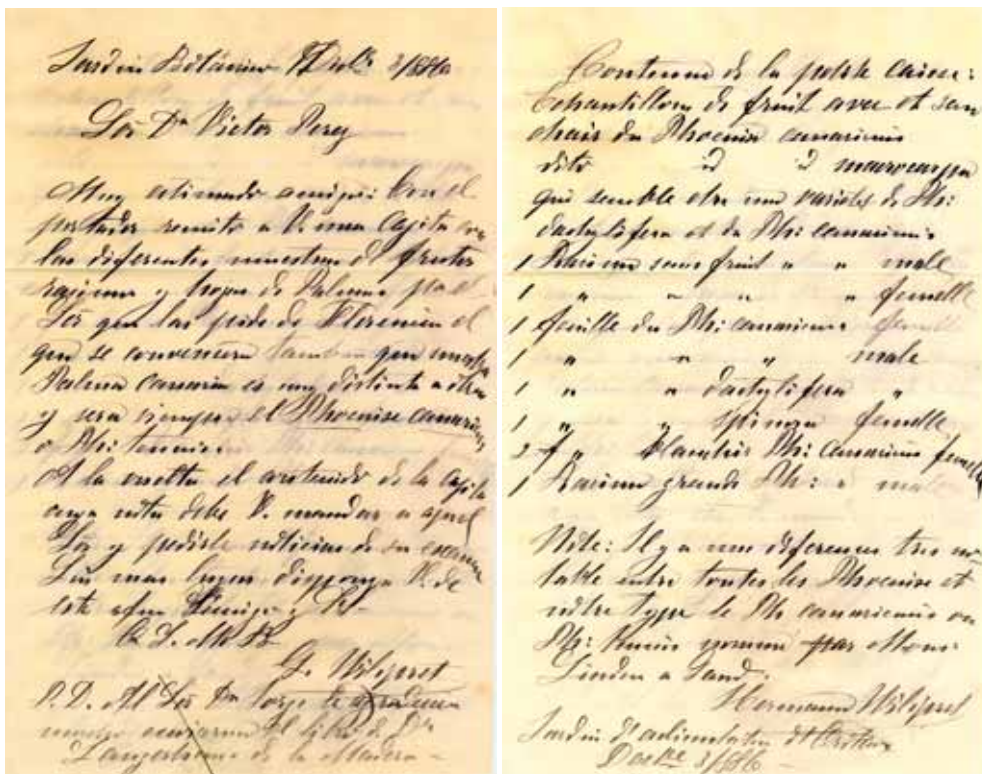


Fig. 4. Left, letter of H. Wildpret to Victor Perez (in Spanish) accompanying the parcel of *Phoenix* specimens sent from La Orotava to the attention of Odoardo Beccari; right, the list on the verso of the letter is in French and the listed materials were later included in the herbarium Beccari in 1887. — Photo: Renzo Nelli.

The specimens listed are kept at FI in the herbarium Beccari (Cuccuini & Nepi, 2006) and although these are not original material for the binomen *P. canariensis* they do aid in understanding the author's concept of the taxon (Fig. 5).

Hermann Wildpret was born on 5 October 1834 at Warmbach (Rheinfelden, Baden, Germany) but with Swiss nationality as son of a Swiss national. He embarked in Marseilles in



**Fig. 5.** Specimen of *Phoenix canariensis* H. Wildpret sent in December 1886 by Hermann Wildpret to Odoardo Beccari (Wildpret 1887, FI-B). **A**, seeds and fruits from a single gathering; **B**, leaves. — Photos T. Egea.

December 1856 for Santa Cruz de Tenerife as a gardener of H. Honneger, a merchant from Wollishofen (Switzerland). By 1858 he established himself at Orotava as a market gardener and dealt with extensive seed trade. From 1860–1894 he was the head gardener of the famous botanical garden Jardín de Aclimatación de La Orotava in Puerto de la Cruz on Tenerife (Canary Islands, Spain). Because of the unpredictability of the salary payments at the garden, Wildpret remained active in exporting seeds. Wildpret introduced hundreds of ornamental species in the Canary Islands and exported all over the world many native species (including *Lotus* spp. and *Phoenix canariensis*). He died at Santa Cruz de Tenerife on 19 December 1908 (Bolleter, 1910).

= *Phoenix cycadifolia* Regel in Gartenflora 28: 131, t. 974. 1879, nom. rej. prop. ≡ *Phoenix dactylifera* var. *cycadifolia* (Regel) G. Nicholson, Ill. Dict. Gard., Century Supplement: 597. 1901 – **Lectotype (designated here)**: [illustration] "*Phönix cycadifolia* h. Athen." in Gartenflora 28: 131, t. 974. 1879 [reproduced as Fig. 6 herein].

The name is being proposed for rejection (vide Rivera & al. in Taxon 62: 1337. 2013 [this issue]).



**Fig. 6.** Illustration designated as lectotype of *Phoenix cycadifolia* (in Gartenflora 28: 131, t. 974. 1879).

Regel (1879) described and illustrated *P. cycadifolia* based on a palm with a trunk of  $3.25 \times 0.9$  m (Fig. 6), similar to *P. dactylifera* and “*P. dactylifera canariensis*” which was cultivated in the Royal Garden of the Old Royal Palace of Athens (Greece; now the National Garden), under the care of gardener Mr. (Frederick) Schmidt. The seeds of this specimen were being sold at the price of one mark for every five seeds by Haage and Schmidt, in Erfurt (Germany). Although its strongly arched leaves resembled those of “*P. dactylifera canariensis*”, they were shorter and the overall appearance of the plant was as in *Encephalartos* (now *Zamiaceae* but then *Cycadaceae*) and hence the epithet chosen.

Chabaud (1882) stated that the seedlings raised from the seeds sent to him by M. Jules de Cock, horticulturist at Ghent, under the name *P. cycadifolia* had leaves almost flat instead of the irregular aspect of the basal part of the leaves noted in *Phoenix canariensis*. Beccari (1890: 352) referred *Phoenix cycadifolia* to the synonymy of *Phoenix reclinata* Jacq. Moore (1963, 1971), however, included *P. cycadifolia* as a synonym of *P. canariensis*, because of its solitary trunk of large diameter and broad leaf scars (Fig. 6). In *Hortus Third* (Bailey & Bailey, 1976), *Phoenix cycadifolia* was included as possibly an older name for *Phoenix canariensis*.

= *Phoenix jubae* (Webb & Berthel.) Webb ex H. Christ. in Bot. Jahrb. Syst. 6: 469, 500. 1885 ≡ *Phoenix dactylifera* var. *jubae* Webb & Berthel., Hist. Nat. Îles Canaries, deuxième partie, 3(sect. 3): 289. 1847 – **Lectotype (designated here)**: Insul. Gomera, *Bourgeau 1014* (FI-W!) [image of the lectotype reproduced as Fig. 7 herein].

Webb & Berthelot (1847) indicated various localities, but made no distinction between those belonging to var. *jubae* and those of var. *dactylifera*. Instead they made a distinction between wild (localities one to three) and cultivated (localities four to six). The lectotype was listed as “wild”.

– “*Phoenix tenuis*” Verschaff., Catalogue des Plantes Nouvelles 84: 13, t. [unnum.] “*Phoenix tenuis*”. 1869, nom. nud.

Ambroise Verschaffelt published in *Catalogue des Plantes Nouvelles* 81 (Aut. 1867–Spring 1868), 83 (Aut. 1868–Spring 1869) and 84 (Spring–Summer 1869) “*Phoenix tenuis*” followed by statements concerning the horticultural interest of this new palm and prices at which it was offered for sale. Entries in N° 81 page 19 and N° 83 page 21, both have the same text under the heading “SERRE CHAUDE - PALMIERS”, etc. “*Phoenix tenuis* (un des plus gracieux *Phoenix* introduits)”. This does not achieve valid publication because the requirements of Art. 38.1(a) are not met by statements merely describing economic usage (gardening). In catalogue N° 84 page 13 there is an additional statement that again does not satisfy the requirements of Art. 38.1(a) (McNeill & al., 2012) for a description or diagnosis: “Rien de plus gracieux que le *Phoenix tenuis*, ce dont on peut se convaincre en examinant ce dessin fait d’après nature par notre habile dessinateur” (There is nothing more graceful than the “*Phoenix tenuis*”, as can be seen by examining the drawing done from life by our skilled designer). If, in addition to the illustration, there is any difference in issue 84 from the entries

in issues 81 and 83, it is the suggestion that “*P. tenuis*” is the most graceful *Phoenix*, which is merely a horticultural statement. The accompanying icon is published first in that issue. Prior to 1908, an illustration with an analysis can serve in place of a written description or diagnosis (Art. 38.7, McNeill & al., 2012). However the illustration (Fig. 8) consists of one single figure which represents a graceful young palm with fifteen leaves, grown in a pot, it was lacking an analysis (details aiding identification) and thus the figure could not serve to validate the name in lieu of a validating description or diagnosis.

Linden (1869), after buying Verschaffelt’s nursery, published under “N° 85 and N° 24” a joint extract of catalogues Verschaffelt N° 83 and Linden N° 23 which also mentioned “*Phoenix tenuis*”, and again in Linden (1870).

Neubert (1873) mentioned that “*P. canariensis*” and “*P. tenuis*” were almost identical (but provided no description



**Fig. 7.** Specimen designated as lectotype of *Phoenix jubae* (Webb & Berthel.) Webb ex H. Christ. (*Bourgeau 1014*, FI-W). — Photo: T. Egea.

**Fig. 8.** Illustration of *Phoenix tenuis* in Verschaffelt (1869).



of either). André (1879) mentioned from the Vallombrosa Villa (Cannes) one specimen of “*Phoenix tenuis*”, which is: “the same plant that makes the admiration of those visiting the villa Vigier, in Nice, under the names of *P. tenuis*, *Canariensis*, etc.” By 1879 Schenkel distributed seeds of a “*P. tenuis*” with slender leaflets, which Chabaud (1882) found to be identical to *P. canariensis*. An anonymous subscriber (in Rev. Hort. (Paris) 54: 21. 1882), with number 8724 (from Bouches-du-Rhône), argued in the first issue of the year 1882 that “*Phoenix tenuis*”, an ornamental palm whose seeds had been sent to Europe from Tenerife (Canary Islands), was an inappropriate name given by A. Verschaffelt for a plant which more adequately would be named *Phoenix canariensis*. Wildpret in a manuscript unpublished letter addressed on 3 December 1886 to Odoardo Becari, now kept at FI archives, recognized that “*Phoenix tenuis*” was the name given by Linden to his *Phoenix canariensis*.

In 1873, the caretaker of plantations for the city of Cairo (Egypt) had sent seeds of “*Phoenix tenuis*”, from a tall and “very old” palm, to Chabaud. Later, the seedlings had proven to be identical with those of *Phoenix canariensis* (Chabaud, 1882). Chabaud invoked his Cairo’s supplier information on the plant which produced the seeds, as proof that “*P. canariensis*” was grown outside the Canary Islands (at least in gardens) much before the beginning of the Wildpret’s exportation activities. However, Rodigas (1894) and Sauvaigo (1894) linked the introduction in Europe of *Phoenix canariensis* to the activity of the horticulturist’s family Verschaffelt (Ghent, Belgium). Starting in the 1850s, they distributed under the name of “*P. tenuis*”, a small palm suited for interiors.

Naudin (1885) and Gentil (1907) mentioned “*Phoenix tenuis*” as a synonym to *Phoenix canariensis*. Bailey & Bailey (1949) and Huxley & al. (1997) referred “*Phoenix tenuis* Hort.” to the synonymy of *Phoenix canariensis*. Barrow (1998) referred “*P. tenuis*” to the synonymy of *P. canariensis* and so did Zona (2008) based on Nicholson (1901: 596–597). Previously

Nicholson (1887: 105), who was Curator of the Royal Botanic Gardens, Kew, had described “*P. tenuis*” as a very elegant addition to the genus, resembling *P. dactylifera* in general appearance, but more slender and finer in all its parts and giving as figure 122 a copy of the figure published by Verschaffelt in 1869 (opposite p. 13; Fig. 8 herein).

– “*Phoenix canariensis*” in Neubert in *Deutsch. Mag. Garten-Blumenk.* 26: 203–204. 1873, nom. nud.

Wilhelm Neubert (1873) mentioned “*Phoenix canariensis*”, though no description accompanied it, and *P. tenuis* (also nomen nudum) but saying: “... In contrast *Ph. canariensis* seems specifically distinct from *dactylifera*; in shape it is very similar or, most likely, identical with *Ph. tenuis*, drawn from one of the numerous specimens grown in The Haage and Schmidt’s Garden in Erfurt, which reach the prices of 15 Sgr for the 4-years-old specimens ...”

– “*Phoenix cycadifolia*” Trautv. in *Trudy Imp. S.-Peterburgsk. Bot. Sada* 3: 378. 1875, nom. nud.

“*Phoenix cycadifolia*” was first used by Trautvetter (1875) in the list of additions to the palm collection of the Imperial Botanic Garden of St. Petersburg during year 1874 but as a nomen nudum.

– “*Phoenix canariensis*” A. Ripoché, *Catálogo General de Semillas y Plantas 1877–78*: 93. 1877, nom. nud.

Andrés Ripoché, in his *Catálogo General de Semillas y plantas* (published in 1877 in Las Palmas de Gran Canaria) used “*Phoenix canariensis*” but as a nomen nudum.

– “*Phoenix canariensis*” N. Benítez & H. Wildpret, *Catálogo de las Plantas que contiene el Jardín de Aclimatación de la Orotava*: 43. 1879, nom. nud.

“*Phoenix canariensis*” was published by Nicolás Benítez

& Hermann [Germán] Wildpret (1879) at La Orotava Botanic Garden (Tenerife) but it is invalid, because the requirements of Art. 32.1(d) for valid publication were not met by statements merely describing economic usage: “las hojas dan escobas, esteras y otros artículos útiles”. Similar statements were made for “*Phoenix canariensis* var. *macrocarpa*” N. Benítez & H. Wildpret (in Catálogo de las Plantas que contiene el Jardín de Aclimatación de la Orotava: 43. 1879): “De las hojas de estas dos especies de palmas se hacen esteras”. Later Wildpret (1880: 24) published again *Phoenix canariensis* in a catalogue of palms offered for sale, for naming the “Palmera Escoba”.

– “*Phoenix canariensis*” Chabaud in Prov. Agric. Hort. Ill. 2: 293–297, f. 66–68. Oct. 1882, nom. inval.

“*Phoenix canariensis*” Chabaud (1882) was not validly published (Art. 36.1.a, McNeill & al., 2012) because it was not accepted by the author in the original publication: “nous avons la conviction que ce palmier n’est qu’une variété du *Phoenix sylvestris*” (p. 293) and “de toutes les espèces de *Phoenix* que nous connaissons le *Phoenix canariensis* - pour le moment nous lui conservons ce nom.” (p. 294). Chabaud was merely publishing a description and name of *Phoenix canariensis* by H. Wildpret, at the level of species in a distinct letter box, as an insert, and simultaneously, in the main text, expressed his personal view on the new taxon as a mere variety of *Phoenix sylvestris* L.

Later, Chabaud (1915: 136) seemed to have accepted the name, but a few pages further (p. 142) he rejected again the specific status of *Phoenix canariensis*: “Est-ce une espèce ou une variété? Pour nous, après avoir étudié ses organes depuis son introduction jusque à ce jour, nous avons la conviction que le *Phoenix canariensis* n’est qu’une variété du *Phoenix sylvestris*.”

Numerous authors, e.g., Beccari (1890: 369) reported the authority of *Phoenix canariensis* as “Hort.” (for gardeners in general), including first in the list of references the paper by Chabaud (1882), therefore “Hort. in Chabaud”. Moore (1963, 1971) reported the authority to Hort. ex Chabaud, but this is not compatible with the not acceptance by Chabaud of the species.

– “*Phoenix vigieri*” in Naudin in Rev. Hort. (Paris) 57: 541. 1885, nom. nud.

Naudin (1885) mentioned in a footnote this name as a synonym to *Phoenix canariensis*.

In summary, because the widely used name *Phoenix canariensis*, first validly published by H. Wildpret, is threatened by the earlier *P. cycadaefolia*, we are proposing to conserve the former name over the latter (vide Rivera & al. in Taxon 62: 1337. 2013 [this issue]).

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