



A note on *Valeriana jatamansi* Jones (*Caprifoliaceae* s.l.)

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conservation
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Abstract The tangled arguments around the names of jatamansi drug plants are examined and the correct synonymies and typifications for *Nardostachys jatamansi* (D. Don) DC. and *V. jatamansi* Jones (both *Caprifoliaceae* s.l.) are provided. The conservation status of the former, and the need for further work on the subject, is briefly discussed.

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INTRODUCTION

Jatamansi (*Nardostachys jatamansi*) is a traditional Indian drug plant used for incense and medicine (Baral & Kurmi 2006: 445, Mabberley 2008: 572). It is harvested from the wild in the Western Himalayas, where over-exploitation and degradation of its natural habitats give rise to concerns about its conservation status. However, proper assessment of the conservation status of jatamansi is hampered by confusion with *Valeriana jatamansi*, a medicinal plant of more local importance. The item of *materia medica* traded is, in the case of both species, the upper part of the rhizome and stem base, though these differ in appearance in the two species – in the case of jatamansi (*Nardostachys jatamansi*) it is clothed in persistent fibrous leaf bases, the structure resembling an ‘ermine’s-tail’; in the *Valeriana* the fibres are lacking. As can be seen from Fig. 1 and 2 the flowering plants are easily distinguished.

Although in many cases the names are currently used correctly, there is still much confusion, especially in web sources, where, for example superficial Google search produced an article on *Valeriana jatamansi* illustrated with a drawing of *Nardostachys jatamansi*. More seriously much of the conservation literature (see below) still uses the name *N. grandiflora* (potentially leaving *N. jatamansi* unconsidered and unprotected from the point of view of physical – as opposed to nomenclatural – conservation). There has also been confusion over the correct authorities for the names and the reasons for their use (e.g., which of Don’s two names is the basionym), the role of De Candolle (whether author of a new binomial or a new combination), the taxonomy (how many species of *Nardostachys*) and of typification of the names. For example, Hara (1975), through following Don’s unacceptable interpretation of Jones’s publication, presented De Candolle’s binomial as *N. jatamansi* DC., i.e., not accepting its Donian basionym, and placed it in the synonymy of *N. grandiflora* (with which, as explained above, we cannot concur); and Weberling (1978) got the typification of *N. jatamansi* wrong.

HISTORY

In 1790, the great orientalist and polymath, Sir William Jones (1746–1794), described a new species of *Valeriana* L., based on a description and drawing provided by Adam Burt (1761–1814), an East India Company surgeon then based in Gaya (Bengal, now in the Indian State of Bihar). Jones abstracted from Burt’s account its ‘natural characters’ and made a diagnosis ‘in the Linnean style’ (Mabberley 1977, Noltie 2013). Jones appears to have had no specimen, so that the only ‘original material’ available for typification is the illustration he reproduced.

However, Jones had been led to believe that the plant described was the *jatamansi* of the herbalists (a species of *Nardostachys* DC.) and, in his discussion of that plant, quoted a few vague remarks of ‘Mr. HARRINGTON [= John Herbert Harington (1764/5–1828), a Bengal civil servant and orientalist]’, who had interviewed ‘Two mercantile agents from Butàn’ on the matter. It is therefore unfortunate that Jones chose *jatamansi* as a specific name for the *Valeriana*, according to his method of using local names as Linnaean epithets (Noltie 2013). However, such a choice in no way invalidates the binomial, despite earlier practice where botanists often saw fit to remedy such infelicities. *Valeriana jatamansi* is also a medicinal plant of local importance in the Himalaya, and this name is in current use (see e.g., Mabberley 2008).

David Don’s misguided good intentions

Whether or not Burt (and therefore Jones) had been deliberately misled by traders (not an unusual course of events in commerce then or now) into thinking the *Valeriana* was the true *jatamansi* is now of only historical interest. However, David Don (in Lambert 1821) sought to remedy things by applying, incorrectly, Jones’s binomial to the true *jatamansi* (i.e., the *Nardostachys*), by dismissing not only the sole original material (the plate) but also Jones’s description, and therefore making most important the verbal information provided by Harington. This is not acceptable as a ‘lectotypification’ (a practice not formulated in the modern sense in Don’s time in any case) and we cannot therefore concur with Hara (1975), who essentially followed David Don’s setting aside of Jones’s (and Burt’s) work (see below).

In 1825 Don decided (correctly) that the true *jatamansi* was not a *Valeriana* after all and therefore coined the name *Patrinia jatamansi* for it. This name is based on *Valeriana jatamansi* sensu D. Don (1821), non Jones (1790), and includes in its

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Fig. 1 Lectotype of *Patrinia jatamansi* D.Don (the basionym of *Nardostachys jatamansi* (D.Don) DC.). Engraving from Lambert (1821) (Royal Botanic Garden Edinburgh).

synonymy '*V. spica* Vahl, Enum. 1 [i.e. 2 (1805)]. p. 13' (a superfluous name for Jones's *V. jatamansi*, and therefore also not applicable to what is now the *Nardostachys*). In other words, *Patrinia jatamansi* D.Don was in effect a new species for what is now the *Nardostachys*, its type being the Wallich material from Bhutan cited by Don.

The genus *Nardostachys* – later 19th-century treatments

In 1830 De Candolle erected the genus *Nardostachys* for the true *jatamansi* and coined the binomial *N. jatamansi*, which he clearly based on *Patrinia jatamansi* (and therefore *V. jatamansi* sensu D.Don, non Jones). He also added a second species, *N. grandiflora* DC., based on other Wallich material from Kumaon (now in the state of Uttarakhand, India), but this plant is now considered conspecific with *N. jatamansi* (see below). It should be noted that in the Prodrômus (1830) De Candolle referred to a publication that had, in fact, not yet been issued (De Candolle 1832) in which both species of *Nardostachys* (and *Valeriana wallichii* – see below) were illustrated and once again described. Royle (1835: 1: 242-4; 2: t. 54), who had a special interest in *materia medica*, discovered, while stationed at Saharunpur, and independently of Don, that Jones's plant was not the true *jatamansi*, and obtained and grew the correct plant from the mountains of Kedarkantha and/or Shalma in

the Western Himalaya (Uttarakhand, India). By the time that he came to publish his conclusions, accompanied by a handsome plate, he had become aware of Don's and De Candolle's work and followed their treatment (though without saying to which species of *Valeriana* he considered Jones's illustration to belong). Clarke (1881) also followed Don and De Candolle, but made *N. grandiflora* DC. a synonym of *N. jatamansi* DC. Adopting the convention of his day, Clarke stated that "The name *V. Jatamansi* [of Jones] is hence to be suppressed" and referred Jones's illustration to *Valeriana wallichii* DC. In this identification he followed De Candolle, though, in fact, De Candolle had referred the Jones plate to his new species with a query.

TAXONOMY

Weberling (1978) gave persuasive morphological reasons for treating the genus *Nardostachys* as monospecific, the one polymorphic species being correctly called (though without giving any nomenclatural explanation) *N. jatamansi*. He recognised three main variants of it and for these he used the German designation 'Typ': namely 'jatamansi-Typ', 'grandiflora-Typ', 'linearifolia-Typ', which was unfortunately translated in his English summary as 'type'.



Fig. 2 Lectotype of *Valeriana jatamansi* Jones. Engraving from Jones (1790), from the first, Calcutta, edition of *Asiatic Researches* (courtesy of the Royal Asiatic Society, London).

CONSERVATION STATUS

Although no Global Conservation assessment exists for *Nardostachys jatamansi* (or '*N. grandiflora*') on the IUCN website, there has been concern for many years over its conservation status at national levels. For example, in 1988, in the Indian Red Data Book, under the name *Nardostachys grandiflora*, the plant's status was described as "Vulnerable, and much depleted due to over-exploitation of rhizomes for medical properties, and also due to habitat degradation and other biotic interferences in its distribution" (Nayar & Sastry 1988). These authors recommended that "Collection of this plant should be banned". The second author of the present paper (HJN) has personal experience of this, having in 1996 seen hillsides at Thangu in northern Sikkim pock-marked by excavations where plants had been uprooted; and in 1998 in the market at Thimphu in Bhutan large baskets of the 'ermine-tail' basal parts were for sale – said to be used for the making of incense. A recent study (Larsen 2008) of the plant's status, under the name *N. grandiflora*,

especially in Nepal was presented to a workshop in Mexico and contains useful references. Despite the fact that *N. grandiflora* has been on Appendix II of CITES since 1997 (<http://www.cites.org/eng/app/appendices.php> - accessed 17 February 2014), Larsen made it clear that international trade (e.g., between Nepal, Bhutan and India) is taking place on a large scale, and that there is urgent need for data collection, documentation and conservation assessment.

CONCLUSION

In short it is fortunate that the local name (paradoxically rather in the spirit of Jones's system as it turns out!) for the important drug plant *jatamansi* is *Nardostachys jatamansi* (D. Don) DC., indeed the name in current use in the scientific literature (e.g., Clement 2001, Mabberley 2008: 572, 890, Hong et al. 2011, the Plant List – www.theplantlist.org, accessed 17 February 2014) if not yet in many web sources. The synonymy for the two species is as follows:

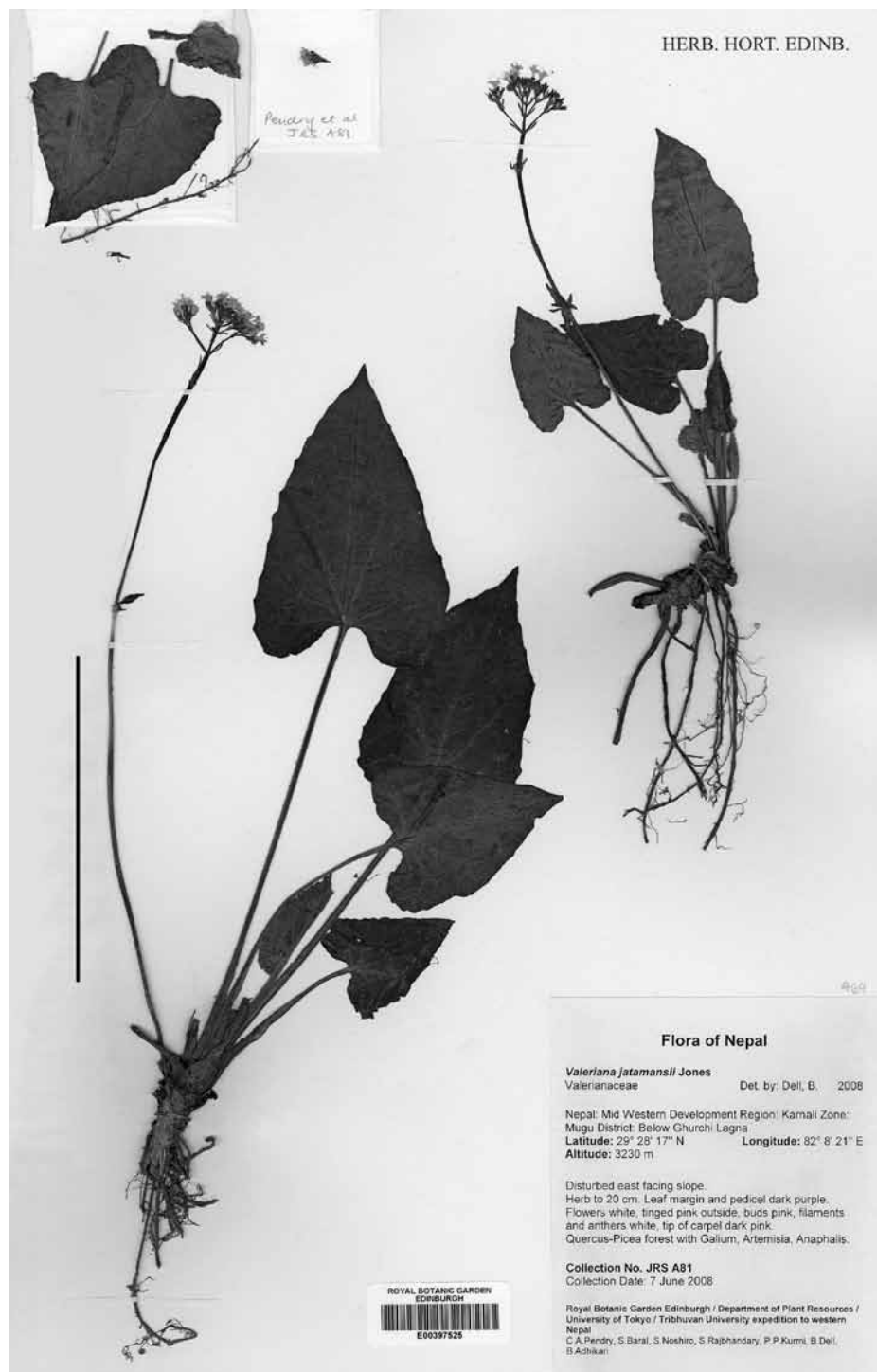


Fig. 3 Epitype of *Valeriana jatamansi* Jones – a recent specimen from western Nepal (E). — Scale bar = 10 cm.

1. *Nardostachys jatamansi* (D. Don) DC. (1830) 624 — Fig. 1

[*Valeriana jatamansi sensu* D. Don, in Lamb. (1821) 180, t., non Jones (1790)].

Patrinia jatamansi D. Don (1825) 159.

Cited material: 'in Bhotaniae alpinus. Wallich'.

Lectotype (here designated). The plate labelled 'Valeriana Jatamansi' in Lambert (1821).

Epitype. The material cited by Weberling as 'Typus': 'Wallich 431 (1) resp. 431 (A)', Tibet, Gossainthan (G photo!; isotypus in K, LE, M, W)'.

Note — In the Numerical List (Wallich 1829) the two collections under 431 are designated '(1)' and '(2)', but in some of the distributed duplicates these appear to have been re-numbered as '(A)' and '(B)'.

Don (in Lambert 1821) originally quoted the source of his material as "in Bootaniae et Nepaliae Alpinus ... (V.S.)", but in

his discussion Lambert (in the same work) referred only to a single collection: "fine Nepalese specimens sent to me by ... Dr. Wallich" from which the plate (here designated as lectotype) was made. The formal citation is ambiguous, and it seems possible that the citation 'Bootaniae' could merely have been a repetition of one of the traditional localities of Jones, rather than Wallichian specimens therefrom. From the date of collection (before Wallich himself had visited Nepal), this collection must have been made by, or for, the Hon. Edward Gardner (Resident at the Nepalese court, and botanical correspondent of Wallich – see Fraser-Jenkins 2006, M. Watson pers. comm.). Any 'Wallich' specimens in the East India Company herbarium would have reached London too late for Don's 1825 publication, and it appears that the *Valeriana* work had, in fact, been completed in time for publication in 1821.

Later, Don (1825) cited a single locality “in Bhotaniae alpinus” and the collector’s name Wallich – that is, with no ‘v.s.’, but, as he referred back to ‘Lambert’, that paper and its original materials can be used in typification. Lambert’s herbarium was sold and widely dispersed after his death (some dispersal having predated this), though much of the Nepalese material was purchased by Robert Brown and is now at BM – for details see Miller (1970). Although it is conceivable that an original specimen may exist in another herbarium (CGE, G, etc.) this is unlikely. As there is no relevant specimen from Lambert’s herbarium at BM, and the published plate is an excellent one, it seems safest to lectotypify the name on the plate. As Weberling (1978) cited as ‘Typus’ material that was not available to Don in 1821, this cannot be accepted as a lectotypification, though in the interests of continuity it is here redesignated as ‘epitype’.

Nardostachys grandiflora DC. (1830) 624, Hara (1975) 107

Cited material: ‘in Emodo ad Kamaon Nepalensium. Wallich ... (v.s. comm. ab hon. coetu merc. andl. Ind. or. [i.e., in herb. E.I.C.]’.

Lectotypified by Weberling (1978), who cited ‘Typus: Wallich 431 (2) resp. 431 (B), Kumaun [sic] Range, “Emodus ad Kamaon” (G photo!; isotypus K, LE)’.

Note — For numbering of ‘Wallich’ specimens see above under *N. jatamansi*. The entry in the Numerical List (Wallich 1829) gives the collecting details as “Kamaon alpes. R. B[linkworth]”.

Nardostachys chinensis Batalin (1894) 376

Cited material: ‘China borealis, prov. Szechuan septentrionalis mons Kungala, custodia chinensis Shindshetan, in paludibus, 25 July 1885, flor. (Potanin) [s.n., LE]’. Weberling cited isotypes at K and Z, though no specimen appears on the Kew online list of types.

Nardostachys gracilis Kitam. (1954) 134

Type. ‘Nepal, Tsumje 3900 m (24 July 1953 S. NAKAO Typus) [KYO]’.

The type was not seen by Weberling, but the illustration published by Kitamura the following year (1955) confirms the identification.

Distribution — India, Nepal, Bhutan, China (Gansu, Qinghai, Sicuan, Xizang, Yunnan).

The *jatamansi* of international commerce.

2. *Valeriana jatamansi* Jones (1790) 405, f. and 416 — Fig. 2, 3

V. spica Vahl (1805) 13, nom. superfl., illegit.

Lectotype (designated here). Jones’s illustration.

Epitype (designated here). Nepal, Mid Western Development Region, Karnali Zone, Mugu District, Below Ghurchi Lagna, N29°28’17” E82°8’21”, alt. 3230 m, C.A. Pendry et al. *JRS A81*, 7 June 2008 (E [E00397525], KATH, MAK, TI, TUCH).

Note — The hazy portrayal of the (shade?/) ground in which it is growing may have been misinterpreted as indicating a rhizome or root, but it is merely hatching with no outline unlike the rest of the plate.

V. wallichii DC. (1830) 640, C.B. Clarke (1881) 213

Cited material: ‘in Nepalia et ad Kamaon ... Wallich ... (v.s. comm. ab hon. aula merc. angl. Indiae or. [no 433 under *V. villosa* Wall. ms]’ G, iso BM, E, K-W etc.

Distribution — Pakistan, India, Nepal, Bhutan, China (Chongqing, Gansu, Guizhou, Henan, Hubei, Hunan, Sichuan, Xizang, Yunnan), Thailand, Vietnam.

A locally significant incense and drug plant, for example, in Nepal (Baral & Kurmi 2006: 445).

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