



## The type of Sturt pea found

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**Abstract:** The type collection of Sturt pea was thought to have been lost soon after the publication of its original name, *Donia formosa* G. Don. For a long time, it was assumed (wrongly) to be at the Natural History Museum (BM), but it has now been located in the herbarium in Geneva (G). Annotations on the sheet show that the collection details have also been mistaken: instead of the 'Curlew River', collected by Phillip Parker King or Frederick Bedwell, it was collected by Allan Cunningham on the Malus Islands in the Dampier Archipelago.

**Keywords:** Sturt pea, *Donia formosa*, *Clianthus formosus*, *Swainsona formosa*, *Willdampia formosa*, Fabaceae, Lambert Herbarium, typification

### Introduction

Sturt pea is a spectacular flower that has evoked admiration since its discovery by William Dampier in 1699. Explorers and collectors who came across it in the 19<sup>th</sup> century tended to exclaim over it (Symon & Jusaitis 2007; George 1999b). It was described in pre-Linnaean literature, and first named in the Linnaean system in 1832. Since then it has been treated in many works such as floras, horticultural works and field guides, and it has attracted the interest of many artists. On 23 November 1961 it was proclaimed as the floral emblem of South Australia (*Government Gazette of South Australia* no. 51: 1731).

One matter in Sturt pea's nomenclatural history has received little attention and can only now be resolved—the type collection, namely the locality, the collector, and the present whereabouts of the type specimen itself. George Don (1832) published two names for what we regard as Sturt pea. His protologues are:

D. SPECIOSA ; herbaceous, very villous ; leaflets opposite, lanceolate, acute ; flowers umbellate ; calyx 5-cleft ; legume silky. 2. G. Native of New Holland, at Regent's Lake. Flowers large, crimson.

D. FORMOSA ; plant herbaceous, very villous ; leaflets opposite, obovate ; flowers racemose ; calyx 5-cleft ; legume silky. 2. G. Native of the North-west coast of New Holland, at the Curlew river. Capt. King.

The symbol 2 refers to the herbaceous habit and G to the requirement to grow it in a glasshouse. The differences in leaflet shape and inflorescence were considered insignificant by Brown (1849), who recognised just one species for which he accepted the name *Clianthus dampieri* A. Cunn. This specific epithet

was accepted by Bentham (1864) and all other writers until Ford and Vickery (1950).

The person cited as collector of the type of *Donia formosa*, 'Capt. King.', was Phillip Parker King (1791–1856), captain of HMC *Mermaid* (and later HM Survey Ship *Bathurst*) on several surveying voyages around the Australian coast from 1817 to 1822. He sometimes assisted the plant collector Allan Cunningham, as well as collecting on his own account. King gave the name 'Curlew River' to a tidal creek just east of the mouth of a river later called the Ashburton, Western Australia (c. 21°41'S, 114°58'E), but it never became an official name. There is a Curlew Bank just offshore, named by J.W. Combe around 1899/1900, apparently alluding to King's name (Murray & Hercocock 2008). Later, the collector of the type was thought to be the master's mate, Frederick Bedwell, who is recorded as bringing aboard a specimen of 'Dolichos' from an excursion ashore at the Curlew River on 19–21 February 1818 (Curry *et al.* 2002). It has been thought that this specimen was Sturt pea, e.g. Symon & Jusaitis (2007, p. 18), but note that the quotation given there refers to Cunningham's landing on the Malus Islands on 1 March (see below), not the Curlew River.

Cunningham's journal (A.E. Orchard, pers. comm.) tells a different story. His entry for 20 February 1818 reads:

Our first officer had landed on the Main and had visited the Saltmarsh at the Back of the Beach, & reports the quantities of crystallized Salt he saw on these flats. He brought me a specimen of a Dolichos with acute stalks, which he had gather'd on the Sands (D. foliolis rhombeo-hastatis, reticulato-ramis, pedunculis petiolo duplo longioribus, racemis parvis, leguminibus glabris, solitariis, stipulis ovatis, acutis, a small annual plant).

The officer was Bedwell, but features of the plant rule out this being Sturt pea, especially its glabrous pods.

Further, Cunningham's entry for 1 March, when he landed on the Malus Islands (21°31'S, 116°41'E), reads:

I was not a little surprised to find *Kennedia speciosa*, a plant discover'd in July 1817 in sterile bleak open flats near the Regent Lake on the Lachlan River in Lat. 33°13'S and Long. 146°40'E. It is not common, I could only see 3 plants, of whom one was in flower. ... This island is the Isle Malus of the French.

Robert Brown (1849, p. 72) repeated this account almost verbatim but, apart from Bentham (1864), no later worker has noted the correct locality.

'*Kennedia speciosa*' was Cunningham's manuscript name for Sturt pea. His collection from Regent's Lake (now Lake Cargelligo) New South Wales in July 1817, while on an expedition with John Oxley, became the type of *Donia speciosa* G. Don.

The type of *Donia formosa* was originally in the hands of Aylmer Bourke Lambert (1761–1842), a man of private means who accumulated a large herbarium (Miller 1970). Lambert welcomed botanists to study in his herbarium and library, and these included George Don, whose brother David worked for Lambert as his assistant from 1820 to 1836. After Lambert's death, his herbarium was divided into lots and sold in 1843.

In discussing the species, Robert Brown (1849) appears to have thought that there was more than one specimen of Cunningham's since he wrote that the specimen on which Cunningham based his name *Clianthus Dampieri* "cannot now be found in his Herbarium, as Mr. Heward, to whom he bequeathed his collections, informs me : nor can I trace Mr. Lambert's plant" (i.e. from King's voyage in the *Mermaid*). Given that Cunningham found a single plant in flower on Malus Island, it is possible that he gathered just the one specimen that was in Lambert's herbarium. Heward gave Bentham a set of Cunningham's legumes "in so far as his material allowed" (Orchard 2014) but there is no specimen of this collection of Sturt pea at Kew, implying that there was no duplicate in Heward's set.

In the *Flora Australiensis* 2: 214 (Bentham 1864), this collection was cited as "Dampier's Archipelago, A. Cunningham". In his Preface in volume 1 of the *Flora*, Bentham discussed the collections that he had used in its preparation. Regarding Allan Cunningham's plants he wrote "I have, I believe, been able to examine the whole of them." This included a set in the Hookerian herbarium at Kew as well as a set in R. Heward's herbarium that contained Cunningham's private herbarium (these specimens are now also at Kew, donated by Heward in 1862). While there are specimens of the type of *Donia speciosa* at BM and K, there is, as stated above, none of *D. formosa*. Bentham wrote:

With the few Australian species described from the herbarium of the late A.B. Lambert, I have had much difficulty. [...] I have, therefore, in most instances been obliged to rely chiefly on circumstantial evidence for the identification of such of these plants as are only known by the brief diagnoses of G. Don and others.

While he had further material of Sturt pea to study, this indicates the difficulty he had in seeing Don's material. It seems likely that his citation of Dampier Archipelago was based upon a reading of Brown's account of 1849.

In many later accounts treating the species, the presence of the type collection has received little attention. When they made the combination *Clianthus speciosus*, Ascherson and Graebner (1909) did not mention the type collection, nor did they mention the name *Donia formosa*. Ford and Vickery (1950) accepted the collection details of the protologue of *Donia formosa* but did not cite a herbarium for the type, while Thompson (1990, 1993) repeated these details and cited the holotype as being at the Natural History Museum (BM). This was repeated by later authors, e.g. George (1999a), Orchard (2017), but searching has failed to find it there. Until recently, following Brown's comment and being unable to locate the type, I believed that it had been lost and that a neotype should be designated. My attention was then drawn to a paper that discussed the fate of Lambert's herbarium (Miller 1970) and listed herbaria that held material from it. From my own searching I knew that the type was not at Kew (K), the Natural History Museum (BM), Cambridge (CGE) or Oxford (OXF), so I emailed the other herbaria listed. I received one positive reply, from the Phanerogamic Herbarium, Conservatoire et jardin botaniques, Geneva (G), with a scanned image that proved to be of the elusive type (Figs 1–2).

The sheet is G 00418563. The annotations on it are:

"New: Holland Curlew River NW Cape. Capt King", with 'Curlew River' struck out and "Malus Island", and others of Dampiers Archip<sup>o</sup> - 1818 A.C." added.

At the foot of the sheet is written: "*Clianthus magnificus* G. Don", with 'magnificus' struck out and an annotation in pencil "formosus" written above. Another note in pencil reads "vide Dampier voy 3 vol 2", this refers to Fig. 2 of Tab. 4 in Dampier's *A Voyage to New Holland etc. in the Year 1699*, volume 3 (Dampier 1703).

I do not know the hand of the original, upper annotation with 'Curlew River'. The amendments to it are in Cunningham's hand. It appears that, when he published the species in 1832, George Don was not aware of these amendments.

When compared with a sample of his writing given by Miller (1970, p. 507), the annotations at the foot of the sheet appear to be all in the hand of George Don.



**Fig. 1.** The holotype of *Donia formosa* G. Don, sheet G 00418563 in the Phanerogamic Herbarium, Conservatoire et jardin botaniques, Geneva, Switzerland (reproduced by permission).

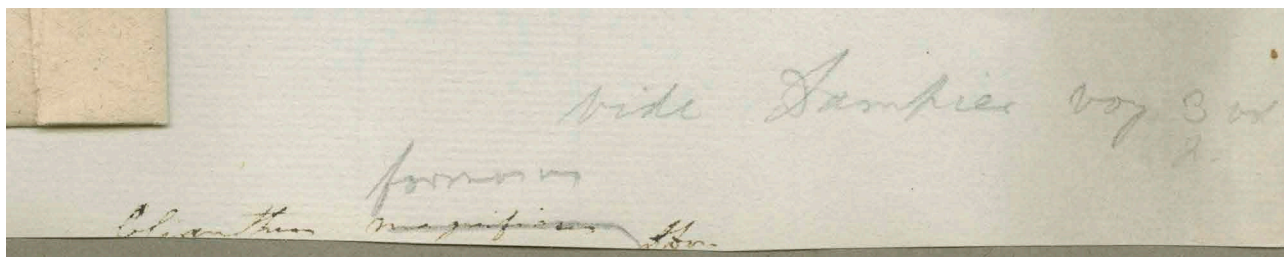


Fig. 2. Enlargement of the annotations at the foot of the holotype sheet.

The monogram appears to be 'G.Don'. The pencil annotation (changing the epithet and adding the reference to Dampier) are in the same hand—for example, compare 'f', 'm' and 'us' in the two epithets, and 'D' of Dampier with 'D' of Don. In changing the epithet one cannot but wonder if Don took into account Dampier's description of the flowers as "very beautiful".

The specimen fits Don's description in having obovate leaves (although this is a common shape for the species) but particularly in having a racemose inflorescence (typically it is umbellate).

I conclude that the specimen can be regarded as the holotype.

The nomenclature for the species is:

#### *Donia formosa* G.Don

*Gen. Hist.* 2: 468 (1832). — *Clianthus formosus* (G.Don) Ford & Vickery, *Contr. New South Wales Natl. Herb.* 1: 303 (1950). — *Swainsona formosa* (G.Don) Joy Thomps., *Telopea* 4: 4 (1990). — *Willdampia formosa* (G.Don) A.S.George, *W. Austral. Naturalist* 22: 191 (1999). — **Type citation:** "North-west coast of New Holland, at the Curlew river, Capt. King". — **Holotype:** W.A., Malus Islands, Dampier Archipelago [c. 20°31'S, 116°41'E], [1 March] 1818, *A. Cunningham* (G 00418563).

**Note:** The Malus Islands are named not for the apple, but for French physicist Étienne-Louis Malus (1775–1812), noted for his studies of light and optics. Coincidentally they lie less than 20 kilometres from East Lewis Island, where Dampier collected his specimens in 1699 (not at Shark Bay as given by Symon & Jusaitis 2007).

*Clianthus dampieri* A.Cunn. ex Lindl., *Trans. Hort. Soc. London* series 2, 1: 522 (1835), *nom. illeg.*, *nom. superfl.*, published as a new name for *Donia formosa* G.Don., based on same Cunningham collection and Dampier's specimen. — *Clianthus dampierii* F.Muell., *Syst. Census Austral. Pl. Suppl.* 1: 4 (1884), *orth. var.*

This leaves the question of the 'Dolichos' that Frederick Bedwell brought aboard the *Mermaid* from his excursion at the Curlew River on 20 February 1818. At Kew there is a specimen collected by Cunningham on the north-west coast in February 1818, determined by

J. Grimes as *Cullen stipulaceum* (Decne) J.W.Grimes, but this does not fit Cunningham's notes as it is a robust perennial having flowers with a glandular-silky ovary. A strong possibility is *Swainsona pterostylis* (DC.) Bakh.f. which occurs at the mouth of the Ashburton River, though there is no specimen of the species among Cunningham's collections. Another is *Canavalia rosea* (Sw.) DC. which occurs commonly along the north-west coast but is a robust perennial. Yet another is *Crotalaria cunninghamii* R.Br. which is common at the locality but is a shrub and has pubescent pods. From his journal it is clear that Cunningham frequently culled his dried specimens, discarding those that had not dried satisfactorily or were inadequate for other reasons. Bedwell's plant may have met this fate.

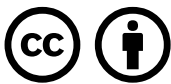
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