Nomenclature of intergeneric hybrids of *Zephyranthes*

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It is well known that many species in different genera in the *Amaryllidaceae* are capable of being hybridised and will produce viable progeny. Although these bigeneric hybrids do rarely occur in the wild, they are more often generated by horticulturists and, as such, these hybrids are customarily published in the horticultural literature. This means that the published names not infrequently do not meet the requirements of the *ICBN* for valid publication and even more confusion has been caused when later authors have attempted to correct these errors. Some botanists today take the view that too many genera are recognised in the *Amaryllidaceae*, and their separation based on differences in floral morphology only reflects pollination syndromes which are often polyphyletic in origin and do not represent monophyletic groups. This is supported not only by the molecular phylogeny for the American *Amaryllidaceae* (Meerow *et al.*, 2000) but also by morphological studies (e.g. Arroyo-Leuenberger & Leuenberger, 2009). However, since these names are available and still widely used, it is thought helpful, for the horticultural literature at least, to attempt to resolve some of the nomenclatural problems.

1. ×***Cooperanthes*** Percy-Lanc. (1913) (*Cooperia* × *Zephyranthes*)
This nothogenus was introduced by Percy-Lancaster (1913)[1] for the hybrid which had been made by his father, Percy Lancaster, and for which the parents were stated to be "Cooperia oberwetti" and *Zephyranthes robusta*. This hybrid was named × *Cooperanthes lancastrae* and was one of three crosses raised by Percy Lancaster: the others being × *Cooperanthes rosea* (*Cooperia drummondii* × *Zephyranthes carinata*) and × *Cooperanthes* 'Sunset' (*Cooperia drummondii* × *Zephyranthes andersonii*). The plants raised from these crosses were subsequently

[1] Born Sydney Percy Lancaster (1886–1972), son of Percy Joseph Lancaster (d.1904), the author of the genus subsequently hyphenated his middle name and surname, and this is how his name appears in Brummitt & Powell (1992).

lost and Percy-Lancaster created a set of new hybrids using a range of species in *Cooperia* and *Zephyranthes* (Percy-Lancaster, 1913). Father and son carried out their work in India, the latter during his long period of service as Secretary to the Royal Agricultural and Horticultural Society of India, based in Alipore and subsequently working for the National Botanical Gardens at Lucknow (Khoshoo, 1976).

The genus *Cooperia* Herb. (1836) has more recently been merged with *Zephyranthes* Herb. (1821) (Traub, 1951), the latter having precedence and, as such, the nothogenus ×*Cooperanthes* is also reduced to synonymy with *Zephyranthes*. However, based on the actual parents cited, the included nothospecies cannot all be transferred to *Zephyranthes*.

(i) ×***Cooperanthes lancastrae*** (also frequently given as "lancasterae") The first parent cited is "Cooperia oberwetti", which is not a formally published valid name, although it is cited as *Cooperia oberwetteri* Hort. in the Kew *Hand-list of Tender Monocotyledons*: 129, 1897. This is almost certainly the correct form of the name, as it would seem to be named after Peter Henry Oberwetter (1830–1915), from Austin, Texas, who was known to have collected and introduced amaryllids (Hall, 1935). This entity is now treated as a synonym of *Cooperia drummondii* Herb. which, when transferred to *Zephyranthes*, is known as *Z. chlorosolen* (Herb.) Dietr. as there already is a separate species *Zephyranthes drummondii* D. Don (1836). The second parent, *Zephyranthes robusta*, is now treated in the genus *Habranthus*, where it was originally described by Herbert (1830), which would, theoretically, make Lancaster's hybrid a bigeneric cross between *Zephyranthes* (as *Cooperia*) and *Habranthus*, were it not for the confusion in cultivation over the naming of plants grown as *H. robustus*. This species is superficially similar to *Zephyranthes grandiflora* Lindley and not infrequently the one is sold under the other name. It is clear that this confusion has a long history and it is highly probable that Percy Lancaster and Sydney Percy-Lancaster were working with *Z. grandiflora* rather than *H. robustus*, a conclusion suggested by Flagg & Florey (1976: 75) and also reached by Howard (1990: 122). Remarkably, the required combination in *Zephyranthes* has not been published:

Zephyranthes ×lancastrae (Percy-Lanc.) J. C. David **comb. nov.**
Basionym: ×***Cooperanthes lancastrae*** Percy-Lanc., *J. Roy. Hort. Soc.* **38**: 531 (1913).

There was a brief description given by Percy-Lancaster (1913) which is repeated in Percy-Lancaster (1958).[1] From the description it may be inferred that the peduncle was 12" (*c.*30cm) or more, stout; the ovary was brownish green; the flower had an apple-green centre and yellowish white tepals, "going off" into pinkish lilac. I have not been able to trace an illustration of this hybrid, although in Percy-Lancaster (1958), two types of ×*Cooperanthes* flowers are depicted: a "large flowered type" and a "Sydneya type". The latter refers to the renaming by Traub (1954) of ×*Cooperanthes lancastrae* as ×*Sydneya lancast[er]ae* (see below). From this it would be possible to consider Percy-Lancaster (1958) fig. 2 as representing something like *Z.* × *lancastrae*. Percy-Lancaster (1922) divided the hybrids into two main types: those having *Cooperia drummondii* as a parent ("C. D.") that had erect flowers and those having *Zephyranthes* as a parent ("Z. R.") with semi-nodding flowers. He noted that Lancasteri [sic] is of C. D. type, white or white shaded pink.

Similarly there is little reliable preserved material to help with resolving the identity of the plants. Apart from the loss of the original hybrids as recorded by Percy-Lancaster (1913), it appears that subsequently much of the living collection was lost during the Second World War when the bed containing the ×*Cooperanthes* hybrids was crushed by military trucks. What remained after the end of the war was carefully nurtured back to life and transferred to the National Botanic Gardens at Lucknow, but many of the best varieties were lost (Percy-Lancaster, 1958). In the herbarium at Kew, the earliest specimen is from Henry Elwes and dates from 1919. It is evident that this must represent one of the hybrids published in 1913 but in the absence of any further evidence to confirm its precise identity, it cannot be used to secure the interpretation of the name. Subsequently plants were sent to Kew directly from India by A. P. Lancaster.[2] These were evidently grown

[1] The publication has no author, but internal evidence in the paper points to Percy-Lancaster as the author.

[2] Alick Percy-Lancaster, Sydney Percy-Lancaster's son (Khoshoo, 1976).

on at Kew; the specimens preserved in the herbarium were collected in 1939 and 1940. All the relevant Kew specimens are labelled as *Cooperanthes* or *Zephyranthes*: no epithet is given. A further specimen is labelled "×Cooperanthes hortensis (ined.)" and had been sent to Kew from the Agri-Horticultural Society of India in 1949. The origin of this hybrid is not recorded and the specimen does not resemble the earlier ones.

Material in cultivation was available from Mike Salmon (Monocot Nursery) up until 2005 and had also been listed by Paul Christian in 1997 (*RHS Plant Finder 2005–2006* and *1996–1997*). The former also listed the cultivar 'Mary', which was among the first to be described by Percy-Lancaster (see below).

A description is provided below of the material obtained from Monocot Nursery:

Leaves linear, two or more per bulb, dark green with a slight reddish tint and a glaucous bloom. Flowers solitary, borne on an erect peduncle up to 13cm long, usually oriented along the axis of the peduncle, not at an angle. Flower pedicel and bud enveloped by a spathe up to 50mm long, bifid but fused at the apex to leave a small gap below, initially pinkish but later more straw-brown in colour. Flowers narrowly trumpet-shaped, perianth segments 60–65mm, outer segments overlapping, ovate, up to 18mm wide, inner segments narrowly ovate up to 12mm wide, apex mucronate; perianth segments pale pink. Flowers have a distinct but not sweet scent. Stamens reaching the mouth of the perianth tube, not exserted, all of the same length; anthers with deep-yellow pollen. Style is shorter than the stamens.

(ii) ×***Cooperanthes rosea*** Percy-Lanc. (1913)
The parents for this hybrid are given as *Cooperia drummondii* and *Zephyranthes carinata*; the former species is now *Z. chlorosolen* and the latter is a synonym of *Z. grandiflora*. As such, this is an interspecific hybrid in *Zephyranthes* and since there is already a *Z. rosea* Lindley (1824), Traub (1954) provided a *nomen novum* for the hybrid, *Z.* × *lancasteri* Traub. However, it is most likely that this is the same hybrid as *Z.* × *lancastrae*, and should be treated as a synonym of the latter.

(iii) ×***Cooperanthes*** **'Sunset'**
Since Percy-Lancaster did not give this hybrid a Latin name, it is adopted here as a cultivar name under the *ICNCP*. The parents were stated to be *Cooperia drummondii* and *Zephyranthes andersonii*. The latter is now included in *Habranthus*, as a synonym of *Habranthus tubispathus*. Traub (1954) introduced the new name ×*Sydneya india* for this hybrid. If the hybrid name were required it would need to be recombined under ×*Zephybranthus* T. M. Howard.

(iv) ×***Cooperanthes bella*** Percy-Lanc. (1913)
This is the first of the hybrids made by Percy-Lancaster using *Cooperia drummondii* and *Zephyranthes robusta* as parents. Based on the parentage, this entity is a synonym of ×*C. lancastrae*, which was stated by Traub (1954). Given the question over the identity of the parent *Z. robusta* noted above, this too should be treated as a synonym of *Z.* × *lancastrae*.

(v) ×***Cooperanthes blanda*** Percy-Lanc. (1913)
Percy-Lancaster made use of *Cooperia oberwetteri* and *Zephyranthes treatiae* to create this hybrid. With both parents belonging to *Zephyranthes*, the hybrid is correctly known as *Z.* × *blanda* (Percy-Lanc.) Traub (1954).

(vi) ×***Cooperanthes*** **'Alipore Beauty'**
As with 'Sunset', since a non Latin name was used by Percy-Lancaster, it is best treated as a cultivar name. The parents given are *Cooperia oberwetteri* (*Z. chlorosolen*) and *Z. robusta* (probably *Z. grandiflora*), and therefore the hybrid should be correctly known as *Z.* × *lancastrae* 'Alipore Beauty'.

(vii) ×***Cooperanthes*** **'Percy'**
In this cross Percy-Lancaster used *Zephyranthes citrina* and *Cooperia drummondii* as parents. Traub (1954) introduced the formal hybrid name *Z.* × *percyi* for this cross.

(viii) ×***Cooperanthes*** **'Mary'**
With *Cooperia drummondii* and *Zephyranthes robusta* as parents of this hybrid, this is another cross that should be assigned to *Z.* × *lancastrae*. The correct name should be *Z.* × *lancastrae* 'Mary'.

(ix) ×***Cooperanthes*** **'Sydney'**
This is the reverse cross of 'Percy' and could be designated as *Z.* × *percyi* 'Sydney'; however, it is doubtful that this hybrid is still in existence.

A wild origin "Cooperanthes" from Mexico
For some time a *Zephyranthes* has been widely distributed in cultivation under the cultivar name 'La Buffa Rose' but also under a range of variants such as 'Labuffarosa', 'Labuffarosea' or 'Labufaroseus'. Howard (2001) referred to it as ×*Cooperanthes* "Labufaroseus" and commented on the correct form of the name.

These names have been used for plants derived from a natural population discovered by Carl Schoenfeld and John Fairey (Yucca Do Nursery, Texas, USA) near to San Carlos in Tamaulipas, Mexico. The population occurs on an outcrop of granite through an underlying bed of limestone with a unique flora. The first collection was made on 4th July 1992, from a site at 4,000 feet, where the plants were growing under *Ilex rubra* (Schoenfeld, pers. comm.). Schoenfeld has observed the plants at this site to be variable in flower form, size, stem height and pigmentation and has already named two clones from the wild population ('Lily Pies', 'Itsy Bitsy'). Further clones released in 2010 ('Confection', 'Heart Throb', 'Summer's Chill', 'Aperitif' and 'Star Spangled') have arisen in cultivation.

The natural population is widely considered to be hybrid in origin and Howard (2001) states that the plant is intermediate between *Cooperia pedunculata* (= *Zephyranthes drummondii*) and a native pink-flowered species of *Zephyranthes*. Schoenfeld (pers. comm.) believes it to be a triple hybrid between *Z. drummondii*, *Z. traubii* and an undescribed pink-flowered species.

The correct form of the epithet is problematic. Both "Labuffarosea" and "Labufaroseus" are Latin in form and therefore not acceptable as names for plants under the *ICNCP*. The name is derived from the locality whence the plants were collected but an Internet search for the name indicates that it would be spelled with one "f" not two. This has been confirmed by Carl Schoenfeld who notes that the locality is called La Bufa del Diente in the Sierra Chiquita, south of the small

town of San Carlos. In view of the occurrence of a number of cultivars attributable to this taxon, and in the absence of a suitable botanical species or hybrid name, it is proposed to establish a Group epithet for these plants, as *Zephyranthes* La Bufa Rosa Group, as agreed with Carl Schoenfeld.

2. ×***Coobranthus*** T. M. Howard (1990) (*Cooperia* × *Habranthus*)
Howard (1990) did not accept the synonymisation of *Zephyranthes* and *Cooperia* and consequently proposed the new bigeneric hybrid ×*Coobranthus* for hybrids between *Cooperia* and *Habranthus*. While the nothogeneric name is valid, unfortunately the single species he described, ×*Coobranthus coryi*, is not, as the protologue lacks a Latin diagnosis. This species is stated to be a natural hybrid between *Habranthus howardii* and *Cooperia pedunculata* Herb. (= *Zephyranthes drummondii*), which was collected in Mexico.

Howard (1990), despite having explained that one of the parents of *Z.* × *lancastrae* is most likely to be *Z. grandiflora*, made the combination of ×*Cooperanthes lancastrae* into ×*Coobranthus* but gave the epithet as "lancasteri". We can be certain that he was not referring to Traub's *nom. nov.* (see above under ×*C. rosea*) as he clearly refers to ×*Sydneya lancasterae* immediately before making the combination and cites Percy-Lancaster as the author of the basionym.

3. ×***Sydneya*** Traub (1954), *nom. inval.* (*Zephyranthes* × *Habranthus*)
Traub (1954) introduced the nothogeneric name ×*Sydneya* for the bigeneric hybrid *Zephyranthes* × *Habranthus* and cited ×*Cooperanthes* Lancaster as a synonym. The name ×*Sydneya* is nomenclaturally invalid (*ICBN* Art. H.6.2) as bigeneric hybrid names must be condensed formulae of the parent genera, as noted by Howard (2001). Further, ×*Cooperanthes* cannot be a synonym in the strict sense as *Habranthus* is not one of the parent genera. Traub (1958) subsequently made clear that his approach was based on the concept of nothogenera having types, which is contrary to the *ICBN* (H.9.1, Note 1). He had "typified" ×*Cooperanthes* on a later hybrid made by Percy-Lancaster, ×*C. blanda*, the cross between *Cooperia oberwetteri* and *Zephyranthes treatiae* S. Watson, which Traub, who recognised that *Cooperia* is a synonym of *Zephyranthes*, regarded as a species of *Zephyranthes*. He designated

× *C. lancastrae* as the "type" of his new genus × *Sydneya*, stating the parents to be *Z. brazosensis* (the name Traub used for *Z. chlorosolen*) and *Habranthus tubispathus*, an error he subsequently corrected (Traub, 1958). Traub provided the combination × *S. lancasterae* (Percy-Lanc.) Traub, which Howard (1990) transferred to × *Coobranthus*, taking Percy-Lancaster's statement of the parentage (see above) at face value.

× ***Sydneya bella*** (Percy-Lanc.) Traub (1959), *nom. inval.* Art. 43.1.
= *Zephyranthes* × *lancastrae* (Percy-Lanc.) J. C. David

× ***Sydneya castellanosii*** Traub (1958), *nom. inval.* Art. 43.1.
Parentage: *Zephyranthes grandiflora* × *Habranthus juncifolius.*

× ***Sydneya india*** Traub (1954), *nom. inval.* Art. 43.1.
Based on × *Cooperanthes* 'Sunset'.

× ***Sydneya lancasterae*** (Percy-Lanc.) Traub, *Plant Life* **10**: 47 (1954), *nom. inval.* Art. 43.1 (as "lancastrae" in Traub (1959: 40)).
= *Zephyranthes* × *lancastrae* (Percy-Lanc.) J. C. David

× ***Sydneya morrisii*** Traub (1965), *nom. inval.* Art. 43.1.
Parentage: *Habranthus immaculatus* Traub & Clint × *Zephyranthes bifolia* M. Roem. This name was previously also invalidly published by Clint (1964).

4. × ***Zephybranthus*** T. M. Howard (1990) (*Zephyranthes* × *Habranthus*)
This is the correct name for the bigeneric hybrid which is given as "× Zebranthus" in Howard (2001). While Howard did not make any combinations into this genus, he referred to an unnamed bigeneric hybrid, *Zephyranthes grandiflora* × *Habranthus teretifolia*, previously reported by Traub, although it has not proved possible to trace the source of the report.

Two of Traub's nothospecies in *Sydneya* belong here but being invalidly published, they need to be validated as new species by direct reference to the earlier publications of the names, which otherwise fulfil all the requirements for valid publication:

×Zephybranthus castellanosii Traub ex J. C. David **sp. nov.**
= ×*Sydneya castellanosii* Traub, *Plant Life* **14**: 50 (1958), *nom. inval.*

×Zephybranthus morrisii Traub ex J. C. David **sp. nov.**
= ×*Sydneya morrisii* Traub, *Plant Life* **21**: 95 (1965), *nom. inval.*

As stated above, ×*Cooperanthes* 'Sunset' would belong in this hybrid genus.

5. ×***Sydneyara*** T. M. Howard (1990), as "Traub emend. Howard".
Parentage: *Zephyranthes* × *Cooperia* × *Habranthus.*
Howard (1990) introduced this hybrid genus to allow for the existence of hybrids where the genus *Cooperia* is regarded as distinct from *Zephyranthes*. He did not provide an example or make any combinations into the genus.

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