Accession data from a National Plant Collection of *Primula auricula* held by Robin & Annabel Graham. Green accessions are alive, red ones are dead, and accessions listed horizontally have been propagated from the left-hand one.



Accession data from a National Plant Collection of Sir Cedric Morris Iris held by Sarah Cook.

# In praise of Persephone

PENNY ROSS, DAVID ROSS and DOUG SMITH report on a new system for recording information about the Plant Heritage National Plant Collections

DURING THEIR TENURE, National Plant Collection holders amass an enormous amount of information about the plants they curate. Such information is not only interesting and useful today, but may also outlive both the collection holder and even their plants. Alas, such valuable data is often held in the minds and filing cabinets of collection holders, and indeed may ultimately be lost to horticulture.

The Persephone project, now in its fourth year at Plant Heritage, is helping to address these issues. It aims to bring together the records of National Plant Collection (NPC) holders under one roof.

Persephone is a bespoke online database. It can be accessed via a secure login, on any internet-enabled advice, anywhere in the world. At the time of writing, the data from more than 120 NPCs and prospective NPCs is stored on the system. It covers more than 16,000 taxa and 25,000 accessions, with more being added month by month.

From the outset users are asked to consider what happens to their data when they are no longer able to look after their collection and record

their intentions. They are asked whether they wish to leave it to Plant Heritage and/or another individual or organisation.

The project was started in 2013 and was inspired by one of us (David Ross, joint NPC holder of *Hesperantha coccinea* cultivars). His aim was 'to create a 21st century system for recording the NPCs', but without burdening the charity with runaway IT costs. The software was programmed by a then postgraduate computer science student, trialled by collection holders in Devon and Hampshire and, following some modest further development, offered to other NPC holders around the country. Software support continues to be made available by its developer on a voluntary basis.

**Features of the database**
The bread and butter of Persephone is two data fields, Plants (Taxa) and Accessions. A plant record contains information that applies to every accession of that plant, whereas an accession record contains information that applies only to that specific accession. Where one accession is propagated from

An accession record showing standard fields and images relating to a National Plant Collection of *Scadoxus* held by Jonathan Hutchinson.

another, the relationship between the accessions is recorded so that propagation history can be easily traced back to the original.

There is a good balance between standardization and customization. Standardization ensures that all collection holders correctly record plant names (taxa), accession numbers, the date of acquisition and source. Plant name formatting is automatic and corrective. For example, keying 'cornus' into the genus field, 'sericea' into the species field, 'occidentalis' into the subspecies field and 'sunshine' into the cultivar field will return *Cornus sericea* subsp. *occidentalis* 'Sunshine', while keying 'cotoneaster' into the genus field and 'aff. amoenus' into the species field will return *Cotoneaster* aff. *amoenus*. This is important because, uniquely, Plant Heritage's NPC scheme involves not only professional horticulturists, but also enthusiastic amateurs – many

of whom do not have a grounding in horticultural taxonomy.

Customization, on the other hand, allows collection holders a great deal of flexibility to record what makes sense for their collection. One collection holder may wish to record the history of their cultivars, while another might want to record the natural distribution of their chosen genus or species. Images may be added to the plant record, accession record or both. There is also scope for setting up drop-down boxes (such as flowering season), check boxes (such as whether the plant needs labelling) and tables (such as for sequential measurement of girth, or information about DNA markers). Finally, there are file storage facilities, allowing the user to upload pretty much any file to the collection, plant or accession record – so creating a 'one-stop shop' for all information about a collection.

**Support for users**
Ease of use has been a guiding principle throughout the development. There is on-screen step-by-step help to guide the user, along with an online help manual. Unused fields may be hidden from view using 'drag and drop' form editing, so allowing the user to select only the fields they need, from two to up to 24 fields. The value of this approach is perhaps reflected in the growing number and age of users. Indeed, one of Persephone's most enthusiastic supporters, Margaret McKendrick (NPC holder of Japanese anemones), who is in her ninth decade, regards Persephone as 'a gem'.

Support for Persephone users is provided by the volunteer members of the Persephone admin team. It is not necessary for new users to enter their data manually. Instead, data is transferred using Persephone's import system which matches ➤

Excerpt from an accession record showing comparative leaflet photographs for a Japanese *Anemone* cultivar, 'Serenade', in Margaret McKendrick's collection.

data to standard or customized fields which are set up in advance using Persephone's Note Management System. NPC holders typically supply their data in the form of spreadsheets or Word documents, or it comes from another database. In a few cases data has been imported by hand from paper or card records, sometimes at the request of a NPC holder of longstanding who is seeking to record photographs and other information for posterity.



### Data storage and sharing

Another feature of Persephone is that while individual NPC holders see what appears to be their own personal database, all the data in Persephone is in fact held in a single database, and a permissions system is used to control what any one user sees.

This is significant for two reasons. Firstly, all or part of the data held on Persephone may, with the permission of the NPC holder, be easily shared with and viewed by other interested parties around the world, facilitating discussion and comparison of plant information and images. Secondly, accession lists and other data made available to the plant conservation team at Plant Heritage are held together, making for more efficient management and allowing for records to be easily searched and analysed. 'And this', says Sarah Quarterman, chief executive of Plant Heritage, 'improves curation standards of collections and helps to make data

more accessible', both key tenets of the charity's conservation strategy.

Finally, Persephone is a fully live system – information added by a NPC holder is immediately available online, so that reports and records are always as fully up to date as possible. Data is backed up daily, weekly and monthly to host servers (and regularly by the Persephone admin team) ensuring that valuable information is not lost due to equipment failure.

### Work with the RHS

Establishing the correct name of a plant is imperative to its conservation. Persephone supports this process by allowing a rapid 'one click' search of the plant name against the online RHS Horticultural Database. Any differences are highlighted, errors on the NPC holder side are quickly resolved, and any outstanding queries are referred to the RHS or its Nomenclature and Taxonomy Advisory Group. The whole process is overseen by the Persephone admin team, ensuring an organized dialogue between the two organisations, which we hope will benefit both organisations and horticulture in general. This is no easy task however, with some collections containing upwards of 1,500 taxa which must be carefully worked through.

### Workshops

As more collection holders join Persephone we are working hard



Excerpt from a plant record showing a customised drop-down box for *Lathyrus odoratus* 'Frances Kate' in Roger Parsons's *Lathyrus* collection.

### History

There is confusion between Schizostylis 'Mrs Hegarty' and 'Viscountess Byng'. Margery Fish commented that whenever she ordered or was given 'Mrs Hegarty', she invariably got the larger, paler and later-flowering 'Viscountess Byng'.

She went on to say that "Schizostylis 'Mrs Hegarty' is a "sport" of S.coccinea. This originally occurred in a patch of the type species growing in the Irish garden of the late 'Mrs Hegarty, who sold the plant I understand to Wallace and Barr. I obtained my original plants of 'Mrs Hegarty' from the late Lady Quinan, who lived in Barrington in Somerset and was a daughter of Mrs Hegarty.

Having the same rounded shaped flower in a warm shade of pink - almost deep salmon pink but without a hint of orange - S. Mrs Hegarty is an exact replica of S.coccinea. ..... I do not think that 'Mrs Hegarty' is as strong a plant as S.coccinea

Excerpt from a plant record showing a customised field for recording cultivar history. The data is a 1968 article by Margery Fish lamenting confusion about the identity of *Hesperantha coccinea* 'Mrs Hegarty'.



A specimen of *Hesperantha coccinea* 'Mrs Hegarty' given to the collection holders Penny & David Ross by Mrs Hegarty's great-grandsons, Adam Quinan and his brothers.

to provide training for users. We use telephone training where appropriate and, to the extent that funds allow, workshops around the country. Successful workshops have also been held at Sparsholt Horticultural College in Hampshire, jointly for NPC holders and horticultural students, who were paired for teaching. The students helped collection holders with the IT aspects, while the NPC holders gave the students an insight into plant nomenclature and helped them to appreciate what is involved in real-life plant curation.

### Conclusion

For all Persephone's early achievements, it has considerable longer term development potential. The Persephone plant recording system is available free of charge to National Plant Collection holders, or prospective collection holders. Many of those who use the system would like to see at least some of the data held on Persephone available on the worldwide web. This would allow keen plantsmen and plantswomen, outside of Plant Heritage, access to the NPCs and to the knowledge and enthusiasm of those who hold them.

Meanwhile, any reader who would like to view specific collections on Persephone should contact the authors (see contact details below) to find out whether the desired records are on the system. We will then contact the NPC holder to find out whether they will grant permission to view.



Data from Bill Squire's National Plant Collection of *Lachenalia* species showing plant name formatting for a cultivar.

**DR PENNY ROSS** and **DAVID ROSS** hold a NPC of *Hesperantha coccinea* cultivars.
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**DR DOUG SMITH** holds NPCs of *Araliaceae* (excluding *Hedera*), *Podocarpaceae* and *Eucalyptus*.
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