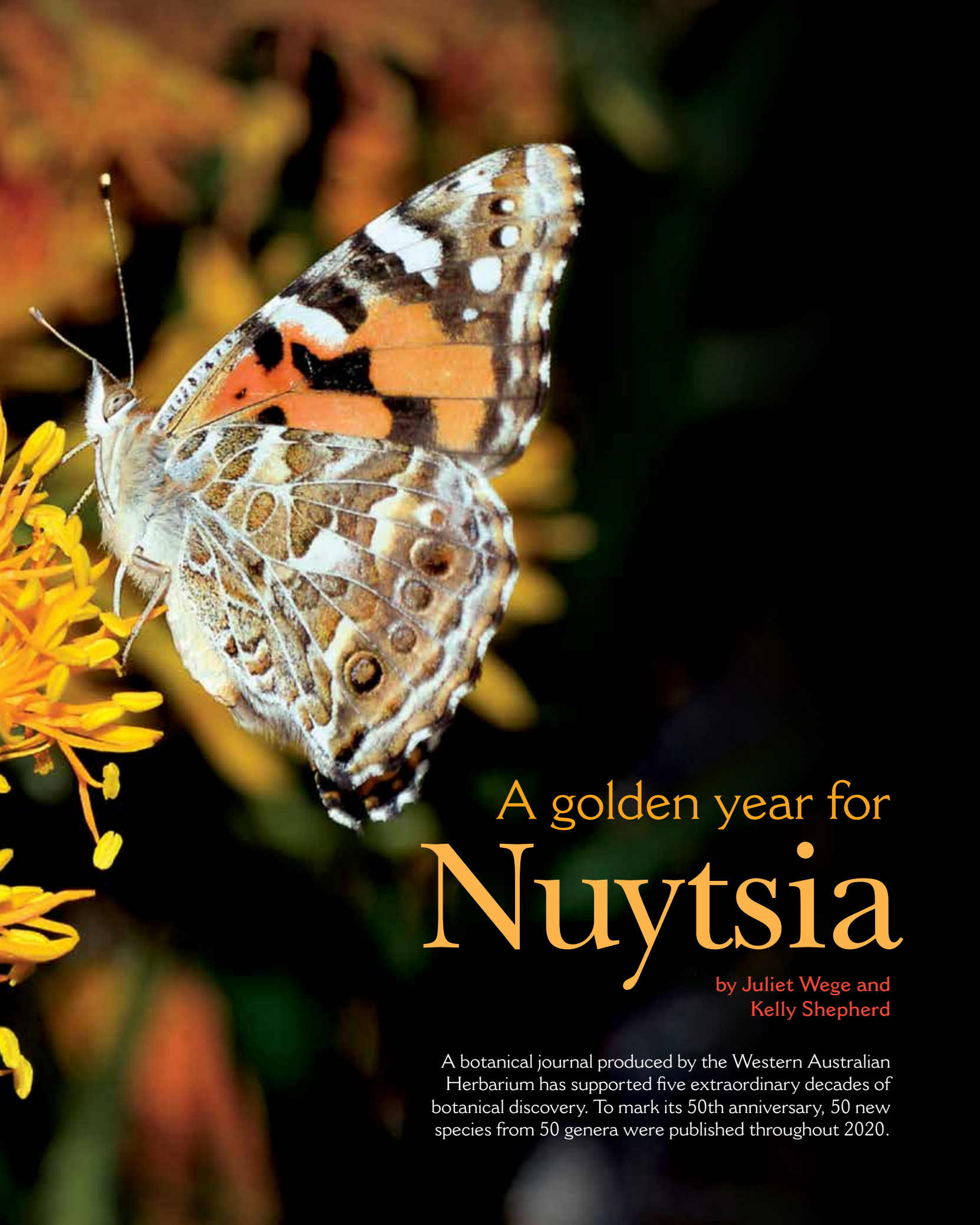
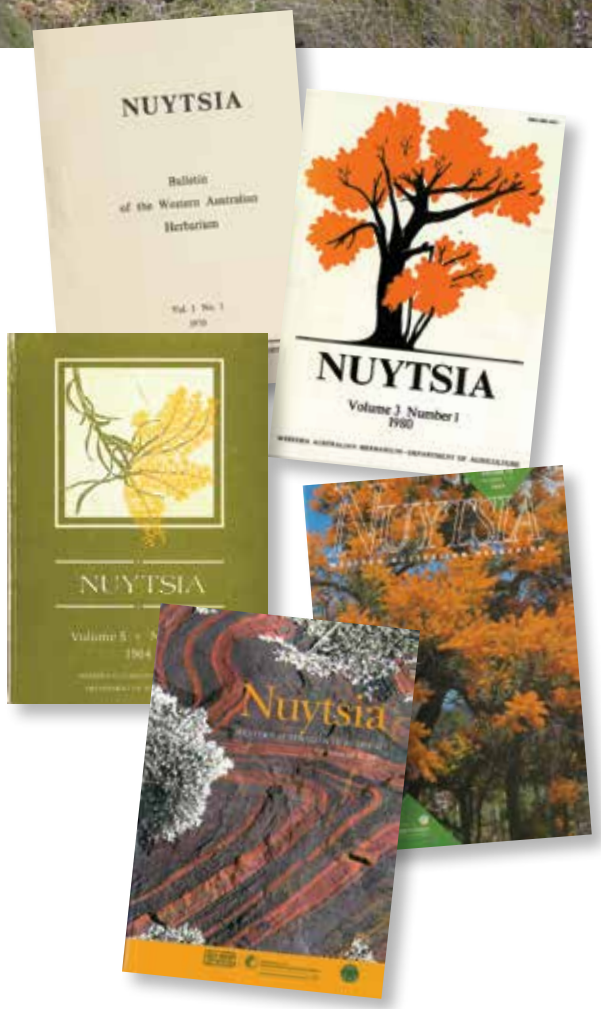


A golden year for Nuytsia

by Juliet Wege and Kelly Shepherd

A botanical journal produced by the Western Australian Herbarium has supported five extraordinary decades of botanical discovery. To mark its 50th anniversary, 50 new species from 50 genera were published throughout 2020.



In 1970, the Western Australian Herbarium founded its flagship taxonomic journal *Nuytsia* so that new information on the State's diverse and fascinating flora could be locally published. It was the initiative of then-curator Bob Royce in response to an increased amount of botanical survey and taxonomic research being conducted at the Herbarium. Named after the Christmas tree (moojar or kaanya tree; *Nuytsia floribunda*) – a spectacular giant mistletoe of cultural significance to Noongar Aboriginal people – the journal quickly developed into the quintessential publication outlet for an extensive array of information relevant to Western Australia's flora and its botanical collections.

Previous page
Main The cover photo of the golden anniversary edition. *Nuytsia floribunda* with an Australian painted lady butterfly (*Vanessa kershawii*)
Photo – Fred Hort
Inset Pages from the first edition of *Nuytsia*, 1970.

Above left Libby Sandiford photographing beardless pea.
Photo – Kelly Shepherd/DBCA

Above Kelly Shepherd collects dancing Lechenaultia.

Above right A pressed specimen is databased at the WA Herbarium.
Photos – Juliet Wege/DBCA

Left Covers from the past 50 years of *Nuytsia*.

Since the inaugural paper was published by Paul G. Wilson under the editorship of Alex George, a broad array of scientists, collections staff and associated personnel have added to the growing body of information on Western Australia's flora by writing, reviewing and editing *Nuytsia* manuscripts and curating the associated specimens, achieving a cumulative output that was unimaginable when the journal was founded. Over its 50-year history, the number of native vascular plants recorded for Western Australia has risen from 5802 to more than 10,500 species with around one-fifth of species, subspecies and varieties having been scientifically named in *Nuytsia* (more than any other publication).

To honor this collective achievement and to mark the 50th year of *Nuytsia*, 50 new Western Australian species from 50 genera were named and described in a golden anniversary edition of the journal (Volume 31). Since late January, Herbarium staff have been publishing one or more species each week via the Herbarium's online portal FloraBase and using social media to communicate stories behind the discoveries. It has proven to be a botanical birthday bash like no other.

FIFTY TAXONOMIC TALES

The unique idea behind the golden anniversary edition was simple but somewhat ambitious and took several years of planning and research to achieve. Efforts were focussed on

Hear more about Kelly Shepherd's work naming new species

Scan this QR code to read the article and watch the video on ABC's Gardening Australia website.

A lost grass

The discovery and description of Preston bentgrass (*Deyeuxia abscondita*) – a species last collected more than 140 years ago and now thought to be extinct in the wild – is one of the more remarkable stories in the golden anniversary edition of *Nuytsia*.

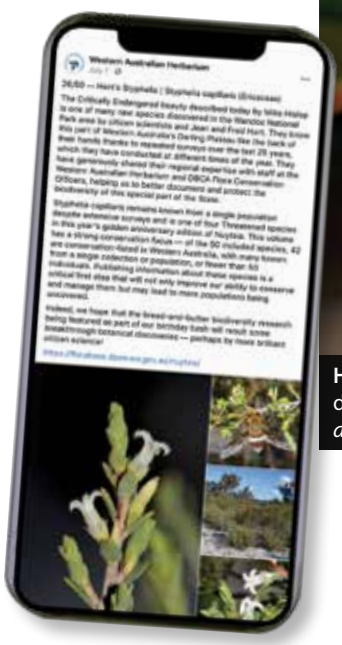
This newly named native grass is known only from specimens collected by Ferdinand von Mueller, a legendary botanist who founded the National Herbarium of Victoria and described a raft of Western Australian species. His collection from the 'Preston River' or 'Blackwood and Preston Rivers' was made on 8 December 1877 as he travelled from Bunbury to the Balingup area as part of a government forest resources survey. It remained unassigned to a genus at the National Herbarium of Victoria for more than 100 years, after which there was considerable speculation as to its correct identity and classification.

Mueller's material was recently sent to Terry Macfarlane at the Western Australian Herbarium so that it could be studied alongside specimens of other Western Australian grasses. His detailed examination of the spikelets supports its placement in *Deyeuxia*, although the status and membership of this genus has yet to be settled globally. Terry has unsuccessfully searched for Preston bentgrass over many years and, with much of the native vegetation around the Preston River having been cleared for agriculture, there are fears that it is extinct.

Herbarium specimens are records in time and space. They represent several hundred years of collection history, including species that are extinct or from habitats that no longer exist. Unfortunately, many historical plant collections from Western Australia are held in other herbaria (both in Australia and overseas), which can be a hindrance to taxonomic research and associated conservation efforts. We are grateful that our colleagues at the National Herbarium of Victoria have donated one of Mueller's collections to the Western Australian Herbarium so that we have reference material to inform future surveys. We can only hope that it's not lost to us forever.

"Over its 50-year history, the number of native vascular plants recorded for Western Australia has risen from 5802 to more than 10,500 species..."

rare, threatened or poorly known species, drawing on in-house taxonomic expertise and forming local, national and international collaborations where appropriate. A major challenge was a lack of high-quality herbarium material to inform taxonomic decision-making, enable an adequate species description to be prepared, or to serve as reference material. But with funding from DBCA's Biodiversity and Conservation Science, a series of field expeditions were conducted to obtain specimens, photographs and associated data for a range of species to facilitate their resolution.



Top Preston bentgrass was last collected by Ferdinand von Mueller in 1877. *Photo – Reproduced with permission from the National Herbarium of Victoria*

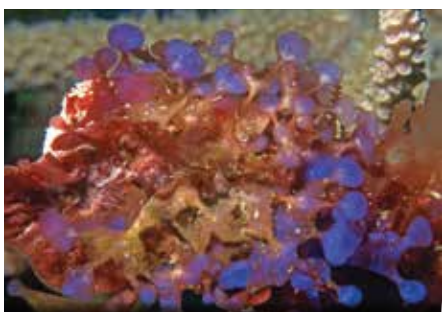
Above Social media was used to communicate stories behind the discoveries.

Hort's styphelia (*Styphelia capillaris*), a critically endangered beauty discovered by citizen scientists in Wandoo National Park. *Photo – Jean and Fred Hort*

Leeuwen's lily (*Arthropodium vanleeuwenii*), a significant discovery from the Pilbara that is named for Pilbara botanical survey specialist Stephen van Leeuwen. *Photo– Steve Dillon*

Dragon rocks kunzea (*Kunzea dracopetrensis*), a vivid and poorly known species unexpectedly discovered in the collection at the Western Australian Herbarium. *Photo – Rob Davis*

Porcupine grevillea (*Grevillea hystrix*), a prickly species known from a single site in sandplain country near Koolyanobbing. *Photo – Rob Davis*



Neon leptofauchea (*Leptofauchea lucida*), an iridescent red seaweed from the Houtman Abrolhos. *Photo – John Huisman*

Dancing lechenaultia (*Lechenaultia orchestris*), a recently discovered rarity whose horticultural potential is being explored at Kings Park. *Photo – Kelly Shepherd*

The strategy of gradually unveiling new species on separate days throughout the year provided a unique opportunity to use social media, such as the Western Australian Herbarium's Facebook page, to communicate more widely about the extraordinary flora and the vital baseline work that is done at the Herbarium to underpin conservation efforts. The taxonomic stories have not only highlighted the scientific treasures held in the Herbarium's collections and the painstaking work of individual researchers, but the collaborative nature of taxonomic research and the remarkable efforts of DBCA flora conservation officers, citizen scientists and botanical consultants in helping us to advance our botanical knowledge.

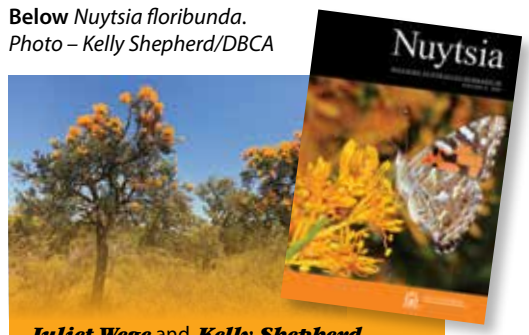
CONSERVATION BENEFITS

Although the golden anniversary edition of *Nuytsia* features a diverse range of species from across the State, most are united by their apparent rarity. Of the 50 included species, 42 are conservation-listed in Western Australia, with most requiring further survey to better understand their distribution and conservation status.

Giving scientific names to species and providing descriptions to aid their identification is a critical step that is likely to stimulate surveys that may lead to positive conservation outcomes such as the discovery of new populations. This is especially important in view of the escalating threats to our biodiversity in an era of rapid environmental change.

Over the five decades since *Nuytsia* was founded, significant progress has been made in documenting Western Australia's exceptional botanical diversity and continuing to name and describe new species at a globally significant rate. But with more than 1100 undescribed plant species currently known in Western Australia, stories of discovery will continue well beyond this golden anniversary.

Below *Nuytsia floribunda*. *Photo – Kelly Shepherd/DBCA*



Juliet Wege and ***Kelly Shepherd*** are senior research scientists at DBCA's Western Australian Herbarium and have co-managed the golden anniversary edition of *Nuytsia* (Volume 31) at florabase.dbca.wa.gov.au/nuytsia