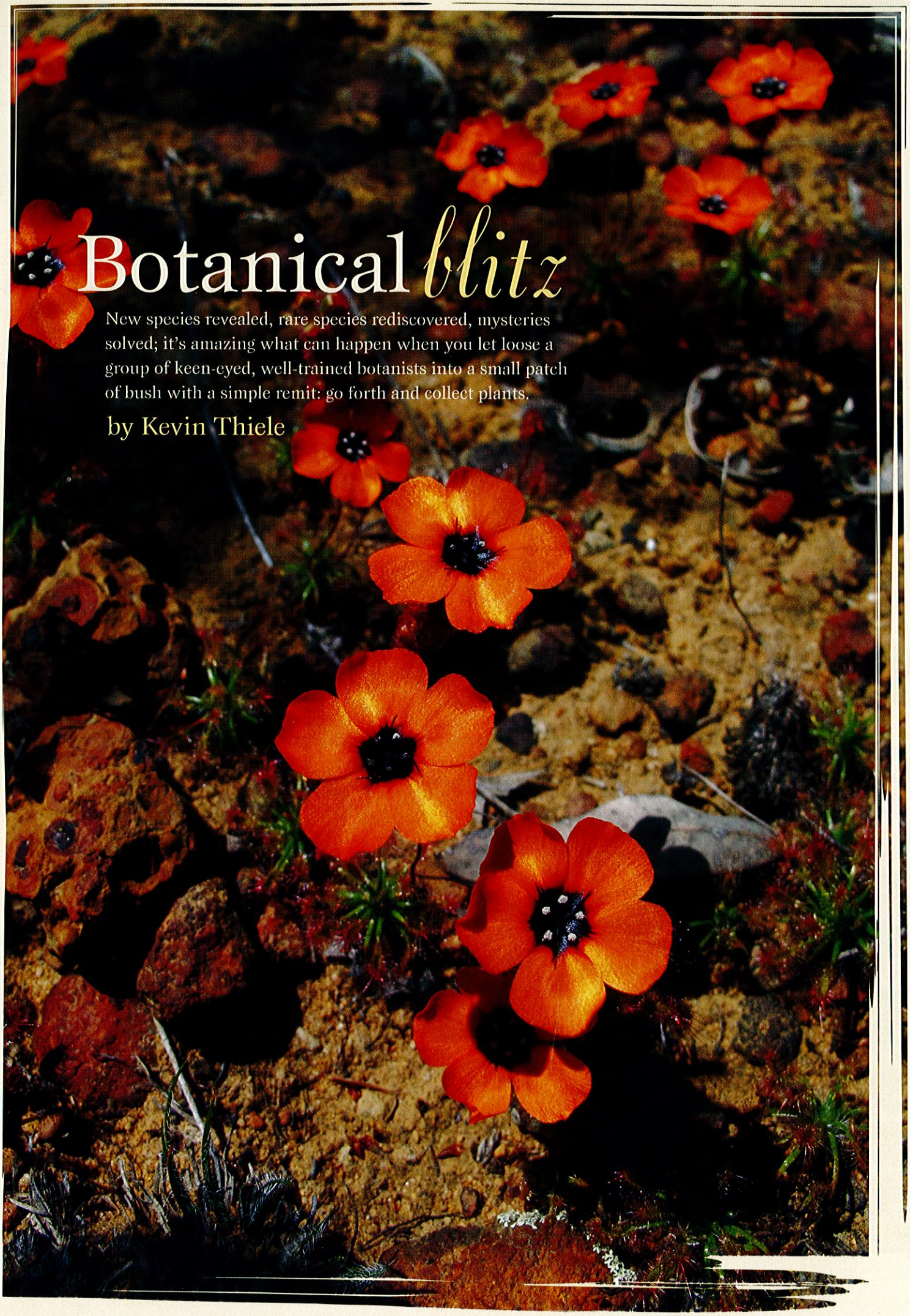

Botanical *blitz*

New species revealed, rare species rediscovered, mysteries solved; it's amazing what can happen when you let loose a group of keen-eyed, well-trained botanists into a small patch of bush with a simple remit: go forth and collect plants.

by Kevin Thiele

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Main *Drosera barbigera.*
Photo – Adrienne Markey

Below left Kenmare Community Hall in Woodanilling.
Photo – Alex Chapman

The plant life of Western Australia is justifiably famous worldwide. Our state boasts more than 12,300 native vascular plants—an incredible biodiversity which has helped the south-west corner become listed among the world's 34 biodiversity hotspots. Knowing this, one might expect the state's flora to be well documented, with all species described, their ranges mapped, and nothing new to be discovered. It might come as a surprise to some, but this is far from the truth. While what we do know far exceeds what we don't, there remains a substantial component of our flora that is either undescribed, or yet to be discovered.

With this in mind, the Western Australian Herbarium has embarked on a series of 'botanical bush blitzes', where a team from the herbarium visits a bush location, with the express purpose of documenting, photographing, and gathering specimens to supplement the herbarium's collection. Localities are not chosen randomly, but are selected based on the known gaps in the herbarium's holdings, plus where there is a strong likelihood of unusual or rare species. The first of these expeditions was mounted last year.

In the field

In spring 2012, we conducted a plant collecting blitz in a group of small but important nature reserves and patches of bush west of Woodanilling in the south-west of the state. The aim was to target a number of reserves in the area that were poorly known botanically. Some of these had only a handful of specimens previously collected from them, some had none at all. Some were nature reserves managed by the Department of Parks and Wildlife (DPaW), others were local council reserves. All of them were known to be rich, biodiverse, and were expected to hold treasures that, perhaps, the keen eyes and assembled expertise of the WA Herbarium staff could uncover.

A hall in the bush

One of the most important things when planning a field trip is to have a good place to stay, if at all possible. Botanists often have simple needs—the ideal for a collecting trip such as this is a good roof, shelter from wind, and plenty of room to process and press the myriad specimens that a team can collect in a good working day. A bonus is a good patch of bush close by, to camp in and explore. In this case we hit gold when we discovered the Kenmare Community Hall.

Kenmare is a small, close-knit community of farms to the west of Woodanilling. Like many such communities, the community hall and school were a focal point for Woodanilling residents in the early days. Built of local stone with a high ceiling and wooden floor, this was where dances were held, marriages were celebrated, and everyone gathered on grand final day to listen to, or later to watch, the footy. Unlike many such communities, though, Kenmare has been fortunate to keep its hall when others were being demolished in the face of years of disuse, or misuse. In fact, the local community has renovated the hall, patching up the stonework and roof, and equipping it with a good kitchen, an enormous outside fireplace made

Above *Verticordia insignis* subsp. *compta*.
Photo – Kevin Thiele/DPaW

Right Flagstaff Reserve.
Photo – Julia Percy-Bower

from a tractor split rim, and plenty of trestle tables, chairs, and coffee mugs. And, Kenmare Hall sits in a patch of bush. Kindly made available to us by the local community complete with an enormous pile of firewood and a loaned generator, it was ideal for our purposes.

Botanical field work

Spring was in full swing when the group assembled in mid-October 2012, and the season had been good, so there were plenty of plants to collect. We set our target on five Parks and Wildlife nature reserves: Martinup, Strathmore Hill, King Rock, Flagstaff and Wingedyne, plus a small, local council reserve with some very high-quality and interesting bush. The first three of the nature reserves are very small, Wingedyne substantially larger. Over two days, teams of collectors and botanists fanned out into the reserves, aiming to sample each main habitat in each reserve, and to collect all species that had not previously been collected there.

The results show the reserves were indeed interesting. More than 500 specimens were collected, representing more than 350 species. Before these collections, only 50 specimens representing 37 species had been collected from these reserves: the collecting thus provided a 10-fold increase in our knowledge of these parts of DPaW-managed lands.

New and noteworthy

As expected, a number of specimens were interesting and noteworthy. New populations were discovered of several species listed as threatened or 'priority' (these need further study before an accurate assessment of their conservation status can be made). This is always welcome as it expands our knowledge of the status of species considered at risk; new populations discovered in nature reserves help with conservation planning; and it's encouraging for the long-term prospects of the species. In addition, range extensions were recorded for a number of widespread species, helping increase our understanding of species' geographic ranges and spread.

Ten specimens collected were of undescribed species, represented in the herbarium collection under phrase names, such as *Hibbertia* sp. Kojonup and *Leucopogon* sp. Great Southern. Phrase-named species are ones that herbarium botanists believe represent

Above left *Lambertia ilicifolia.*

Above *Drosera dichrosepala.*
Photos – Kevin Thiele/DPaW

Left Terry Macfarlane and Louise Biggs recording and collecting specimens west of Woodanilling.
Photo – Alex Chapman

distinct taxa, but which have not yet undergone the rigorous assessment and study needed to formally name them as new. Specimens of phrased-named taxa are particularly valuable, as they help in our understanding of the variability in the species, and hence provide critical information when a formal taxonomic assessment is made.

There are currently more than 1,400 phrase-named flowering plants represented in the census of WA plants, an indication of the vast amount of research still needed to provide a complete picture of our flora. Importantly, species that are phrase-named are afforded the same conservation protection as formally named species, an important piece of conservation policy in a state that has such a rich, but still under-explored, flora.

New species

Seven specimens collected during the expedition may represent entirely new species, ones that have never before been collected and hence, with further study, could be phrase-named or named as new. An example is an interesting grass, *Puccinellia stricta*, collected around the edge of a salt lake in Martinup Nature Reserve. This species is found at scattered localities fringing salt lakes throughout the south-west. At this site, two different forms of the grass were observed—one with very narrow flowering spikes with branches held close together and erect, the other with more open inflorescences with the branches wide-spreading at flowering time. Such variation in the species has been noted previously, but at this site both forms were growing together with no intermediates—just the type of evidence that can sometimes point to an unrecognised species. Trials are being conducted with seeds collected from these plants to see if they remain different when grown together in a greenhouse.

Clearing confusion

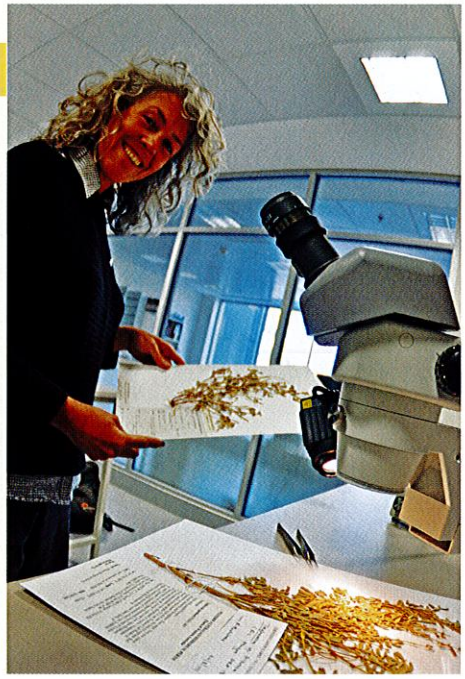
Two particularly welcome and interesting records were specimens collected of *Hemigenia rigida* and *Drosera dichrosepala*, both of which help enormously in our understanding of these species. Before this collecting trip, *Hemigenia rigida* was known from only two specimens, the original one collected by colonial botanist James Drummond in the early 19th century, and a single specimen collected 150 years later (and more than 20 years ago) from a small patch of remnant bush some 40 kilometres north of our collecting localities. Despite its rarity, it wasn't recognised as being threatened, as from the time of its first collection it had been confused with a similar, but distinct and relatively widespread species, *H. pritzelii*. The collection made by the herbarium team had several effects. Firstly, it has

What's a herbarium?

The Western Australian Herbarium, part of the Science Division of the Department of Parks and Wildlife, is the main research facility in WA for taxonomic and systematic studies of the state's plants, algae and fungi. Centred on a collection of more than three-quarters of a million specimens, it's a core repository of knowledge and research on the botanical biodiversity of the state. Without the herbarium and its collection, we wouldn't know what species occur here and where they occur, how common or rare they are, or in what habitats, landforms and bioregions they all grow. A great deal of biodiversity and conservation research would grind to a halt (or never be able to start at all) without the foundational knowledge represented by the herbarium.

Staff at the herbarium study, and care for, the collection of pressed, dried specimens, discovering and naming new species, keeping our knowledge of the state's flora up to date, and providing taxonomic and identification expertise to the department, government and community.

Sometimes, though, they need to get out, into the sunshine and open air, and into the bush where fresh, live, glorious plants grow. And when they do, all sorts of mysteries are solved and discoveries made.



Above right Ryonen Butcher working on specimens at the WA Herbarium.
Photo – Peter Nicholas/DPaW

Below right Michael Hislop shares his botanical knowledge with (from left to right) Evelyn McGough, Meriel Falconer and Sue Carroll.
Photo – Adrienne Markey

helped clear up the confusion between these two species and highlighted the critical conservation status of *H. rigida*. Secondly, it has provided a new locality for the species in a well-protected nature reserve, and thirdly, in so doing, it has brought the species to the attention of conservation officers, who will now have a better chance of protecting it from possible extinction.

The second species, *Drosera dichrosepala*, likewise illustrates the difficulties sometimes faced in understanding and protecting rare and potentially threatened species. Originally described in 1854 by Russian botanist Nikolai Turczaninow (again from a specimen collected by the redoubtable James Drummond), this was a species we thought we knew well—the herbarium had many specimens believed to be *D. dichrosepala* from the Albany area. All that changed when a small, white-flowered sundew collected on this trip was examined closely after our return. At first, we believed that it represented a new species, as it matched no other species in the herbarium's collection. However, when it was shown to Western Australian *Drosera* expert Allan Lowrie, a research associate at the herbarium, it was immediately recognised as the true *D. dichrosepala*, and only the second recent collection of an obviously rare species. It turns out the species previously called by this name from around Albany is not *D. dichrosepala* at all and needs a new name. So the specimen has highlighted both a misunderstood, rare species and an unnamed common one.

Importance of study

These cases exemplify the importance of careful and rigorous scrutiny of plant specimens collected on expeditions such as these, and the significance of botanical collecting in a region like WA, with its rich and often threatened flora. Woodanilling is not a remote part of the state; in fact it's in a part of WA that's better known than most. Nevertheless, a couple of days spent by the herbarium team unearthed some treasures, helped solve some mysteries, added significantly to our knowledge of parts of DPaW-managed lands and, hopefully, has helped ensure that some more species are protected for future generations to enjoy just as much as we did.

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