



©Jamie Todd

Fig. 1 *Sempervivum arachnoideum*

On the last Sunday in June 2019 I travelled from the UK to the city of Pau in south-western France, to join the biennial botanical excursion of the International Hardy Plant Union (ISU). The ISU is an organisation founded in 1965 by German, Dutch and Swiss nurserymen, with the idea of coordinating their interests on an international basis. From

these early beginnings, the ISU has developed into an association of perennial plant growers and persons from related professions, with approximately 300 members in 16 European countries, as well as in the USA and Canada. The ISU is the only worldwide association of perennial plant growers, connecting professionals and promoting contacts all over the world.

We drove in three vans across the Pyrenees to the city of Jaca in north-eastern Spain, which would be our base for the week. Jaca, with a population of over 12,000, is located on the Aragón River, situated at the crossing of important medieval routes leading from Pau to Zaragoza. The valleys, rivers and mountain ranges in this region have remained relatively unspoiled, and reward visitors with some majestic scenery (fig. 2).

## Botanising in the Spanish Pyrenees

Jamie Todd

Our excursion traversed a range of different landscapes and a diversity of vegetation. It allowed me to become acquainted with a wide range of habitats and their flora and fauna. We visited microclimates both dry and humid, and their corresponding flora, at different elevations in the mountains. The itinerary was left flexible, allowing us to adjust our plans each day depending on the weather. We arrived in Spain at the tail end of a European heatwave, and temperatures remained high in Jaca throughout the week.

### *Monday 1st July*

We began our first day driving from Jaca in a circular route westward, stopping at various points to botanise on the roadsides and nearby paths. In this Mediterranean zone the dominant *Genista horrida* cast a bright-yellow hue across the hillsides.



©Jamie Todd

Fig. 2

Growing alongside was bushy *Buxus sempervirens*, often found in dwarf form due to the arid conditions; established plants had the look of bonsai as their roots reached down through the rocks in search of water. The silver leaves of *Santolina chamaecyparissus* were another common sight across the landscape.

A parasitic cuscutea species smothered hosts with its mound of yellow-orange stems. Two beautiful annuals of the family Gentianaceae were found scattered around perennials and shrubs: pink-flowered *Centaurium erythraea* (fig. 3) and yellow-flowered *Blackstonia perfoliata*. The tuberous roots of *Anthericum liliago* enabled this flowering herbaceous perennial to cope with the lack of water (fig. 4).

Large swathes of ovate goatgrass, *Aegilops geniculata*, carpeted areas by the roadside. *Aegilops* has played a significant role in the evolution of common wheat, *Triticum aestivum*. It arose when cultivated emmer wheat hybridised with *Aegilops tauschii* about 8,000 years ago.

Our first orchid sighting was *Anacamptis pyramidalis*; we would see many more throughout the excursion (fig. 5). Another find on the roadside, *Leuzea coniferum*, has bracts resembling a pine cone (fig. 6). On a rockface we found rosettes

of *Saxifraga longifolia* and *Ramonda myconi*, two plants we had hoped to find in flower during our week in the Pyrenees. Our day culminated in a visit to San Juan de la Peña, an important monastery of the middle ages, surrounded by pine forest.

### Tuesday 2nd July

On our second day we drove further into the mountains, heading north towards an abandoned village, where the family of our guide Jacques Urban previously lived. The church in the village was built in the 1600s, before the village was founded. Walking at around 1220m altitude, higher up than we were the previous day, we found species flowering here that had already finished lower down.

At the start of our hike we saw cushions of *Genista horrida* (fig. 7) and a selection of poaceae:



Fig. 3 *Centaurium erythraea*



Fig. 4 *Anthericum liliago*



Fig. 5 *Anacamptis pyramidalis*



Fig. 6 *Leuzea coniferum*

©Jamie Todd

©Jamie Todd

©Jamie Todd

©Jamie Todd

Fig. 7 *Genista horrida*

*Melica ciliata*, *Briza media* and stipa species, nestled among rocks between small rivulets, along with the tissue-paper-like flowers of *Paronychia kapela* subsp. *serpyllifolia*. We made our first sighting of *Helianthemum nummularium*, a species we would find in many different environments across this area (fig. 8). It was highly variable in colour – from orange through salmon to pink –

growing on the woodland edge along with *Phyteuma orbiculare* (fig. 9), *Knautia arvensis* and *Ononis spinosa*.

We discovered two more orchids, *Orchis mascula* and *Platanthera chlorantha*, alongside the footpath. We ate a late lunch by a waterfall surrounded by meadow and forest, with great specimens of *Salvia pratensis*, *Gladiolus italicus* and thalictrum species around us.

### Wednesday 3rd July

We travelled north-east from Jaca, in the direction of the French border (fig. 10). Following a footpath along the Rio Gállego from Escarrilla, we headed towards a lake, Presa de Lanuza. We passed through meadows, riverside flora and forest, and encountered two waterfalls along the route.

The meadows at the base of the mountain were filled with *Viola cornuta* and *Iris latifolia* (fig. 11), *Phyteuma spicatum* and the burnt-tip orchid, *Neotinea ustulata*. Wonderful cushions of *Sempervivum arachnoideum* were sandwiched between the stones (figs 1 & 12). Impressive stands of *Gentiana lutea* stood tall above meadows scattered with the magenta-pink of *Dianthus deltoides* and darker *Pedicularis mixta*.

At the first waterfall we were rewarded with a fantastic specimen of *Lilium pyrenaicum*, here flowering in golden yellow,

Fig. 8 *Helianthemum nummularium*

Fig. 10

Fig. 9 *Phyteuma orbiculare* with six-spot burnet mothFig. 11 *Iris latifolia*

but we would encounter a range of colour within this species as we climbed the mountain (fig. 13). In gaps between the woodland, *Malva moschata* and deadly nightshade, *Atropa belladonna* grew in large clumps. As we reached the larger of the two waterfalls a thunderstorm descended upon us, and we took shelter further down the mountain before heading back to Jaca.

#### Thursday 4th July

Leaving Jaca towards the southeast, we explored a Mediterranean climatic zone beginning at the historic abandoned village of Mirador de Janovas. Here we encountered a diversity of trees which we had seen across the landscape: *Juniperus sabina*, and oaks such as *Quercus ilex*. It was a very hot day, and after making a few more stops at this altitude, we felt that we were unlikely to see anything new, so we headed to the town of Aínsa where we visited a fortress surrounded by walnut trees, then stopped at the river to swim.

For our afternoon botanising we were treated to a trip down the Cañón de Añisclo, a canyon with a one-way road which stretches over 20km, forming a breach in the south slope of Monte Perdido (fig. 14). It contained a huge array of flora clinging to the limestone facade.



Fig. 12 *Sempervivum arachnoideum*

© Jamie Todd



Fig. 13 *Lilium pyrenaicum*

© Jamie Todd



Fig. 14 Cañón de Añisclo

© Jamie Todd



Fig. 15 *Pinguicula longifolia* subsp. *longifolia*

© Jamie Todd



Fig. 16 Frontera del Portalet

The canyon is part of the Ordesa y Monte Perdido National Park. Interaction of the river water and the limestone has allowed the growth of dense forest in the humid, shady conditions of the deep canyon. At times it felt like walking alongside a vertical forest floor, with *Ruscus aculeatus* and adiantum species at head height. We saw great swathes of the endemic carnivorous plant *Pinguicula*

*longifolia* subsp. *longifolia* carpeting the walls of the canyon (fig. 15).

#### **Friday 5th July 2019**

Travelling north from Jaca we arrived at Frontera del Portalet to botanise in the mountains on the border with France (fig. 16). At around 1,800m we were into sub-alpine altitudes. Splitting into groups, we each chose a different area of mountain to explore. I was fortunate to

join Jonas, a nursery owner from Sweden, and Georg and Iris who run a perennial seed company in Germany. They had extensive knowledge of the alpine flora, and were helpful in navigating the mountain paths, assessing which way to ascend the slope to see as much floral diversity as possible.

At the foot of the mountain, meadows stretched out with a vast matrix of plants including *Horminum pyrenaicum*, *Centaurea montana*, *Arnica montana*, the orchid *Gymnadenia nigra*, and *Phyteuma spicatum* again. Small rivulets running down the mountain created micro-environments where veratrum species were thriving, along with *Pinguicula grandiflora*. The ground was alive with frogs in the gullies, and lizards basking on the rocks jutting out from the lush vegetation.



Fig. 17 *Anemone narcissiflora*

Here we also saw yellow rattle (*rhinanthus* species) which is parasitic on grasses, reducing their vigour and opening up the sward, making room for wildflowers to thrive. As we climbed higher we began to encounter more alpine flora, often forming ground-hugging mats, such as *Dryas octopetala*. Other plants of note here included *Globularia cordifolia*, *Gentiana nivalis*, *Androsace alpina* and *Anemone narcissiflora* (fig. 17).

### Saturday 6th July

Our last day was spent slowly making our way back to Pau. We left Jaca for the last time, and took the road north-east again to join the Río Gállego, to walk to the sacred site of Ermita de Santa Elena where a spring emerges from the mountainside. On the way up the mountain, *Allium sphaerocephalon* were scattered in the scree. As the water cascaded down to the river, we saw large drooping panicles of *Saxifraga longifolia* (fig. 18). Before our journey back to France we made a stop to see *Centranthus lecoquii* and further mountainside meadows.

For lunch, we returned to Frontera del Portalet, with time to explore some of the lower elevations we hadn't had the chance to explore the previous day. By the afternoon we had crossed back over the border into France; the verdant forest here was a sharp contrast to the arid environments we had experienced on the Spanish side. The evening was spent eating together and walking through Pau, before we parted company to make our own journeys home.

The trip to the Spanish Pyrenees has had a significant impact on my professional life. The opportunity to experience such a wide range of habitats and their flora in such a short time has been invaluable. Mentors have often stressed the importance of observing how plants grow in the wild to learn how to cultivate them at home. This trip enabled me to observe many genera that are cultivated ornamentally in the UK, growing in their natural habitat with their associated native plant communities. It was fascinating to see the range of natural variation within



Fig. 18 *Saxifraga longifolia*

species, the sometimes challenging conditions plants will tolerate, and how this affects growth and vigour.

I feel indebted to the group for sharing their knowledge and enthusiasm. It was very inspiring spending time with experienced plantspeople who have travelled the world observing plants. Over the six days I made many personal connections which I hope will be of great value as I continue my career within horticulture. I would also like to express my thanks for the financial support I received from the Kenneth Black Bursary Scheme of the HPS. 🌿

**Jamie Todd** is currently the Christopher Lloyd Scholar at Great Dixter. Previous to this he trained and worked at Oxford Botanic Garden, from 2016 to 2019. In 2019 he was awarded the Valerie Finnis Prize by the Merlin Trust, for photography in his report on botanising in Kyrgyzstan.