BBS-SEB International Bryological Meeting 2017 Western Andalusia

30 May - 6 June 2017

Beatriz Vigalondo and **Francisco Lara** report on this year's international meeting in Western Andalusia

△Fig. 1. Collecting in the rock walls along the walkaway of El Caminito del Rey, in Los Gaitanes Gorge. B. Vigalondo

A special bryological meeting, joining for the first time the British (BBS) and the Spanish (SEB) Bryological Societies, took place last spring 2016 in Spain, in Western Andalusia, with a very international atmosphere due to the assistance of 30 bryologists from eight different countries (United Kingdom, Spain, Germany, Portugal, France, Netherlands, Switzerland and Hungary). The initial participants were Tom Blockeel, Juan Antonio Calleja, Isabel Draper, Peter Erzberger, Maren Flagmeier, Ricardo Garilleti, Nuria Jiménez, Thomas Kiebacher, Liz Kungu, Francisco Lara, María Leo, David Long, Michael Lüth, Peter Martin, Vicente Mazimpaka, Nagore G. Medina, Angela Medina, Jurgen Nieuwkoop, Ron Porley, Antonio Román Muñoz, Gordon Rothero, Emeric Sulmont, and Beatriz Vigalondo. The last days of the meeting a few more members of the SEB joined us: Javier M. Abaigar, Belén Albertos, Carlos Cerrejón, Jennifer Cogolludo, Jesús Muñoz, Víctor Pineda, and Susana Rams.

The base of the meeting was located close to Ronda, in "La Algaba", a nice rustic villa surrounded by Mediterranean cork oak and holm oak forest, where most of the attendants stayed. From there we could visit during the 8 days of the meeting several interesting natural places of Western Andalusia like Los Alcornocales Natural Park (Ojén and El Aljibe), Torcal de Antequera, Desfiladero de los Gaitanes (Fig. 1), Sierra de las Nieves National Park, Sierra Bermeja Natural Place and Grazalema National Park. These areas were very attractive from a bryological perspective due to the diversity of habitats and the rich and singular flora they hold. Some of these areas are well known from a bryological point of view, but others were poorly studied, so our visit was very productive and interesting, accompanied by a week of sunny spring days.

Cork oak and Spanish fir forests besides alder and common rhododendron riparian galleries were the most prospected habitats, although we also collected in woods and thickets dominated by *Quercus canariensis*, *Q. faginea*, *Q. ilex* subsp. *ballota*, *Pinus pinaster* and *Pistacia terebinthus*, etc., with a total of 15 prospected localities.

May 30 - "La Algaba" cork oak forest

The first day, after the welcoming in La Algaba, Francisco Lara, Nagore García, Antonio Román, Juancho Calleja and Ricardo Garilleti gave some introductory talks about bryological and general biological aspects of the areas we were going to visit the next days and the planning of the meeting. After these presentations, we took a first walk until sunset around the forest of La Algaba, where the most interesting findings were *Orthotrichum philibertii*, *Zygodon catarinoi* and *Codonoblepharon forsteri* (Fig. 2).

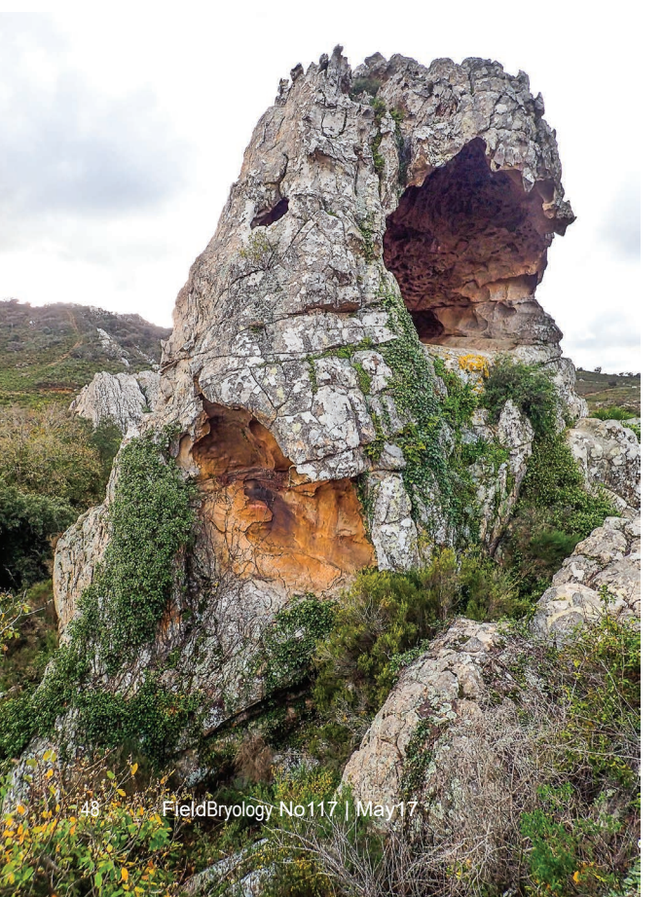
May 31 - Los Alcornocales Natural Park

A long bumping road trip led us to the southernmost part of Los Alcornocales N.P. The first stop was at Sierra de Ojén, in a windy area with great views of the Strait of Gibraltar, where we prospected an open cork oak forest with dispersed and twisted trees (Fig. 3). Shortly after we continued into the reserve, heading to "Los Llanos del Juncal" area with the guidance of two of the N.P. rangers. In this locality grows a well

△Fig. 2, top left clockwise. *Codonoblepharon forsteri*. Several populations of this rare moss were found during the meeting. M. Lüth. △Fig. 3. Surveying a branch of *Quercus suber* at Sierra de Ojén. B. Vigalondo. △Fig. 4. Luscious epiphytic layer in a *Quercus canariensis* forest at Los Llanos del Juncal (Los Alcornocales Natural Park near Tarifa). Neckeraceae dominate these communities, where the fern *Davallia canariensis* also grows. F. Lara

preserved Mediterranean cloud forest dominated by subtropical lauroid shrubs and trees such as *Rhododendron ponticum, Laurus nobilis* and *Ilex aquifolium* accompanied by *Quercus canariensis*. The continuous influence of wet ocean winds produces low clouds and frequent mist on these coastal mountains which allows the development of a short of Mediterranean laurel forest. Here, the epiphytic environment was especially good for cryptogams (Fig. 4), as well as streams and open temporary swampy areas. The local endemic moss *Exsertotheca baetica* (=*Neckera baetica*) is quite common there (Fig. 5), and we collected many other hygrophytes, most of them very rare

△Fig. 8. *Pallavicinia lyellii*. M. Lüth



in the Southern Iberian Peninsula, such as the liverworts *Diplophyllum albicans*, *Cololejeunea minutissima*, *Marsupella emarginata*, *Lejeunea cavifolia*, *Frullania teneriffae*, *Harpalejeunea molleri*, and the mosses *Ulota calvescens* (Fig. 6), *Isothecium holtii*, and *Hookeria lucens*. Thanks to the rangers, we could visit a small population of the rare Macaronesian-Iberian fern *Culcita macrocarpa* and we found some interesting bryophytes such as the previously unrecorded *Telaranea europaea*.

In the afternoon, we visited a second site within the Natural Park, "La Montera del Torero" (Fig. 7), a particular geological sandstone formation cut by a riparian forest of *Alnus glutinosa* with *Rhododendron ponticum* and *Nerium oleander.* Here is found part of the only European population of the subtropical fern *Psilotum nudum,* which we saw growing in the rock walls' crevices. In a drier area close to the road we saw some specimens of the carnivorous plant *Drosophyllum lusitanicum*, endemic from the Iberian Peninsula and Morocco. *Palavicinia lyellii* (Fig. 8), *Pseudotaxiphyllum elegans*, and *Sematophyllum substrumulosum* were some of the interesting bryophytes located here.

June 1 - Desfiladero de los Gaitanes and Torcal de Antequera.

This was the "rocky day" of the meeting since

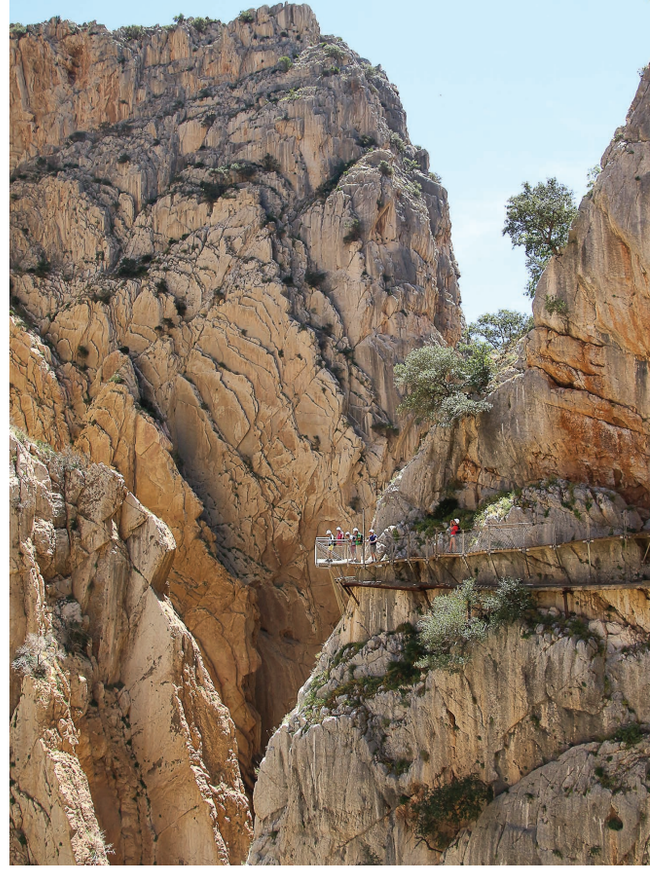
△Figs. 5-7, top left to bottom. Fig. 5. *Exsertotheca baetica*. M. Lüth. Fig. 6. *Ulota calvescens*. F. Lara. Fig. 7. The rock called La Montera del Torero (The Bullfighter's Hat) covered with *Hedera iberica*, a Southern Iberian endemic. F. Lara

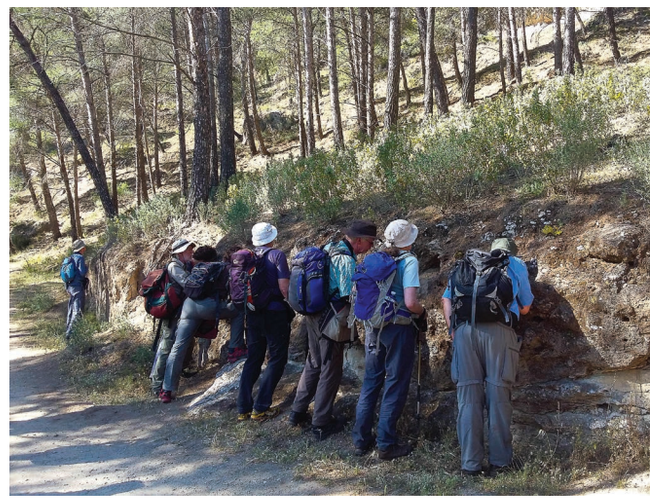
we visited two places with particular geological formations where the rock walls were the stars of the day. First, we could enjoy "a walk along the heights" through the "Caminito del Rey" in the impressive gorge of Los Gaitanes (Fig. 9). Along the wooden walkway that hung from the rock walls of the gorge there was little to note because of the xeric conditions. However, we collected *Plagiochasma rupestre*, *Grimmia tergestina*, *Timmiella barbuloides* and *Leptobarbula berica* among other calciphilous bryophytes. We also prospected other xeric habitats in the sourroundings of the gorge (Fig. 10).

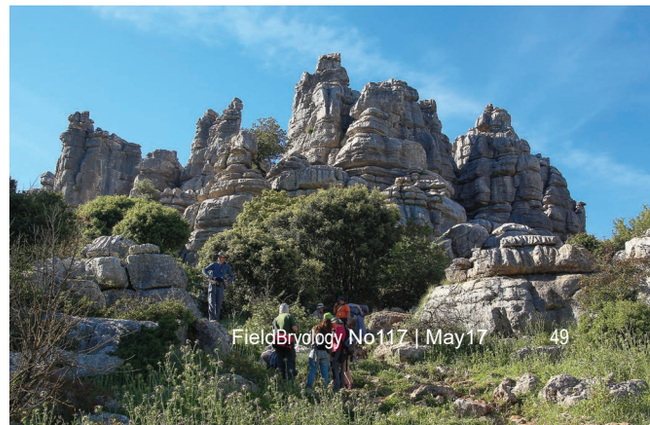
In the afternoon we moved to the "Torcal de Antaquera" (Fig. 11), a rocky labyrinth where fortunately nobody got lost and we made a few interesting bryological findings, among them *Neckera menziesii*, *Orthotrichum bistratosum*, and especially *Syntrichia handelii*. The vegetation of this rugged karst landscape was a scrubland dominated by *Crataegus monogyna*, *Quercus rotundifolia* and *Acer monspeliensis*, whose branches and twigs were full of epiphytic mosses with *Antitrichia californica*, *Leucodon sciuroides*, *Pulvigera lyellii* (*Orthotrichum lyellii*), and *Lewinskya acuminata* (*Orthotrichum acuminatum*) as the prevailing species.

June 2 – La Sauceda

The third day of fieldwork took us again on a road trip to Los Alcornocales N.P., this time to an area in its northern part, La Sauceda, where *Quercus suber* and *Q. canariensis* forests grow on the slopes of the highest mountain of the region (Fig. 12). There, we followed the







▷Figs. 9-11, top to bottom. Fig. 9. Views of the Caminito del Rey. B. Vigalondo. Fig. 10. Inspecting the rocks in a *Pinus* forest at the entrance of Los Gaitanes gorge. B. Vigalondo. Fig. 11. A view of Torcal de Antequera. B. Vigalondo

△Fig. 12, left. A tall *Quercus suber* forest at La Sauceda, Los Alcornocales N.P. B. Vigalondo. Fig. 13, right. La Sauceda, Los Alcornocales N.P., stream with autochthonous *Rhododendron*. Tom Blockeel discovering *Homalia lusitanica.* M. Lüth

path to the Aljibe peak surveying the stream uphill to reach an interesting area of "Canuto" vegetation formations, dominated by natural and autochthonous *Rhododendron ponticum* that welcomed us at lunchtime with a beautiful pink blossom (Fig. 13). Along the way up, we could examine a good population of *Asterella africana*, a thallose liverwort not previously known from Southern Iberian Peninsula. Other remarkable species located were the hornworts *Phymatoceros bulbiculosus* and *Phaeoceros laevis*, the liverwort *Corsinia coriandrina* (Fig. 14), and the mosses *Dialytrichia mucronata*, *Fabronia pusilla*, *Homalia lusitanica*, *Orthotrichum comosum*, *Scorpiurium sendtneri* and *Tortula freibergii*.

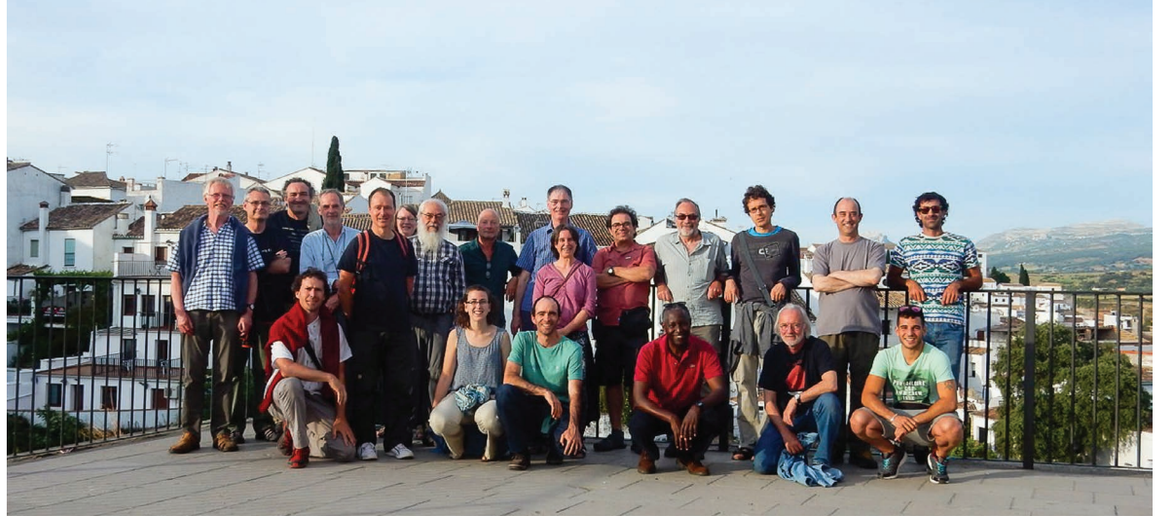
After a quick stop in La Algaba to freshen up, we visited the nearby town of Ronda where we could enjoy a warm night in a terrace of center-town with a dinner of some typical "tapas" from Andalusia accompanied by wines of the region, the perfect ending for this nice journey (Fig. 15).

June 3 – Sierra de las Nieves Natural Park

This day we left the sandstones of Los Alrconocales, and went to the limestone massif of Sierra de las Nieves N.P. for the first survey of an *Abies pinsapo* forest, a fir species endemic from this area of the Iberian Peninsula and Northern Morocco. This particular Spanish fir forest on the northern slope of Sierra de las Nieves stands out for its old-growth specimens, some of them hundreds of years old, and its richness in Ibero-North African vascular plant endemism; these were already flowering for our enjoyment.

The day was again sunny and we could enjoy the amazing landscapes of this mountain range on the way up to the summit. The path began in a *Pinus pinaster* area, very interesting for epiphytes as the communities were dominated by Orthotrichaceae species like *Lewinskya breviseta* (Fig. 16), *L. tortidontia*, *L. acuminata*, and *Pulvigera lyellii*. Then the path began to be steeper and *Abies pinsapo* progressively dominated the landscape (Fig. 17). There we collected species like *Orthotrichum hispanicum, O. scanicum, Schistidium cf. atrofuscum,* and *Syntrichia handelii* (Fig. 18). After having lunch in the shadow of centenary old firs, a group followed the steep path up to the top to enjoy an unusual semideciduous open oak formation of *Quercus alpestris* mixed with *Juniperus sabina* on the top of the southern slope (Fig. 19). Here, the trunks of *Quercus* trees were full of epiphytes, and in the most humid rocky areas

◁Fig. 14. *Corsinia coriandrina*. D. Long



△Fig. 15, above. Group photo at Ronda. E. Sulmont.
▷Fig. 16, right. *Lewinskya breviseta* at Sierra de Las Nieves N. P. F. Lara.
▽Fig. 17, below. Panoramic view of the Spanish fir forest of Sierra de las Nieves. B. Vigalondo

some interesting saxicolous species appeared, among which stood out the liverwort *Clevea hyalina* (=*Athalamia hyalina*) and the mosses *Orthotrichum bistratosum* and *Codonoblepharon forsteri*.

Back in La Algaba, before dinner, the first day of scientific communications took place, with the talk of Emeric Sulmont: *Originalities of the bryoflora of the National Park of the Cévennes (Massif Central, France)*.

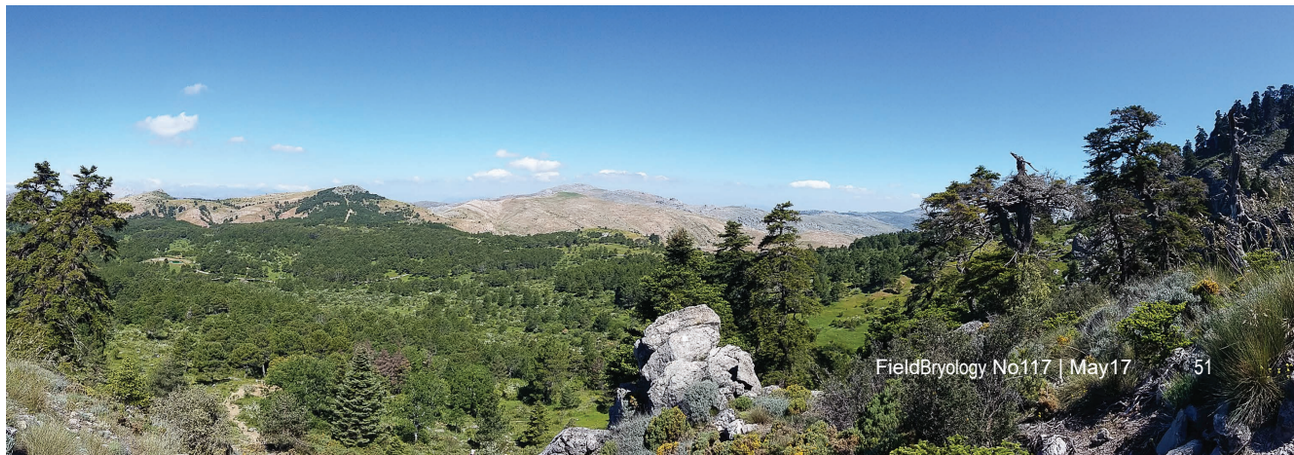
June 4 – Los Reales de Sierra Bermeja Natural Place

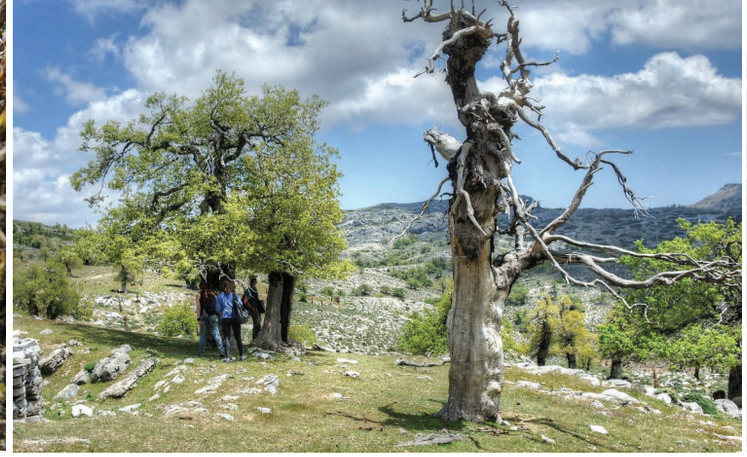
This journey took us to the *Abies pinsapo* forest of Sierra Bermeja massif, a very singular area in this region since it consists of an outcrop of peridotite, a rock of volcanic origin that gives this mountain range its characteristic garnet color and gives it its name, "Bermeja" (Fig. 20). Here we found some interesting bryophytes, notably *Frullania fragilifolia*, *Grimmia meridionalis* and *Orthotrichum scanicum,* besides an epiphytic moss, close to *Lewinskya rupestris*, that could correspond to a new species.

In the afternoon we returned to La Algaba to continue with the following scientific communications:

Susana Rams - *Current state of knowledge on the bryophyte flora of Málaga province (Spain).*

Nuria Jiménez - *High tolerance of* Ptychostomum capillare *to copper contamination: effects on its*





△Figs. 18, left. *Syntrichia handelii* between *S. ruralis* and *Orthotrichum bistratosum* in the back, on the rocks of the Spanish fir forest of Sierra de las Nieves. M. Lüth. Fig. 19, right. Open oak formation of *Quercus alpestris*, an endemic and endangered tree from Sierra de las Nieves. M. Lüth

communities and prospects for the restoration of contaminated soils.

Jennifer Cogolludo - *Evaluation of lead resistance in three common species in the Pottiaceae family.*

David Long - *Liverwort disjunction between Europe and the Sino-Himalaya.*

Antonio Román - *Combining driving factors to better explain* Zygodon conoideus *distribution in the Iberian Peninsula.*

June 5 - Sierra de Grazalema

A wonderful spring and sunny day was waiting for us in Sierra de Grazalema N.P., a limestone mountain range where we visited our third and last *Abies pinsapo* forest in Sierra del Pinar (Fig. 21). Here, we followed a path from the south-eastern slope of the sierra, through a mixed *Pinus-Quercus* forest that took us to the crest, and then along the top of the northern slope. The path through the shaded hillside first crosses *Quercus ilex* patches of vegetation and then heads into a dense and more humid Spanish fir forest. Along the way we enjoyed interesting bryophyte and vascular floras, and we could collect several interesting bryophytes: *Clevea hyalina*, *Southbya nigrella*, *Frullania fragilifolia*, *Bartramia aprica* (=*B. rosamrosiae*), *Syntrichia handelii*, *Orthotrichum comosum*, *Lewinskya iberica* (Fig. 22), and *Isothecium algarvicum.* Additionally, fully fruiting specimens of a moss form related to *Pulvigera lyellii* were collected for study.

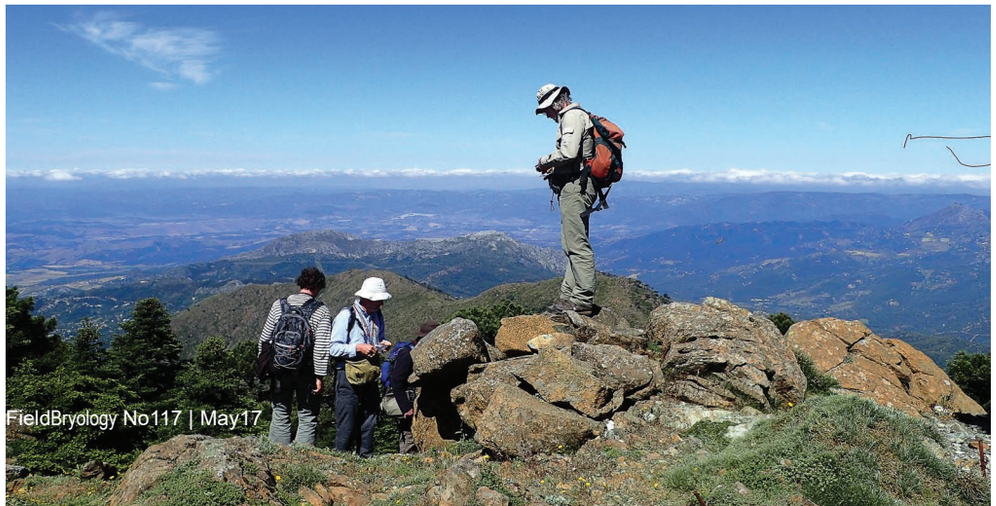
During the evening, back in La Algaba, we attended to the last talks of the meeting:

Thomas Kiebacher - *Ignored crown jewels: The role of tree crowns in bryophyte and lichen species richness in Sycamore maple wooded meadows.*

Beatriz Vigalondo - *Exploring genomes to find intraspecific variable markers for biogeographic and phylogeographic studies in* Orthotrichum *Hedw.*

Isabel Draper - *Towards the clarification of the phylogeny of the Orthotrichoideae.*

▽Fig. 20. Collecting on the top of Sierra Bermeja. A peculiar *Abies pinsapo* forest covers its northern slope. F. Lara



△Fig. 21, above left. Views of the magnificent Spanish fir forest at Sierra del Pinar, near Grazalema. F. Lara

△Fig. 22, above right. *Lewinskya iberica*. F. Lara

▷Fig. 23, right. Epiphytic mosses on *Pistacia terebinthus* trees at Lifa valley (Sierra de Las Nieves Natural Park near Ronda). F. Lara

We enjoyed the evening in La Algaba with a special and informal goodbye dinner with traditional Andalusian dishes and an after party.

June 6 - Lifa valley

On this last day we still had time for a short visit to Lifa Valley, back in Sierra de las Nieves, in a scrubland dominated by arborescent *Pistacia therebintus.* This exceptional type of vegetation, growing at this locality on a karst limestone area under relatively dry conditions, was of bryological interest because of the development of Mediterranean epiphytic and saxicolous communities (Fig. 23), where many *Orthotrichum s.st.* species were found: *O. macrocephalum*, *O. philibertii*, *O. pumilum*, *O. schimperi*, *O. bistratosum*, etc.

The good balance between experienced bryologists, researchers in training and students who were starting in field bryology was a positive factor that contributed to create a very special atmosphere throughout the meeting. At all times a friendly and collaborative environment was present and allowed to enjoy the places visited, the great variety of bryophytes found and the people gathered there. But not everything is bryology, and we could also enjoy good weather, great landscapes, good food, excellent wine and whisky, good music, and even nice early morning birdwatching walks around La Algaba forest for those early-birds under the guidance of Juancho Calleja.

We want to show our deepest gratitude to the managers of La Algaba for all the facilities offered to organize the meeting and for ensuring that the stay of all the attendants was so exceptional. Also to the Diputación Provincial de Málaga that facilitated the visit to the Caminito del Rey and to the Ministry of Environment and Spatial Planning of the Andalusian Government, and specifically to the Territorial Delegations of Cadiz and Malaga, which issued the necessary permits to collect in the protected natural places visited.

It was a great meeting that both BBS and SEB would like to repeat in a near future.

Beatriz Vigalondo & Francisco Lara
Deptamento de Biología, Universidad Autónoma de Madrid, Calle Darwin 2, E-28049 Madrid.
e beavigal@gmail.com; francisco.lara@uam.es