REPORT

Collection of *Bupleurum* material in Spain

(Summer 1997)

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1. AREA EXPLORED:

The initial plan was to collect material from Andalucia (S Spain), through SE Spain up to the Pyrenees, and in the return to go to Picos de Europa (N Spain). But the total area had to be reduced to the region of Andalucia (Sevilla, Cádiz, Málaga, Córdoba, Granada - including Sierra Nevada, and Jaén) and adjacent provinces of Badajoz, Murcia and Albacete.

The reasons for the reduction of the area were: 1) The person I thought would accompany me for security on the trip could not, at the last minute, join. Fortunately, several people kindly offered to go with me, but they could just go for a week at a time, and then I had to interrupt the journey to take them back. 2) During my trip I discovered that most of the plants I was looking for are now restricted to mountainous areas (cultivation of the lower lands is massive in S & C Spain) where roads are often very narrow and steep and with road surface in a poor state. Therefore, I had to spend more time than I expected to get to the localities of collection. In these circunstances, I had been too ambitious; I needed 6 weeks, and not 3 as proposed, to explore the whole area.

2. MATERIAL COLLECTED:

Herbarium material and leaf samples (for DNA extraction) were collected from different populations of 7 taxa (5 species): *Bupleurum acutifolium*, *B. fruticescens* subsp. *fruticescens*, *B. fruticescens* subsp. *spinosum*, *B. fruticosum, B. gibraltarium*, *B. rigidum* subsp. *rigidum* and *B. rigidum* subsp. *paniculatum*.

I failed to find *B. foliosum* (prov. Cádiz), *B. bourgaei* (Sierras de Alcaraz and Cazorla) and *B. tenuissimum* (delta of the Guadalquivir river).

Fruit material was not collected because it was not ripe at the time. Flowering time was late this year; apparently June was much colder and wetter than normal. Nevertheless, heving located sites it will be easier now for me to go back, in the near future, to some of the places and to collect fruits to be kept in a seed bank or for

cultivation, in particular from endangered species like *Bupleurum foliosum* and *B. acutifolium*.

3. SOME ACHIEVEMENTS:

One of my main aims was to study the populations of *Bupleurum fruticescens* and *B. spinosum*. In this case, I observed and collected material that strongly supports the view that the two taxa should be accepted as only one species, *B. fruticescens*, with 2 subspecies. This was first proposed in 1974 by O. Bolòs & Vigo (without explanation) and generally has not been accepted by other authors.

B. spinosum can 'look' very different from *B. fruticescens*, but my observation clearly show that the main reason for this is that *B. spinosum* generally grows under greater environmental stress like in high and exposed places in Sierra Nevada (frost, long periods of snow, strong wind, desiccation, etc.) acquiring then a cushion shape. On the contrary *B. fruticescens* often grows in the milder environment provided by pine or mixed forests and the branches grow much longer. But, in my new experience when plants of *B. spinosum* grow in the shade (*e.g.* of pine trees - Sierra Nevada) they display evidence of phenotypic plasticity, becoming then much more similar to *B. fruticescens*, although not identical.

Another main point was to look for a population of *B. bourgaei* in order to help to prove beyond doubt that this name is a synonym of *B. ranunculoides*. I could not find the plants for the single reason that there were no access roads. Nevertheless, some information I gathered on my visit to the Natural Park of "Sierras de Cazorla, Segura y las Villas" was very suggestive: *B. bourgaei* is described as a very rare plant endemic almost just to the area of the park — the type I have already studied is located in the adjacent Sierra de Alcaraz. The fact of being 'endemic' is just assumed here, as not one of the publications including the species explains the differences from the other species of the genus — perhaps, it is not a good policy to question 'your own' endemics.

Another important aspect was the evaluation of the frequency of the species. For example, I can now confirm that *B. gibraltarium* is a relatively frequent plant in the calcareous slopes in the South of Andalucia (Cádiz, Málaga and Granada), but that *B. acutifolium* (the Spanish population in Sierra Bermeja) is potentially endangered —

this plant is already rare and the pressure for tourist construction seems very high: Marbella and other similar tourist resorts are not far enough.

Finally, I should emphasize that the ecological information I recorded and, in particular, the leaf material I collected for DNA sequencing will be extremely valuable on my PhD study.

APPENDIX

Costs of the *Bupleurum* Collection Trip

Travel expenses:

Flight fare	£ 260.00
Collection trip: petrol/oil/repairs	£ 295.00
Personal insurance	£ 25.00
Sub-total	**£ 580.00**

Subsistence:

Accommodation	£ 340.00
Food	£ 375.00
Sub-total	**£ 715.00**

Other:

Photography	£ 45.00
Maps	£ 30.00
Medicaments	£ 32.00
Sub-total	**£ 107.00**

TOTAL .... £ 1,402.00

- Personal contribution: - £ 85.00

NEW TOTAL .... £ 1,317.00

from the DAVIS EXPEDITION FUND : £ 1,500.00

Expenses : - £ 1,317.00

Underspent → £ 183.00