A SHORT NOTE ON THE OCCURRENCE OF SORBUS MOUGEOTII IN THE SPANISH PYRENEES

Nota breve sobre la presencia de Sorbus mougeotii en los Pirineos españoles

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1. Introduction

While on a trip to the Spanish Pyrenees in July 2017 I found a whitebeam that resembled Sorbus mougeotii. This short note describes the locations and morphology of the specimens I found and discusses their identity in the context of Spanish and UK Sorbus descriptions. Both specimens described below were shrubs rather than trees as they had multiple stems growing from the base of the plants. The presence of S. mougeotii in Spain is not agreed amongst others who have studied Sorbus in this country. The account of Sorbus in Flora Iberica (Aedo and Aldasoro, 1999) only includes S. intermedia. S. mougeotii is given as a synonym. S. mougeotii is recorded as occurring in the Pyrenees by Flora Europaea (Warburg & Kárpati 1968), while S. intermedia is not listed as occurring in Spain, but this conflict is not referred to in the Flora Iberica text about S. intermedia. Oria de Rueda Salgueiro et al. (2006) follow Flora Europaea and regard S. intermedia as a northern European species, which is replaced by S. mougeotii in Spain. The European and Mediterranean plant database (Kurtto, 2009) also includes Spain in the distribution of Sorbus mougeotii, but labels S. intermedia as “native: reported in error”.

2. Site descriptions and photographs of each specimen

The approximate location is given for each specimen using vertical aerial images on Google Earth (version 7.3, 2017), although it should be noted that these locations and their dependent altitudes were estimated after the trip. Google Earth is aligned to the World Geodetic System 1984.

2.1. Hecho valley

The valley was visited on 10th July 2017. The Sorbus shrub was growing on the south side of the track which ran up the Hecho valley (Figure 1 & 2), beyond the section open to traffic. It was on the slope about 2-3 metres above the...
track. The track itself was part way up the southern slope of the valley, well above the river in the valley bottom. A few other similar Sorbus individuals were also seen along the sides of the track.

Location to 500 m precision: Latitude 42° 51’ 10.31” N, Longitude 0° 41’ 45.90” W. Altitude: 1256 m.

2.2. Aísa valley

The valley was visited on 11th July 2017. The Sorbus shrub (Figure 3 & 4) was growing on the east side of a track which ran south from a picnic area and car park. The site was in the valley bottom, close to the river. The site was much more sheltered than the Hecho site. Other individuals of what appear to be the same Sorbus to the one photographed were quite frequent in the surrounding open woodland.

Location to 100 m precision: Latitude 42° 43’ 54.85” N Longitude 0° 35’ 39.10” W. Altitude: 1375 m.

3. Leaf and fruit measurements

Some measurements were made of leaves and fruit (Table 1), as quantitative information is of importance in identification of Sorbus (Rich et al., 2010). Only a small amount of data was collected due to time constraints. Direct leaf length measurements were made with a ruler in the field, other data were derived from the photos. Only leaves vertical to the camera lens were included in the calculation of these ratios. The fruit data were derived from photos except for one direct measurement. Only fruit ver-
tical to the camera lens were included in the calculation of these ratios. Fruits were green and unripe.

Table 1: Leaf characters of Hecho and Aísa specimens
Tabla 1: Caracteres foliares de los ejemplares de Hecho y Aísa

<table>
<thead>
<tr>
<th>Character</th>
<th>Leaf A, Hecho</th>
<th>Leaf B, Hecho</th>
<th>Leaf A, Aísa</th>
<th>Leaf B, Aísa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaf length cm</td>
<td>7.6</td>
<td>5.5</td>
<td>10.5</td>
<td>-</td>
</tr>
<tr>
<td>Leaf width cm</td>
<td>6.1</td>
<td>-</td>
<td>6.5</td>
<td>-</td>
</tr>
<tr>
<td>Ratio leaf width to length</td>
<td>0.80 : 1</td>
<td>0.79 : 1</td>
<td>0.62 : 1</td>
<td>0.68 : 1</td>
</tr>
<tr>
<td>Number of parallel secondary veins, extending from the mid-vein (upper surface of leaf)</td>
<td>20</td>
<td>17</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Lowest sinus % distance to midrib</td>
<td>18</td>
<td>29</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>2nd lowest sinus % distance to midrib (close to widest part of leaf)</td>
<td>29</td>
<td>33</td>
<td>25</td>
<td>19</td>
</tr>
</tbody>
</table>

The fruit length to width ratios were 1.00:1 to 1.12:1 for the Hecho valley specimen (n=3) and 1.07:1 to 1.24:1 for the Aísa valley specimen (n=4).

4. Discussion and conclusion

The two Sorbus shrubs described above seem to belong to the same taxon. The Aísa example had larger leaves, perhaps due to more favourable conditions for growth. The two specimens look most like Sorbus mougeotii, based on the detailed taxon information in Rich et al. (2010) and compared to the planted Sorbus mougeotii trees that I had found in the village of Elton, UK. Three key characters are the leaf lobe sinus depth, number of secondary veins arising from the mid-vein of a leaf (also known as lateral veins) and ratio of fruit length to fruit width. Table 2 compares the measures for these three characters from the Hecho and Aísa specimens, and taxon descriptions in Rich et al (2010) and Flora Iberica (Aedo & Aldasoro, 1999).

Table 2. Comparison of Sorbus characters
Tabla 2. Comparación de los caracteres de Sorbus

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>2nd lowest sinus % distance to midrib (close to widest part of leaf)</td>
<td>19-33</td>
<td>15-27</td>
<td>(13-16)-26(-34)</td>
<td>(10-17)-44(-48)</td>
</tr>
<tr>
<td>Number of secondary veins on leaf</td>
<td>17-20</td>
<td>16-22</td>
<td>18-21^2</td>
<td>(10-12)-17(-18)</td>
</tr>
<tr>
<td>Fruit length to width ratio</td>
<td>1.1:1 - 1.24:1^3 (unripe)</td>
<td>0.85:1 – 1.1:1</td>
<td>0.95:1 – 1:1</td>
<td>(0.95:1)-1:1 – 1.3:1(-1.45:1)</td>
</tr>
</tbody>
</table>

^1 Rich et al. (2010) measure the sinus closest to the middle of the leaf, which is actually the second lowest sinus in their drawings of the species. Therefore, their information should be directly comparable to the measurements of the second lowest sinus depth for the Pyrenean shrubs and the numbers given for this character in Aedo & Aldasoro (1999).

^2 The number of parallel secondary veins on a leaf is not given in Aedo & Aldasoro’s account in Flora Iberica (1999) but from the illustrations on pages 421 and 423, I counted between 18-21 veins on each leaf where the veins were fully visible.

^3 Green, unripe, fruits in the Pyrenean shrubs were slightly longer than wide (1.1-1.24:1), whereas the range of 0.85-1.1:1 is given by Rich et al. (2010). However, measurements that I made of ripe fruit compared to green fruit from Sorbus mougeotii in Elton indicated that the majority (71%) of fruit had lower ratios of length to width when ripe, it had become fatter than they were earlier in the year. I found that 27% of ripe fruit had the same ratio as green fruit. I measured separate green and red fruit, in total 45 fruits each time.

^4 Aedo & Aldasoro (1999) describe the fruit as subglobose but do not give a ratio of length to width. I calculated that the fruit illustrated on pages 421 and 423 had ratios of 0.95:1:1. Overall, the Hecho and Aísa valley specimens seem more like S.mougeotii than S. intermedia. The comparison of characters in Table 2 suggests that the description of Sorbus intermedia by Aedo & Aldasoro (1999) seems to fit S. mougeotii rather than S. intermedia, when compared with Sorbus intermedia as described by Rich et al. (2010). After my return from Spain to the UK I sent my Pyrenean findings to Dr Tim Rich, the UK’s foremost Sorbus expert (see Rich et al. 2010). He confirmed the identification of the two specimens as Sorbus mougeotii.

In summary, the two shrubs seen in the Hecho and Aísa valleys in 2017 appear to be *Sorbus mougeotii*. These records can be regarded as new ones for the Spanish Pyrenees in relation to *Flora Iberica* (Aedo & Al&dasoro, 1999). Further recording would be very helpful in assessing whether this species occurs more widely in the Spanish Pyrenees.

Acknowledgements

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References


