
British Alpine Hawkweeds: A Monograph of British *Hieracium* section *Alpina*. D. J. Tennant & T. C. G. Rich. London: Botanical Society of the British Isles. 2008. 234 pp. ISBN 978 0 901 15839 0. £25 (paperback), £30 (hardback).
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This volume is the result of a long-term, detailed study of British alpine hawkweeds (*Hieracium* sect. *Alpina*) by the present authors, P. D. Sell, Clive A. Stace and other collaborators.

The book is divided into four main parts, namely 'Introduction', 'The characters', 'Separation of *Hieracium* section *Alpina* from related sections', and 'Taxonomic account'. The introductory material starts with an exhaustive historical survey, going back to the late 17th century, followed by general comments on geographical distribution (with species listed according to particular geographic areas and vice-counties), ecological demands and valuable notes for cultivation. The authors also touch briefly on current research into the breeding systems, genetic variation, phylogenetic relationships and evolutionary pathways in British *Hieracium* section *Alpina* species, based mostly on extensive work by the authors, Clive A. Stace and others. All British taxa in *Hieracium* section *Alpina* are polyploid and thought to be agamosperous, which raises the question of their evolutionary history – are they really descendants of hybrids between early diploid sexual taxa or between diploid mother plants and polyploid pollen-bearing plants? Is it so unlikely that a tetraploid taxon might evolve from a triploid and vice versa? Another contentious issue is the place of origin of agamosperous microspecies. Two somewhat controversial facts are mentioned: (i) it seems to be likely that particular types migrated from Continental Europe after the last ice age, and (ii) all but one British alpine hawkweeds are endemics, and thus *in situ* origin seems to be more probable. A detailed comparison of British, Scandinavian and Central European taxa might at least partly elucidate this problem but we can never be sure how many evolutionarily important ancestral taxa are extinct and thus not available now.

The single British pentaploid taxon in *Hieracium* section *Alpina* is *H. pentaploidum*. There are only a few known pentaploid species in *Hieracium* s.str. Could it have evolved from an unreduced female gamete of a triploid plant and a reduced pollen grain from a pollen-bearing tetraploid? This experimentally testable putative evolutionary pathway is a real challenge for students of apomixis.

The following part, 'The characters', provides a comprehensive overview of the terminology used, accompanied by numerous drawings whenever an accurate description in words is not possible. The terminology is taken from P. D. Sell's standardised list with a number of additions. Among them, I highly appreciate the clear and well-illustrated terminology of capitulum shape and arrangement and colour of the ligules. These characters have often been ignored in the past or, if used, the descriptions were ambiguous and the character states poorly defined.

The main part, 'Taxonomic account', comprises more than two-thirds of the book. It begins with a general description of *Hieracium* section *Alpina* and a determination

key which is structured according to geographic areas. The rest of the part follows classical lines. It treats 34 species; each species account includes accepted and English name, type information, synonymy, and a comprehensive morphological description, followed by information on geographical distribution, habitats and conservation status, and notes on variation, taxonomy and relationships to other morphologically similar species. The text is supported by line drawings, photographs (both plants and their habitats), distribution maps and a few paintings.

The narrow species concept (agamospecies, microspecies) traditionally used by British hieraciologists is, of course, a matter of debate. This monograph shows another closely connected issue, however – the species recognised fall into two species in Zahn's broad sense, namely *Hieracium alpinum* and *H. nigrescens*, but, in many cases, a taxon cannot be assigned to either species s.l. (or group as treated by British botanists). Similar problems exist in Scandinavia, NW Russia and also in Central Europe. This clearly shows how complex is the pattern of variation in this section, and how complicated (and artificial) it is to draw a line between these two species in their broad sense.

Last but not least – all but one of the species recognised are endemic to the British Isles, the majority are (very) rare, and some populations are restricted to a few specimens only, raising the contentious topic of legislative protection of agamosperous microspecies. This comprehensive inventory of diversity of alpine hawkweeds forms a solid basis for this discussion.

The authors are aware that some, mostly remote, mountain areas in Scotland are still poorly examined with respect to alpine hawkweeds so that new discoveries may follow and both the number of taxa recognised and taxonomic status of some of them may change. I am sure that this volume will stimulate botanists, and not only British ones, to develop an interest in this group and to make new finds soon.

Although the book is at first glance intended for a small group of committed *Hieracium* enthusiasts, I am sure that everybody who at least browses through it will realise that it can address a much wider audience: for example, botanists interested in taxonomically intricate groups and in the British mountain flora will surely consult it frequently.

J. CHRTEK