"Flora Europaea" and the taxonomic studies on vascular plants in Bulgaria

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RÉSUMÉ

KUZMANOV, B. A. (1979). "Flora Europaea" et l'étude taxonomique des plantes vasculaires en Bulgarie. *Candollea* 34: 11-19. En anglais.

Le projet national "Flora R. P. Bulgaricae" était organisé concurremment avec le projet continental de "Flora Europaea". L'influence de cette importante réalisation des taxonomistes européens sur l'étude taxonomique en Bulgarie est discutée; des corrections et additions concernant la flore bulgare sont fournies.

ABSTRACT

KUZMANOV, B. A. (1979). "Flora Europaea" and the taxonomic studies on vascular plants in Bulgaria. *Candollea* 34: 11-19. In English, French abstract.

The national project for "Flora R. P. Bulgaricae" was organised concurrently with the continental project of "Flora Europaea". The influence of this major achievement of the european taxonomists on taxonomic studies in Bulgaria is discussed and corrections and additions concerning bulgarian flora are made.

During the last 25 years the continental project "Flora Europaea" was organised and completed and the national project for "Flora R. P. Bulgaricae" is also in good progress (volume 6 which ends the first half of the edition was published in 1976). It is worth discussing some of the interrelations and correlations between these two projects.

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"Flora Europaea" and "Flora R. P. Bulgaricae"

Bulgaria has, like most of the southern european countries, a rich flora and the number of trained taxonomists does not correspond to the number of species to be studied. The flora is still not completely known — still new genera and species are recorded (see KUZMANOV, 1974a). In the same time the present stage of its floristic exploration is rather more advanced than in most of the others countries of the region. In the Balcan peninsula the Bulgarian flora is going to be one of the best known in the near future.

Organization and completion of "Flora Europaea" coincide with a period of intensive development of the floristic and taxonomic studies on vascular plants in Bulgaria (KUZMANOV, 1974a, 1974b). An impressive number of genera and species were recorded or described, the fourth edition of "Flora of Bulgaria" by Stojanov & Stefanov and the first half of "Flora R. P. Bulgaricae were published (at present the seventh volume encluding *Oxalidaceae* to *Araliaceae* is in press). These studies would not have been possible without the training of young taxonomists and there is now a group of specialists working on taxonomy of Bulgarian plants.

The first volume of "Flora Europaea" had strongly influenced the taxonomy in Bulgaria. At this time the importance of the botanical nomenclature, the type-method and the biosystematic approach were recognized in this group (KOZUHAROV & KUZMANOV, 1961; KUZMANOV, 1974a, 1974b). And yet the first two volumes of "Flora R. P. Bulgaricae" appeared with quite a number of omissions, mistakes and confusions. Even the "Flora Europaea" manuscripts had helped the fourth edition of "Flora of Bulgaria" (STOJANOV & al., 1967: 592, 604, 619, 629, 672, 691, 712, 722, 782, 791). The influence of the continental flora on the project "Flora R. P. Bulgaricae" can be seen in the preface of volume 3 (JORDANOV, 1966), as well as in the changes in volume 3, 4, 5, 6 and 7th.

The taxonomic treatment of some of the genera and species changed also our knowledge about these taxa. For a long time it was considered that the only species of *Isoetes* growing in Bulgaria (in Pirin mountain) is *I. lacustris.* After the publication of the first volume of "Flora Europaea" it was stated that in fact *I. setacea* (with spiny megaspores) (compare for this genus "Flora R. P. Bulgaricae" 1: 91 and the fourth edition of "Flora of Bulgaria": 32) is widespread in Bulgaria. Later on it was proved that *Lathyrus monocarpus* of Stojanov & Achtarov is in fact *Vicia bithynica.* Some new species were also described from Bulgaria, like *Dianthus burgasensis* Tutin (in HEYWOOD, 1961). Some of the species largely neglected by Bulgarian botanists like *Dianthus dobrogensis, D. freynii, Limonium asterotrichum,* etc., were recorded by "Flora Europaea" and this made necessary again a more detailed study in Bulgaria. *Johrenia pichleri,* described by Boissier (in 1888) from Bulgaria and for a long time recorded in the floras proved to be only *Peucedanum alsaticum* ("Flora Europaea" 2: 363). On the other hand in the

published volumes of "Flora Europaea" there were also omissions and mistakes concerning Bulgarian flora (in spite of the careful checking of the manuscripts by the regional advisers). *Juniperus oxycedrus* — a very common plant is an illustrative case. Other examples are *Coronilla elegans* (known in most parts of Bulgaria up to 300 m), *Helianthemum oelandicum* (known from Pirin and Stara Planina), *Bryonia cretica* (from Northwestern Bulgaria), *Circaea alpina* and others (see more in Table 1 with references). *Aldrovanda vesiculosa* had disapeared long ago from its single locality in Bulgaria (after drainage of the place) but was still recorded for Bulgaria in "Flora Europaea". The same is true for *Peucedanum palustre*. *Ficus carica* is widely naturalized in the country (see KUZMANOV & KOZUHAROV, 1971) but was omitted in "Flora Europaea" (see also JALAS & SUOMINEN, 1976: 85). Fortunately the number of these omissions and mistakes clearly diminished with every volume of "Flora Europaea" published.

Taxonomic studies on Bulgarian flora had led to the discovery of many new genera, species and other taxa (see a list in KUZMANOV, 1974a and Table 1). For some of the genera already published in "Flora Europaea" corrections (as for example those in the previous paragraph) will be possible in a future "Addenda and Corrigenda" to the continental flora. The genus *Salix* is an illustrative case. In his studies VELCEV (in JORDANOV, 1966) has found two species new for Bulgarian flora and reaffirmed another one. Study on herbar materials had shown that *Chamaecytisus jankae* is also in Turkey-in-Europe (KUZMANOV, 1971 and in JORDANOV, 1976). One species of *Suaeda* — *S. heterophylla* — recorded first by Velenovsky (in 1891 for Burgas) and later on by Urumov (in 1932 for Pomorie) has been rejected by STOJANOV & STEFANOV (1933, 1948) and "Flora Europaea". However if has been reconfirmed for Bulgaria with some new collections and revision of some collections (JORDANOV & KUZMANOV in JORDANOV, 1966). *Juglans regia* was recorded as a native plant in Bulgaria (and some specialists still believe it is) but recent study on quaternary deposits by FILIPOVA (1977a) has shown that it did not survive the glaciations and is quite a recent introduction (compare also JALAS & SUOMINEN, 1976: 53). Many other species are listed in Table 1.

In other case studies on Bulgarian flora preceded or were concurrent with the work on different genera or families for "Flora Europaea". *Genista subcapitata* was until recently considered as a narrow endemic in Jugoslavia (GIBBS, 1966). The study for "Flora R. P. Bulgaricae" showed that this species is rather widespread in Western Bulgaria (and this appeared first in "Flora Europaea" 2: 96; see also KUZMANOV in JORDANOV, 1976). *Salvia scabiosifolia* was recently recorded in Bulgaria (see KUZMANOV, 1974a) and the record can be found in volume 3 of the continental flora.

During the work on some genera more or less close contacts were established between taxonomists elaborating the two projects as for *Linum* (D. Ockendon — A. Petrova), *Euphorbia* (A. Smith — B. Kuzmanov), *Saxifraga* (D. Webb — B. Kuzmanov), *Galium* (F. Ehrendorfer — M. Anchev; in the last genus, the extra time available to the senior author to prepare the manuscripts made possible a joint publication on a new species — *Galium*

procurrens). Along with the checking of the manuscripts by the regional adviser, some specialists have been able to see and comment on as Kozuharov *(Trifolium* and many *Leguminosae* and *Gramineae)*, Popova *(Lilium),* Delipavlov *(Tulipa),* Češmedžiev *(Allium),* Kovacev *(Colchicum),* Anchev *(Galium).* Unfortunately there was no possibility for the students to use the manuscripts during their training in floristics and taxonomy — the English language proved to be still a real barrier for such a practice.

Some of the numerous cases of taxonomic desagreements between authors in "Flora Europaea" and "Flora R. P. Bulgaricae" may also be reviewed. *Pinus leucodermis* is considered by "Flora Europaea" authors as widespread in AL, GR, IT, JU, and BU and *P. heldreichii* in AL, GR, and JU only. STOJANOV (in JORDANOV, 1963) considered the last species as widespread in Bulgaria. *Saxifraga mollis* was separated in Bulgarian Flora (KUZMANOV in JORDANOV, 1970) from *S. sibirica.* The first species is confined to the evergreen eu- and submediterranean types of vegetation in Balcan Peninsula and should be distinguished from the central Asiatic and fareastern *S. sibirica. Saxifraga sancta* should be also better separated from *S. juniperifolia*. Many other endemic and subendemic Bulgarian species have not been recognized in "Flora Europaea". Of some 510 European endemics, which occur in Bulgaria, only 57 are recognized by "Flora Europaea" as Bulgarian endemics. On the other side Bulgarian floras (excluding the newly described species not yet considered in standard floras, see Table 1) record some 83 Bulgarian endemics — a difference of some 26 species (a detailled list is in KUZMANOV, in press). Certainly such differences in taxonomic treatment are inevitable and future studies will make clear their appropriate taxonomic status.

It is difficult to estimate the amount of work put into reading and correcting the manuscripts of "Flora Europaea" by the regional advisers. But some of the specific characteristics of such work in Bulgaria might be of interest. There are four editions of "Flora of Bulgaria", but it is more like a key or a field flora. There are no descriptions, the variation of the local populations usually is not documented, the distribution for most of the species is rather broadely described ("in the warmer parts of the country" is a common text), many data from references are not commented at all (the first edition of 1924-25 being the only exception). In Bulgarian herbaria many critical taxa are not well documented and checking is sometimes impossible, most of the types are not in the country. There is even a large group of species not known to the present day bulgarian botanists. This group is discussed in details elsewhere (KUZMANOV, in press) and here only two examples may be given — *Serratula bulgarica* (described in 1932 on materials collected in 1889) and *Dianthus burgasensis* (described in 1963 on materials collected in 1893).

The fifth volume of "Flora Europaea" is completed and will be published soon. With this the colleagues of the Committee proved their ability to work and organize people from all european (and some extraeuropean also) countries to work on a project for over 22 years. There are more than 170 authors

who contributed to these five volumes and some 80 advisers who had devoted their efforts and time to the completion of the "Flora". This is a major achievement of the taxonomists in the continent which influenced and will continue to do so the taxonomic studies in most of the European countries and in Bulgaria as well.

Table 1. — Corrections and complements to "Flora Europaea".

Species	Flora Europaea (vol.: page)	References*
A. Species for which the indication of distribution should include Bulgaria		
Adonis volgensis	1: 222	Panov & Asenov in Jordanov, 1970
Alcea lavateriflora	2: 254	Stojanov & al., 1967
Ammannia verticillata	2: 302	Bondev & Popov, 1971
Anthriscus tenerrima	2: 326	Popova, 1972
Arabis collina	1: 292	Asenov in Jordanov, 1970
Asplenium cuneifolium	1: 16	Kozuharov, 1968
Asplenium javorkeanum	1: 17	Vida, 1963
Astragalus glaucus	2: 122	Stojanov & Stefanov, 1925
*Azolla filiculoides***	1: 25	Petrov, 1970
Bryonia cretica	2: 296	Stojanov & al., 1967
Chaerophyllum aromaticum	2: 325	Dimitrov & al., 1967
Circaea alpina	2: 306	Stojanov & al., 1967
Coronilla elegans	2: 183	Stojanov & Stefanov, 1925
Corispermum marschallii	1: 99	Jordanov & Kuzmanov in Jordanov, 1966
Draba athoa	1: 309	Stojanov & Stefanov, 1924
Dryopteris assimilis	1: 22	Simon & Vida, 1966
Erigeron annus	4: 117	Jordanov & al., 1974
Frangula rupestris	2: 245	Stojanov & Stefanov, 1925
Gentianella austriaca	3: 69	Delipavlov, 1973
Helmintia humifusa	4: (316?)	Delipavlov, 1968
Juniperus oxycedrus	1: 38	Stojanov & Stefanov, 1924
Lathyrus hallersteinii	2: 140	Kozuharov in Jordanov, 1976
Lathyrus montanus	2: 140	Kozuharov in Jordanov, 1976
Lathyrus saxatilis	2: 141	Kozuharov in Jordanov, 1976
Lathyrus transsilvanicus	2: 138	Kozuharov in Jordanov, 1976
Limonium meyeri	3: 41	Gancev, 1963
Linum elegans	2: 207	Petrova, 1973
Linum uninerve	2: 207	Petrova, 1973
Malva nicaeensis	2: 251	Panov, 1975
Malva verticillata	2: 251	Delipavlov, 1961
Minuartia adenotricha	1: 128	Panov, 1975
Minuartia anatolica	1: 129	Panov, 1975
Minuartia mediterranea	1: 127	Kozuharov & Kuzmanov in Jordanov, 1966

*Most of the species are referred to the standard Bulgarian Floras, the original reference is given only for the species not yet recorded in these Floras.

**Aliens are in roman type.

Table 1. — Continuation.

Species	Flora Europaea (vol.: page)	References
Montia sibirica	1: 115	Georgiev in Jordanov, 1966
Nigella elata	2: 210	Panov, 1972
Nigella orientalis	1: 210	Panov, 1975
Onobrychis inermis.....	2: 191	Kozuharov in Jordanov, 1976
Onobrychis viciifolia....	2: 191	Kozuharov in Jordanov, 1976
Paronychia taurica	1: 151	Borhidi, 1966
Petrorhagia thessala....	1: 187	Radenkova in Jordanov, 1966
Polygala alpestris	2: 235	Kozuharov & Petrova in Jordanov (in press)
Ranunculus fallax	1: 232	Penev in Jordanov, 1970
Ranunculus hayekii	1: 229	Penev in Jordanov, 1970
Ranunculus sphaero-spermus	1: 237	Penev in Jordanov, 1970
Salicornia ramosissima .	1: 102	Jordanov & Kuzmanov in Jordanov, 1966
Salix aurita.....	1: 50	Velcev in Jordanov, 1966
Salix hastata	1: 52	Velcev in Jordanov, 1966
Salix pentandra	1: 45	Velcev in Jordanov, 1966
Saxifraga aizoides.....	1: 371	Stojanov & Stefanov, 1948
Solanum heterodoxum .	3: 199	Delipavlov, 1968
Stachys tymphaea.....	3: 153	Stojanov & al., 1967; Koeva, 1973
Suaeda heterophylla ...	1: 104	Jordanov & Kuzmanov in Jordanov, 1966
Symphytum orientale...	3: 105	Panov, 1973
Trifolium ligusticum	2: 167	Stojanov & al., 1967
Trifolium physodes	2: 164	Kozuharov in Jordanov, 1976
Trifolium rubens.....	2: 172	Kozuharov in Jordanov, 1976
Trifolium squarrosum ...	2: 171	Stojanov & al., 1967
Trifolium squamosum...	2: 171	Stojanov & al., 1967
Trifolium spumosum....	2: 164	Stojanov & al., 1967
Trifolium suffocatum....	2: 164	Stojanov & al., 1967
Urospermum picroides .	4: 308	Kuzmanov & Jurukova, 1977
Veronica glauca.....	3: 249	Peev, 1975a
*Veronica fruticans**** ...	3: 244	Peev, 1975b
*Veronica fruticulosa****..	3: 244	Peev, 1975b
Viola speciosa.....	2: 279	Delipavlov in Jordanov, in press

***Status uncertain.

B. Species for which the indication of distribution should exclude Bulgaria

Aldrovanda vesiculosa..	1: 350	Stojanov & al., 1967
Arabis verna	1: 293	Asenov in Jordanov, 1970
*Bassia sedoides**	1: 98	Jordanov & Kuzmanov in Jordanov, 1966
Biscutella laevigata.....	1: 327	Valev in Jordanov, 1970
Castanea sativa	1: 67	Filipova, 1977b
Celtis tournefortii.....	1: 66	Georgiev & Palamarev in Jordanov, 1966
Cimicifuga europaea ...	1: 211	Panov in Jordanov, 1970
Dianthus leptopetalus ..	1: 199	Stojanov in Jordanov, 1966
Enarthocarpus arcuatus	1: 345	Kuzmanov in Jordanov, 1970

*Not confirmed for Bulgaria.

Table 1. — Continuation.

Species	Flora Europaea (vol.: page)	References
Erysimum cheiranthoides	1: 274**	Asenov in Jordanov, 1970
Erysimum smyrnaeum	1: 272**	Asenov in Jordanov, 1970
Ficus carica	1: 67	Georgiev in Jordanov, 1966
Iberis pruitii	1: 323	Valev in Jordanov, 1970
Juglans regia	1: 56	Kitanov in Jordanov, 1966; Filipova, 1977a
*Liparis loeselii**	5	Stojanov in Jordanov, 1964
Minuartia attica	1: 131**	Panov, 1975
Petrosimonia oppositifolia	1: 108	Jordanov & Kuzmanov in Jordanov, 1966
Peucedanum palustre	2: 363	Stojanov & al., 1967
Polygonum acetosum	1: 79	Asenov in Jordanov, 1966
Polygonum aequisetiforme	1: 77	Asenov in Jordanov, 1966
*Polygonum salicifolium**	1: 79	Asenov in Jordanov, 1966
*Ranunculus circinatus**	1: 237	Penev in Jordanov, 1970
*Ranunculus fluitans**	1: 238	Penev in Jordanov, 1970
Sagina nodosa*	1: 146**	Kuzmanov & Kozuharov in Jordanov, 1966
Salix nigricans*	1: 49**	Velcev in Jordanov, 1966
Salix rosmarinifolia	1: 51	Stojanov & al., 1966
Saxifraga grisebachii	1: 379	Kuzmanov in Jordanov, 1970
Silene colorata	1: 180	Jordanov & Panov in Jordanov, 1966
*Silene dioica**	1: 174	Jordanov & Panov in Jordanov, 1966
*Silene exaltata**	1: 167	Jordanov & Panov in Jordanov, 1966
*Silene viscosa**	1: 165	Jordanov & Panov in Jordanov, 1966
Silene zawadskii	1: 168**	Jordanov & Panov in Jordanov, 1966
*Thalictrum foetidum**	1: 241	Panov in Jordanov, 1970; this report

*Not confirmed for Bulgaria. **Not recorded in "Flora Europaea" for Bulgaria.

C. Species newly described and not considered in "Flora Europaea" or the standard Bulgarian floras (for the species already considered see Kuzmanov, 1974a)

Amaranthus bulgaricus	Kovacev, 1970
Centaurea camciensis	Kocev and Gancev, 1968
Galium velenovskyi	Ancev, 1975
Minuartia diljanae	Panov, 1973a
Minuartia jordanovii	Panov, 1974
Minuartia rumelica	Panov, 1973a
Sempervivum velenovskyi	Češmedžiev, 1969
Silene stojanovii	Panov, 1973b
Tulipa aureolina	Delipavlov, 1976
Tulipa splendens	Delipavlov, 1976

D. Nomenclatural changes

Peucedanum oligophyllum (Griseb.) Vandas subsp. *aequiradium* (Velen.) Tutin, Feddes Repert. 79: 62 (1968) — should be *Peucedanum oligophyllum* subsp. *aequiradium* (Vel.) Achtarov, Izv. Bulg. Bot. Druž. 9: 65 (1943).

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