Balkan Vegetation Database (BVD) – updated information and current status

Kiril Vassilev1, Hristo Pedashenko1, Alexandra Alexandrova2, Alexander Tashev2, Anna Ganeva1, Anna Gavrilova16, Armin Macanovic14, Assen Assenov4, Antonina Vitkova1, Beloslava Genova7, Borislav Grigorov5, Chavdar Gussev1, Ermin Mašić14, Eva Filipova10, Gana Gecheva7, Ina Aneva1, Ilona Knollová5, Iaylo Nikolov5, Georgi Georgiev7, Georgi Gogushev8, Georgi Tinchev20, Ivan Minkov7, Kalina Pachedzieva3, Katerina Mincheva7, Koycho Koev9, Mariyana Lyubenova3, Marius Dimitrov2, Media Gumus15, Momchil Nazarov1, Nadezhda Apostolova-Stoyanova18, Nikolay Nikolov4, Nikolay Velev1, Petar Zhelev2, Plamen Glogov10, Rayna Natcheva1, Rossen Tzonev3, Senka Barudanovic16, Sofia Kostadinova4, Steffen Boch11, Stephan Hennekens12, Stoyan Georgiev13, Stoyan Stoyanov1, Tijana Ilčić19, Veronika Kalniková17, Veselin Shivarov1, Vladimir Vulchev1

1 Department of Plant and Fungal Diversity and Resources, Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia, Bulgaria
2 Department of dendrology, faculty of forestry, University of forestry, Sofia, Bulgaria
3 Department of Ecology and Environmental Protection, Faculty of Biology, Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria
4 Department of Landscape Ecology and Environmental Protection, Faculty of Geology and Geography, Sofia University “St.Klement Ohridski”, Sofia, Bulgaria
5 Department of botany and zoology, Faculty of Science, Masaryk University, Brno, Czech Republic
6 Directorate Central Balkan National Park, Gabrovo, Bulgaria
7 Department of Ecology, Faculty of Biology, Plovdiv University “Paisii Hilendarski”, Plovdiv, Bulgaria
8 Regional Forest Directorate Blagoevgrad, Blagoevgrad, Bulgaria
9 Department of Botany and Teaching Methods in Biology, Faculty of Biology, Plovdiv University “Paisii Hilendarski”, Plovdiv, Bulgaria
10 Forest Research Institute, Bulgarian Academy of Science, Sofia, Bulgaria
11 Biodiversity and Conservation Biology, WSL Swiss Federal Research Institute, Birmensdorf, Switzerland
12 Alterra, Wageningen UR, Wageningen, The Netherlands
13 Field Crop Institute, Chirpan, Bulgaria
14 Department of Biology, Faculty of science, University of Sarajevo, Sarajevo, Bosnia and Herzegovina
15 Institute of Oceanology, Bulgarian Academy of Science, Varna, Bulgaria
16 Faculty of Pharmacy, Medicinal University, Pleven, Bulgaria
17 Beskydy Protected Landscape Area Administration, Rožnov pod Radhoštěm, Czech Republic
18 Directorate of Vitosha Nature Park, Sofia, Bulgaria
19 Institute of Botany and Botanical Garden “Jerremovic”, University of Belgrade, Belgrade, Serbia
20 11A Yordan Stabel str., Sofia, Bulgaria
21 4 Viktor Yugo str., Sofia, Bulgaria

Corresponding author: Kiril Vassilev (kiril5914@abv.bg)

Abstract

The Balkan Vegetation Database (BVD; GIVD ID: EU-00-019) is a regional database, which was established in 2014. It comprises phytosociological relevés covering various vegetation types from nine countries of the Balkan Peninsula (Albania – 153 relevés, Bosnia and Herzegovina – 1715, Bulgaria – 12,282, Greece – 465, Croatia – 69, Kosovo – 493,
Currently, it contains 18,306 relevés (compared to 9,580 in 2016), and most of them (82.8%) are geo-referenced. The database includes both digitized relevés from the literature (65.6%) and unpublished data (34.5%). Plot size is available for 84.7% of all relevés. During the last four years some “header data information” was improved e.g. elevation (now available for 83.4% of all relevés), aspect (67.7%), slope (66%), total cover of vegetation (54.3%), cover of tree, shrub, herb, bryophyte and lichen layers (27.1%, 20.1%, 40.2%, 11.5% and 2.1%, respectively). Data access is either semi-restricted (65.6%) or restricted (34.4%). Most relevés (84.6%) are classified to syntaxa of different levels. The database has been used for numerous studies with various objectives from floristic, vegetation and habitat-related topics, to macroecological studies at the local, regional, national, continental and global levels. During the last four years, BVD data were requested from 111 different projects via the EVA and sPlot databases.

**Keywords**
Balkan Peninsula, Balkan vegetation, conservation, TURBOVEG, vegetation plot, vegetation classification

### GIVD Fact Sheet

<table>
<thead>
<tr>
<th>GIVD Database ID: EU-00-019</th>
<th>Last update: 2020-11-24</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Balkan Vegetation Database</strong></td>
<td>Web address:</td>
</tr>
<tr>
<td>Database manager(s): Kiril Vassilev (<a href="mailto:kiril5914@abv.bg">kiril5914@abv.bg</a>); Hristo Pedashenko (<a href="mailto:hristo_pedashenko@yahoo.com">hristo_pedashenko@yahoo.com</a>)</td>
<td></td>
</tr>
<tr>
<td>Scope: Balkan Vegetation Database includes 18,306 relevés i.e. all vegetation types are considered, except the dry grasslands (which are in the Balkan Dry Grassland Database) from 9 Balkan countries (Albania – 153 relevés, Bosnia and Herzegovina - 1715, Bulgaria – 12,282, Greece – 465, Croatia – 69, Kosovo - 493, Montenegro – 440, North Macedonia – 13 and Serbia - 2677).</td>
<td></td>
</tr>
</tbody>
</table>
| **Abstract:** Availability: according to a specific agreement | Online upload: yes  
Online search: yes |
| Database format(s): TURBOVEG | Export format(s): TURBOVEG |
| Plot type(s): normal plots | Plot-size range: 0.2 to 8000 |
| Non-overlapping plots: 18307 | Estimate of existing plots: 18307  
Completeness: 100%  
Status: completed and continuing |
| Total no. of plot observations: 18307 | Number of sources (biblioreferences, data collectors): 340  
Valid taxa: 09573 |
| Countries (%): BG: 67.09; RS: 26.69; KO: 2.40; ME: 2.40; AL: 0.84; BA: 9.07; GR: 2.54; HR: 0.38; MK: 0.07 | |
| Formations: Forest: 29% // Non Forest: 71% = Aquatic: 4%; Terrestrial: 66% | |
| Guilds: all vascular plants: 100%; bryophytes (terricolous or aquatic): 16%; lichens (terricolous or aquatic): 7% | |
| Environmental data (%): altitude: 83.4; slope aspect: 67.7; slope inclination: 66; other soil attributes: 0.6; soil pH: 0.02; land use categories: 11.21; soil depth: 17 | |
| Performance measure(s): presence/absence only: 0%; cover: 100%; number of individuals: 0%; measurements like diameter or height of trees: 10.19%; biomass: 0%; other: 0% | |
| Geographic localisation: GPS coordinates (precision 25 m or less): 22.71%; point coordinates less precise than GPS, up to 1 km: 4.03%; small grid (not coarser than 10 km): 41.31%; political units or only on a coarser scale ( above 10 km): 14.75% | |

Information as of 2020-11-24 further details and future updates available from http://www.givd.info/ID/EU-00-019

### Acknowledgements

Development of the Balkan Vegetation Database was supported by IAVS, EVS and EDGG in 2016-2018, the National Scientific Program ”Young scientists and Post-doctoral students” (contracts No. 22-0078/22.04.2019 and DCM 577/17.08.2018), the National Science Fund (contract DCOST 01/7/19.10.2018) and the bilateral project “Study of ruderal flora and vegetation on the territory of Bulgaria and Romania”.
E-mail and ORCID

Kiril Vassilev (Corresponding author, kiril5914@abv.bg), ORCID: https://orcid.org/0000-0003-4376-5575
Hristo Pedashenko (hristo_pedashenko@yahoo.com)
Alexandra Alexandrova (alex4eto_1@abv.bg)
Alexander Tashev (altashev@abv.bg), ORCID: https://orcid.org/0000-0001-8193-4371
Anna Ganeva (annaganeva8@gmail.com)
Anna Gavrilova (any_gavrilova@abv.bg)
Armin Macanović (arminmacanovic@yahoo.com), ORCID: https://orcid.org/0000-0002-8915-7818
Assen Assenov (asseni.assenov@gmail.com), ORCID: https://orcid.org/0000-0002-7899-3562
Antonina Vitkova (vitkova17@abv.bg)
Beloslava Genova (beloslava111@abv.bg)
Borislav Grigorov (borislav.g.grigorov@gmail.com), ORCID: https://orcid.org/0000-0002-5936-3573
Chavdar Gussev (chgussev@gmail.com)
Ermin Mašić (erminmasic@hotmail.com), ORCID: https://orcid.org/0000-0001-5383-2431
Eva Filipova (eveto_filipova@abv.bg), ORCID: https://orcid.org/0000-0002-2591-2642
Ganna Gecheva (ggecheva@mail.bg)
Iliana Aneva (i.aneva@abv.bg), ORCID: https://orcid.org/0000-0002-6476-5438
Ilona Knollova (ikuzel@sci.muni.cz), ORCID: https://orcid.org/0000-0003-4074-789X
Ivaylo Nikolov (ivdimitnik@abv.bg)
Georgi Georgiev (g_man92@abv.bg)
Georgi Gogushev (goshevg@g@abv.bg)
Georgi Tinchkev (tinchkev70@abv.bg)
Ivan Minkov (platoplaman2014@abv.bg)
Kalina Pachedzhiева (kalina.pachedziieva@gmail.com)
Katerina Mincheva (k.mincheva42@gmail.com)
Koycho Koev (koev_k@mail.bg)
Mariiana Lyubenova (ryan_l@yahoo.com)
Marius Dimitrov (mariusdimitrov@abv.bg)
Media Gumus (med_i@abv.bg)
Momchil Nazarov (mnazarov357@gmail.com)
Nadezda Apostolova-Stoyanova (apostolova_nadejda@abv.bg)
Nikolay Nikolov (nikolay.nikolov@gmail.com)
Nikolay Velev (nikolay.velev@abv.bg), ORCID: https://orcid.org/0000-0001-6812-3670
Petar Zhellev (petar.zhellev@ltu.bg), ORCID: https://orcid.org/0000-0002-4273-3400
Plamen Glogov (pglogov@abv.bg)
Rayna Natcheva (raynanatcheva@yahoo.com)
Rossen Tzonev (rossentzonev@abv.bg), ORCID: https://orcid.org/0000-0001-8112-1354
Senka Barudanović (sebarudanovic@gmail.com)
Sofia Kostadinova (sofig_borisova@abv.bg)
Steffen Boch (steffen.boch@wsl.ch), ORCID: https://orcid.org/0000-0003-2814-5343
Stephan M. Hennekens (stephan.hennekens@wur.nl)
Stoyan Georgiev (stogoevgiev@abv.bg)
Stoyan Stoyanov (tjankata@abv.bg), ORCID: https://orcid.org/0000-0001-9245-0727
Todor Karakiev (karakiev@abv.bg)
Tijana Ilić (tijana.i.ili@gmail.com), ORCID: https://orcid.org/0000-0002-8259-2024
Veronika Kalniková (v.kalnikova@seznam.cz), ORCID: https://orcid.org/0000-0003-2361-0816
Veselin Shivarov (v.shivarov@abv.bg), ORCID: https://orcid.org/0000-0001-8469-4254
Vladimir Vlucheve (vlado@bio.bas.bg)