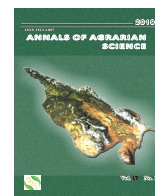




Annals of Agrarian Science

Journal homepage: <http://journals.org.ge/index.php>



The checklist of semi-woody plants of Georgia (South Caucasus) and their regional assessment according to IUCN categories and criteria

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Received: 25 June 2021; Accepted: 15 July 2021

ABSTRACT

A checklist of semi-woody plants of Georgia is presented for the first time. The checklist includes 72 species, 13 subspecies and 1 variation of vascular plants, which belong to 32 genera and 13 families. Each taxon (species, subspecies and variation) was assessed according to IUCN criteria and assigned an appropriate regional category. Regionally (Republic of Georgia) 1 species is critically endangered (CR), 4 taxa - endangered (EN), 4 - vulnerable (VU), and 12 are near threatened (NT). Due to lack of data, 12 taxa could not be assessed and fell under the category of data deficient. 56 taxa are not endangered at present and have been assigned the category least concern. References to taxonomy, key synonyms, assessment argumentation and references used in species assessment are given for each taxon.

Keywords: Semi-woody plants, Taxon, Checklist, IUCN categories and criteria, References to taxonomy, Assessment argumentation.

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Introduction

Semi-woody plants (semishrubs, undershrubs and dwarf semishrubs) are common in almost all ecosystems and are one of the most important components of vegetation. Their role in vegetation cover of extreme and close to extreme ecosystems is particularly high. Desert vegetation is one of the most prominent in this respect, where semi-shrubs and undershrubs are the dominant forming species for vegetation. They are also widespread in other types of vegetation of arid and semi-arid ecosystems (phryganoid vegetation, tragacanthic shruberies, steppes, xerophytic forests, vegetation of various rocky and scree ecotopes, etc.). They are also common in high-mountain vegetation. Their participation in forest ecosystems is relatively rare.

As mentioned, semi-woody plants are most

common in extreme and close to extreme environments. Moreover, they are under strong anthropogenic pressure (mostly grazing). Therefore, their recording, condition and assessment according to international standards is an urgent issue. Despite the above, the composition of semi-woody plants common in Georgia is still unknown and no checklist exists for them either.

Objectives and Methods

The aim of our research was to compile a checklist of semi-woody plants of Georgia and to make their regional assessments according to IUCN categories and criteria, which will promote the protection and conservation for this group of plants.

In addition to our own research, the second edi-

tion of “Flora of Georgia” [1-3] and the “Nomenclatural checklist of flora of Georgia” [4] laid the foundation for the creation of the checklist. Names and authors of taxa are checked with the international databases: The Plant List (2021), Euro + Med (2006+), IPNI (2021), GBIF.org (2021), Tropicos.org (2021) [5-9]. As a result, some of the “narrow” species included in the “Flora of Georgia” [1-3] and the “Nomenclatural checklist of flora of Georgia” [4] could not be found in this checklist. These species are given as synonyms.

Taxa assessment and categorization were carried out in accordance with IUCN Red List [10] criteria. The assessment of taxa is based on our own research, literary data and materials preserved in various herbariums of Georgia (TBI, TGI, BATU). Some taxa are assessed based on the data from the “Red list of the endemic plants of the Caucasus” [11].

Results and Analysis

Semi-woody plants of Georgia are presented by 72 species, 13 subspecies and 1 variation. They belong to 32 genera and 13 families of vascular plants.

According to the IUCN Red List assessments, regionally (Georgia) 1 taxon is critically endangered (CR), 5 are endangered (EN), 4 are vulnerable (VU), and 12 are close to vulnerable. (NT). Taxa are distributed according to IUCN categories as follows:

Critically Endangered (CR) - *Anabasis aphylla* L.;

Endangered (EN) - *Genista abchasica* Sachokia, *Helianthemum georgicum* Juz. & Pozdeeva, *Scutellaria orientalis* subsp. *karatschaica*, *Thymus karjaginii* Grossh., *Ziziphora woronowii* Maleev;

Vulnerable (VU) - *Camphorosma monspeliaca* L., *Genista mingrelica* Albov, *Genista suanica* Schischk. ex Grossh., *Thymus ladjanuricus* Kem.-Nath.;

Near Threatend (NT) - *Genista flagellaris* Somm. et Levier, *Genista humifusa* L., *Genista kolakowskyi* Sachokia, *Onobrychis cornuta* (L.) Desv., *Reaumuria kuznetzovii* Sosn. et Manden., *Salvia garedjii* Troitzky, *Satureja bzybica* Woronow, *Scutellaria leptostegia* Juz., *Scutellaria ossethica* Charadze, *Scutellaria raddeana* Juz., *Teucrium chamaedrys* subsp. *trapezunticum* Rech. f., *Thymus coriifolius* Ronniger.

Due to data deficiency, 12 taxa could not be evaluated and were assigned the category Data

Deficient (DD). They are: *Atriplex cana* C.A. Mey., *Noaea mucronata* subsp. *leptoclada* (Woronow) Assadi, *Helianthemum buschii* (Palib.) Juz. & Pozdeeva, *Helianthemum orientale* (Grosser) Juz. et Pozdeeva, *Andrachne telephioides* L., *Genista monspessulana* (L.) L. A. S. Johnson, *Genista transcaucasica* Schischk., *Scutellaria oreophila* Grossh., *Scutellaria pontica* K. Koch, *Thymus helendzhicus* Klokov & Des.-Shost., *Thymus karamarianicus* Klokov et Des.-Shost., *Linum tauricum* Willd..

Although most of the semishrubs, undershrubs and dwarf semishrubs are under anthropogenic pressure and a significant proportion of them grow in close to extreme environments, most of them (56 taxa) are not endangered and have been assessed as Least Concern (LC).

Below is a checklist of semi-woody plants of Georgia. Taxa are sorted by families. For each taxon (species, subspecies and variation) the reference to taxonomy, the IUCN Red List category and criteria, the assessment argumentation and the references used in species assessment are given.

AMARANTHACEAE

Anabasis aphylla L.

References to taxonomy: [4-8];

IUCN red list category and criteria: CR B1ab (iii) + B2ab (iii);

Assessment argumentation: extent of occurrence – 5 km², area of occupancy – 4 km², number of area fragments - 1, decline in habitat quality - habitat degradation;

References used in species assessment: [12, 13, 14]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI); The information provided verbally by N. Lachashvili.

Atriplex cana C.A. Mey. (*Atriplex cana* Ledeb.)

References to taxonomy: [4-8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [5, 6, 18]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

Bassia prostrata (L.) Beck [*Kochia prostrata* (L.) Schrad.]

References to taxonomy: [5-7];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 15].

***Camphorosma monspeliaca* L.**

References to taxonomy: [4-8];

IUCN red list category and criteria: VU B1 ab (iii);

Assessment argumentation: extent of occurrence - 10100 km², area of occupancy - <2000 km², area - fragmented, number of area fragments - 5, decline in habitat quality - habitat degradation;

References used in species assessment: [12, 13, 15, 16]; The information provided verbally by N. Lachashvili.

***Halothamnus glaucus* (M. Bieb.) Botsch.** [*Sal-sola glauca* M. Bieb.; *Aellenia glauca* (M. Bieb.) Aellen]

References to taxonomy: [5-8, 12, 13];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 15].

***Krascheninnikovia ceratoides* (L.) Gueldenst.** (*Ceratoides papposa* Botsch. & Ikonn)

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [15]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

***Noaea mucronata* (Forssk.) Aschers. & Schweinf.**

***Noaea mucronata* subsp. *leptoclada* (Woronow) Assadi** [*Noaea leptoclada* (Woronow) Iljin; *Noaea mucronata* subsp. *tournefortii* (Spach) Aellen]

References to taxonomy: [8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (un-

known extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [15, 16]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

Noaea mucronata* (Forssk.) Asch. & Schweinf. subsp. *mucronata

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 15, 16].

***Salsola dendroides* Pall.** [*Caroxylon dendroides* (Pall.) Tzvelev]

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 15].

***Salsola ericoides* M. Bieb.** [*Caroxylon ericoides* (M. Bieb.) Akhani & Roalson]

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 15].

***Salsola nodulosa* (Moq.) Iljin** (*Caroxylon nodulosum* Moq.)

References to taxonomy: [4, 5];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 15].

ASTERACEAE

***Artemisia alpina* Pall. ex Willd.** (*Artemisia caucasica* Willd.)

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [17].

***Artemisia fragrans* Willd.**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 17].

***Artemisia incana* (L.) Druce**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 17, 18].

***Artemisia marschalliana* Spreng.** (*Artemisia campestris* subsp. *inodora* Nyman)

References to taxonomy: [4, 7, 8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 17, 19].

***Artemisia splendens* Willd.**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [17, 19].

***Artemisia szowitziana* (Besser) Grossh.**

References to taxonomy: [4-8, 13];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [13]; The information provided verbally by N. Lachashvili.

CAPPARACEAE

***Capparis spinosa* L.** [*Capparis herbacea* Willd.; *Capparis spinosa* var. *herbacea* (Willd.) Fici]

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 20].

CARYOPHYLLACEAE

***Cerastium argenteum* M. Bieb.**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 21].

***Dianthus orientalis* Adms**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 16, 22].

CISTACEAE

***Helianthemum buschii* (Palib.) Juz. & Pozdeeva**

References to taxonomy: [4-8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the number of mature individuals and the tendency of

their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [23, 24].

***Helianthemum georgicum* Juz. et Pozdeeva**

References to taxonomy: [4-8];

IUCN red list category and criteria: EN B1ab (iii, v) + 2ab (iii, v);

Assessment argumentation: extent of occurrence - <5000 km², area of occupancy - <500 km²,

References used in species assessment: [16, 24]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI); The IUCN category was given according to Solomon & al., 2013 [11].

***Helianthemum nummularium* (L.) Mill.**

***Helianthemum nummularium* subsp. *grandiflorum* (Scop.) Schinz & Thell.** [*Helianthemum grandiflorum* (Scop.) DC.]

References to taxonomy: [5, 6, 8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 19, 23-25].

Helianthemum nummularium* (L.) Mill. subsp. *nummularium

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [19, 24, 25];

***Helianthemum orientale* (Grosser) Juz. et Pozdeeva**

References to taxonomy: [4-8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [12, 16, 24]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

EUPHORBIACEAE

Andrachne telephioides* L. (*Andrachne rotundi-

folia C.A. Mey. ex Eichw.)

References to taxonomy: [4-8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [12, 26]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

FABACEAE

***Astragalus xiphidium* Bunge**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 27]; Herbarium specimens preserved in the National Herbarium of Georgia (TBI).

***Genista abchasica* Sachokia**

References to taxonomy: [4-8];

IUCN red list category and criteria: EN B1ab (iii) + 2ab (iii);

Assessment argumentation: extent of occurrence - <5000 km², area of occupancy - <500 km²;

References used in species assessment: [28, 29]; The IUCN category was given according to Solomon & al., 2013 [11].

***Genista flagellaris* Somm. et Levier**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [28].

***Genista humifusa* L. (*Genista sachokiana* A. I. Kuth.)**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [25, 28, 29].

***Genista kolakowskyi* Sachokia**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [28, 29].

***Genista mingrelica* Albov**

References to taxonomy: [4-8];

IUCN red list category and criteria: VU D2;

Assessment argumentation: area of occupancy - <20 km²;

References used in species assessment: [28]; The IUCN category was given according to Solomon & al., 2013 [11].

***Genista monspessulana* (L.) L. A. S. Johnson**
[*Teline monspessulana* (L.) K. Koch]

References to taxonomy: [5-8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [28].

***Genista tinctoria* L. (*Genista patula* M. Bieb.)**

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [28].

***Genista suanica* Schischk. ex Grossh. (*Genista adzharica* Popov)**

References to taxonomy: [4-8];

IUCN red list category and criteria: VU B2ab (iv);

Assessment argumentation: extent of occurrence - <20000 km², area of occupancy - <2000 km²;

References used in species assessment: [25, 28, 29, 30]; The IUCN category was given according to Solomon & al., 2013 [11].

***Genista transcaucasica* Schischk.**

References to taxonomy: [4-6, 8, 11];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [28].

***Onobrychis cornuta* (L.) Desv.**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [16, 31]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

***Prosopis farcta* (Banks & Sol.) J. F. Macbr.**
(*Lagonychium farctum* (Banks & Sol.) Bobrov)

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 32]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

HYPERICACEAE

***Hypericum androsaemum* L.**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [25, 33, 34]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

LAMIACEAE

***Salvia garedjii* Troitzky**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [12, 35, 36].

***Satureja bzybica* Woronow**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [33, 37].

***Scutellaria helenae* Albov**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [25, 33, 38].

***Scutellaria leptostegia* Juz.**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [19, 39].

***Scutellaria oreophila* Grossh.**

References to taxonomy: [4-8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [19, 39].

***Scutellaria orientalis* L.**

Scutellaria orientalis* subsp. *karatschaica (Kharadze) Menitsky [*Scutellaria karatschaica* Kharadze]

References to taxonomy: [5-8];

IUCN red list category and criteria: EN B1ab (iii) + 2ab (iii);

Assessment argumentation: extent of occurrence - <5000 km², area of occupancy - <500 km²;

References used in species assessment: [39]; The IUCN category was given according to Solomon & al., 2013 [11].

Scutellaria orientalis* L. subsp. *orientalis

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 39].

***Scutellaria ossethica* Charadze**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [25, 39].

***Scutellaria pontica* K. Koch**

References to taxonomy: [4-8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [39].

***Scutellaria raddeana* Juz.**

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [19, 39].

***Scutellaria sosnowskyi* Takht.** [*Scutellaria orientalis* subsp. *sosnowskyi* (Takht.) Fed.]

References to taxonomy: [4, 5, 7, 8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 39].

***Stachys fruticulosa* M.Bieb.**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 40].

***Teucrium chamaedrys* L.**

***Teucrium chamaedrys* subsp. *nuchense* (K. Koch) Rech. f.** (*Teucrium nuchense* K. Koch)

References to taxonomy: [5-7];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 16, 19, 33, 41].

***Teucrium chamaedrys* subsp. *trapezunticum* Rech. f.** [*Teucrium trapezunticum* (Rech. f.) Juz.]

References to taxonomy: [5-7];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assess-

ment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [41];

***Teucrium chamaedrys* var. *multinodum* Bordz.** [*Teucrium multinodum* (Bordz.) Juz.]

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [41].

***Teucrium polium* L.**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 16, 41].

***Thymus collinus* M. Bieb.**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 19, 25, 42].

***Thymus coriifolius* Ronniger** (*Thymus sownowskyi* Grossh.)

References to taxonomy: [4-8];

IUCN red list category and criteria: NT;

Assessment argumentation: the species assessment data are approximate to VU category parameters and/or likely to be close to it in the future;

References used in species assessment: [42].

***Thymus helendzhicus* Klokov & Des.-Shost**

References to taxonomy: [5-8, 11];

IUCN red list category and criteria: DD;

Assessment argumentation: data required for species assessment are not available (Literary data on the area and the number of species in Georgia are not available; no herbarium specimens of this species collected in Georgia are stored in the herbariums of Georgia (TBI, TGI, BATU);

References used in species assessment: the herbarium material of this species is not available in

the herbariums of Georgia (TBI, TGI, BATU).

***Thymus karamarianicus* Klokov et Des.-Shost.**

References to taxonomy: [4-8, 11];

IUCN red list category and criteria: DD;

Assessment argumentation: data required for species assessment are not available (Literary data on the area and the number of species in Georgia are not available; no herbarium specimens of this species collected in Georgia are stored in the herbariums of Georgia (TBI, TGI, BATU);

References used in species assessment: the herbarium material of the species is not available in the herbariums of Georgia (TBI, TGI, BATU).

***Thymus karjaginii* Grossh.**

References to taxonomy: [4-8];

IUCN red list category and criteria: EN B1ab (iii, v) + 2ab (iii, v);

Assessment argumentation: extent of occurrence - <5000 km², area of occupancy - <500 km², number of area fragments - 1, decline in habitat quality - habitat degradation;

References used in species assessment: [12, 42].

***Thymus ladjanuricus* Kem.-Nath.**

References to taxonomy: [4-8];

IUCN red list category and criteria: VU D2;

Assessment argumentation: area of occupancy - <20 km²;

References used in species assessment: [25, 42];

The IUCN category was given according to Solomon & al., 2013 [11].

***Thymus nummularius* M. Bieb.** (*Thymus pseudopulegioides* Klokov & Des.-Shost.)

References to taxonomy: [4-8, 43];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [19, 25, 42].

***Thymus praecox* Opyz**

***Thymus praecox* subsp. *caucasicus* (Willd. ex Ronniger) Jalas** (*Thymus caucasicus* Willd. ex Ronniger)

References to taxonomy: [5-8, 43];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [25, 33, 42].

Thymus praecox* subsp. *grossheimii (Ronniger) Jalas (*Thymus grossheimii* Ronniger)

References to taxonomy: [5-8, 43].

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 42].

Thymus pulegioides* subsp. *pannonicus (All.) Kerguelen (*Thymus marschallianus* Willd.)

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 42].

Thymus sipyleus Boiss. (*Thymus rariflorus* K. Koch)

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 16, 42].

***Thymus tiflisiensis* Klokov et Des.-Shost.**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 42].

***Thymus transcausicus* Ronniger**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 19, 42].

Ziziphora clinopodioides* Lam. subsp. *clinopodioides (*Ziziphora borzhomica* Juz. ex Grossh.; *Ziziphora dzhavakhishvili* Juz.; *Ziziphora serpyllacea* M. Bieb.)

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 16, 44].

***Ziziphora puschkini* Adams**

References to taxonomy: [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [19, 44].

***Ziziphora woronowii* Maleev**

References to taxonomy: [4-8];

IUCN red list category and criteria: EN B1ab (iii, iv) + 2ab (iii, iv);

Assessment argumentation: extent of occurrence - <5000 km², area of occupancy - <500 km²;

References used in species assessment: [33, 44]. The IUCN category was given according to Solomon & al., 2013 [11].

LINACEAE

***Linum mucronatum* Bertol.**

***Linum macronatum* subsp. *armenum* (Bordz.)**

P. H. Davis (*Linum orientale* subsp. *armenum* Bordz.)

References to taxonomy: [6, 8, 43];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 45]; the herbarium specimens preserved in the National Herbarium of Georgia (TBI).

***Linum tauricum* Willd.**

References to taxonomy: [4-8];

IUCN red list category and criteria: DD;

Assessment argumentation: data deficient (unknown extent of occurrence, area of occupancy, the

number of mature individuals and the tendency of their decline in numbers, continuing decline in quality of habitat etc.);

References used in species assessment: [29, 45].

ONAGRACEAE

***Epilobium colchicum* Albov** [*Chamerion colchicum* (Albov) Holub]

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [19, 25, 46].

***Epilobium dodonaei* Vill.** [*Chamerion dodonaei* (Vill.) Holub]

References to taxonomy: [5-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [19, 25, 29, 46].

SOLANACEAE

***Solanum persicum* Willd. ex Roem. & Schult.**

References to taxonomy: [4-6, 8, 43];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [16, 19, 29, 47].

TAMARICACEAE

***Reaumuria alternifolia* (Labill.) Britten**

References to taxonomy: Davlianidze & al., 2018; The Plant List (2021); Euro+Med (2006+); IPNI (2021); GBIF.org (2021) [4-8];

IUCN red list category and criteria: LC;

Assessment argumentation: at the current stage, neither the existing nor the expected threats to the species (extent of occurrence, area of occupancy, the number of mature individuals and the tendency of their decline in numbers, etc.) are noticeable;

References used in species assessment: [12, 13, 48].

***Reaumuria kuznetzovii* Sosn. & Manden.**

References to taxonomy: [4, 7, 8, 11];

IUCN red list category and criteria: NT;

Assessment argumentation: Khintibidze, 1983;

References used in species assessment: [48]; The IUCN category was given according to Solomon & al., 2013 [11].

Conclusion

Semi-woody plants of Georgia are presented by 72 species, 13 subspecies and 1 variation. They belong to 32 genera and 13 families of vascular plants.

Regionally (Georgia) 1 taxon (*Anabasis aphylla* L.) is critically endangered, 5 – endangered (*Genista abchasica* Sachokia, *Helianthemum georgicum* Juz. & Pozdeeva, *Scutellaria orientalis* subsp. *karatschaica*, *Thymus karjagini* Grossh., *Ziziphora woronowii* Maleev), 4 - vulnerable (*Camphorosma monspeliaca* L., *Genista mingrelica* Albov, *Genista suanica* Schischk. ex Grossh., *Thymus ladjanuricus* Kem.-Nath.). 12 taxa are close to vulnerable. As of today, 56 taxa are not in danger (Least Concern). Due to data deficiency, 12 taxa were assigned the category Data Deficient (DD).

Acknowledgements

The research was conducted in the framework of a broader “Georgian Red List Update Project” supported by GIZ Tbilisi Office and coordinated by Ilia State University.

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