Alliance

PREPARATION OF *IN SITU* CWR DATASETS FOR INCLUSION IN EURISCO

Juozas Labokas, Domas Uogintas

Nature Research Centre, Vilnius, Lithuania

Major steps

I. Identification of priority taxa and populations
II. Preparation of the national database structure
III. Organizing the network of data providers

I. Identification of priority taxa and populations: Criteria for selection of priority taxa

1. Annex I. List of crops covered under the multilateral system of the International Treaty on Plant Genetic Resources for Food and Agriculture (FAO, 2001).
2. Lithuanian national plant variety lists.
3. Wild species relatedness to crops.
4. Socio-economic and cultural importance including use traditions of the species.

Summary of the prioritized Lithuanian CWR inventory (Ver. 2)

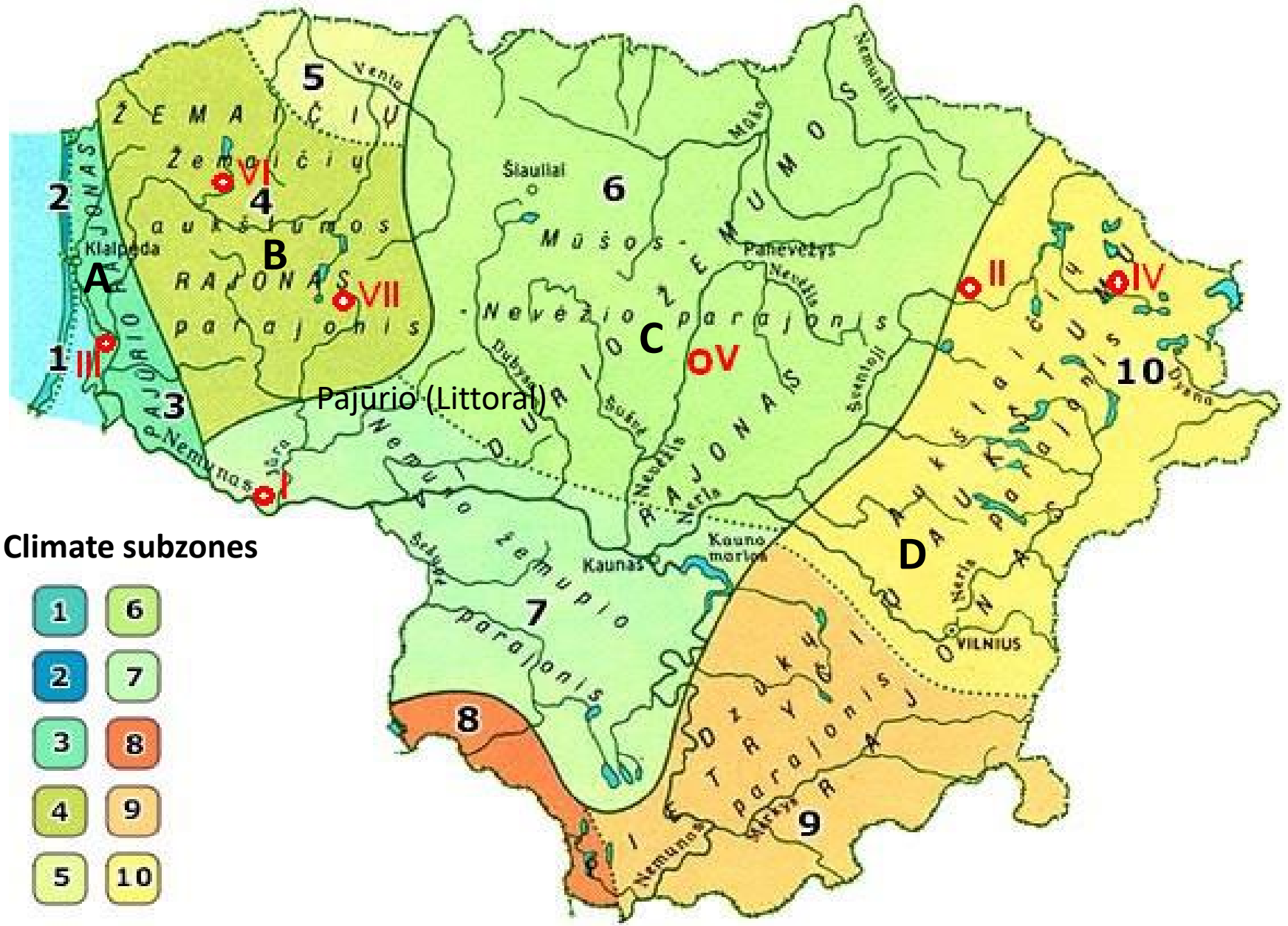
Family	Genera	Species	Genera with numbers of species
Poaceae	17	44 / 34%	Agrostis (4), Alopecurus (3), Anthoxanthum (1), Arrhenatherum (1), Bromus (4), Bromopsis (1), Cynosurus (1), Dactylis (1), Festuca (8), Glyceria (3), Helictotrichon (2), Hierochloe (1), Lolium (1), Phalaris (1), Phleum (2), Poa (8), Trisetum (2)
Fabaceae	9	38 / 29%	Anthyllis (1), Astragalus (3), Lathyrus (6), Lotus (1), Medicago (2), Melilotus (2), Securigera (1), Trifolium (12), Vicia (10)
Rosaceae	6	15 / 12%	Comarum (1), Fragaria (3), Malus (1), Prunus (3), Pyrus (1), Rubus (6)
Lamiaceae	3	5 / 4%	Mentha (2), Origanum (1), Thymus (2)
Apiaceae	4	4 / 3%	Angelica (1), Carum (1), Daucus (1), Pastinaca (1)
Brassicaceae	3	5 / 4%	Capsella (1), Barbarea (1), Rorippa (3)
Amaryllidaceae	1	5 / 4%	Allium (5)
Asteraceae	1	1 / 1%	Cichorium (1)
Ericaceae	1	4 / 3%	Vaccinium (4)
Grossulariaceae	1	3 / 2%	Ribes (3)
Amaranthaceae	1	2 / 2%	Atriplex (2)
Corylaceae	1	1 / 1%	Corylus (1)
Cannabaceae	1	1 / 1%	Humulus (1)
Geraniaceae	1	1 / 1%	Erodium (1)
Linaceae	1	1 / 1%	Linum (1)
Total: 12 families	51	130 / 100%	

Potential genetic reserve sites for *in situ* conservation of CWR populations in Lithuania

No.	Site location	Coordinates	Year of inventory	Area, ha	CWR priority species	Protected area	Climate zone*
I	Bitėnai, Pagėgiai Municipality	55.06184, 22.04471	2011	8.5	Allium angulosum, A. oleraceum, A. scorodoprasum, A. vineale, +10 others	Rambynas Regional Park	C
II	Mikieriai, Anykščiai Mun.	55.66159, 25.19773	2015	3.8	Fragaria viridis, F. vesca, Medicago falcata, Poa angustifolia, +12	Šventoji Landscape Reserve	D
III	Kintai, Šilutė Mun.	55.42643, 21.25395	2016	2.0	Rubus plicatus, R. caesius, R. idaeus, Lotus corniculatus, Festuca gigantea, +6	Kintai Botanical Reserve	A
IV	Bradesiai, Zarasai Mun.	55.82200, 25.89349	2018	3.9	Trifolium 6 species, Dactylis glomerata, Festuca rubra, Phleum pratense, Thymus pulegioides, +6	Sartai Regional Park	D
V	Krekenava, Panevėžys Mun.	55.53415, 24.09143	2019	9.1	Medicago falcata, Rubus caesius, Fragaria viridis, Ribes nigrum, +16	Krekenava Regional Park	C
VI	Velėnija, Plungė Mun.	56.01675, 21.79566	2020	5.4	Mentha aquatica, Vaccinium oxycoccos, V. myrtilus, V. vitis-idaea, +3	Žemaitija National Park	B
VII	Medvėgalis, Šilalė Mun.	55.62770, 22.39278	2020	5.1	Fragaria vesca, Lathyrus sylvestris, Origanum vulgare, Poa nemoralis, +8	Varniai Regional Park	B

* For Climate zones see next slide.

Location of potential CWR genetic reserve sites (I through VII) by climate zones (A through D) in Lithuania



Climate zones
(delimited by solid line), from left to right:

A. PAJŪRIO (Littoral)

B. ŽEMAIČIŲ (Samogitian)

C. VIDURIO ŽEMUMOS (Middle Lowland)

D. PIETRYČIŲ AUKŠTUMOS (Southeastern Highlands)

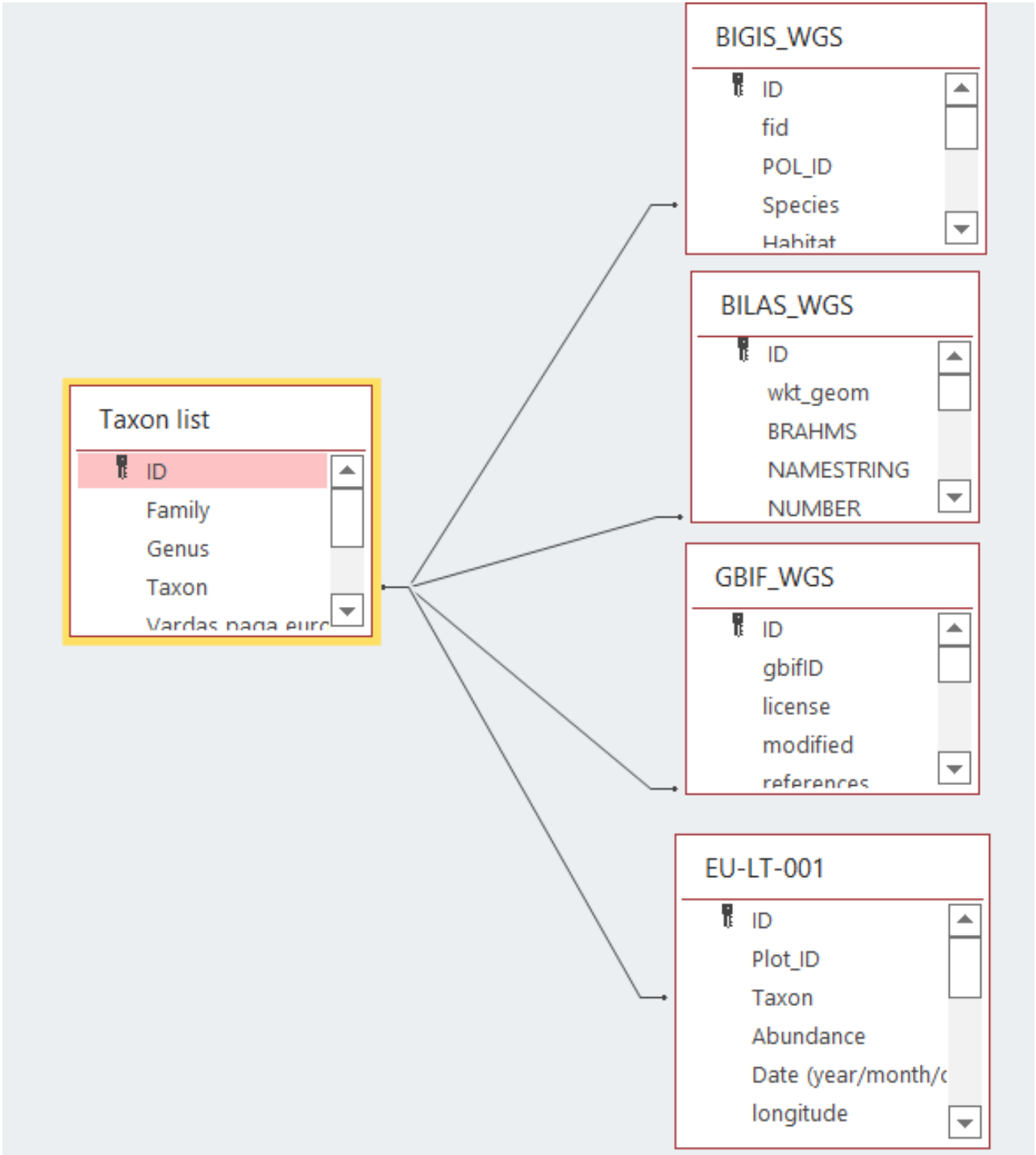
Climate subzones

1	6
2	7
3	8
4	9
5	10

II. Preparation of the national database structure:

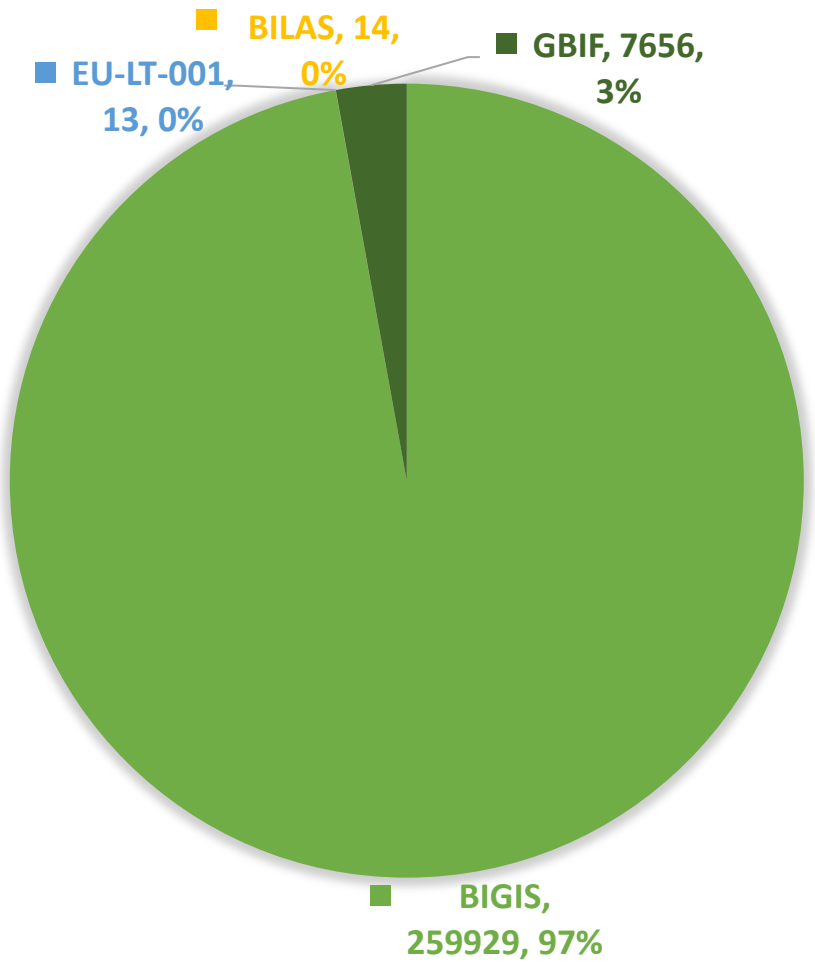
Database structure and sources

(1) information at the taxon level that is used to generate the CWR checklist and prioritize it, and
(2) information at the population level that provides some specific details about each population



Data structure and sources

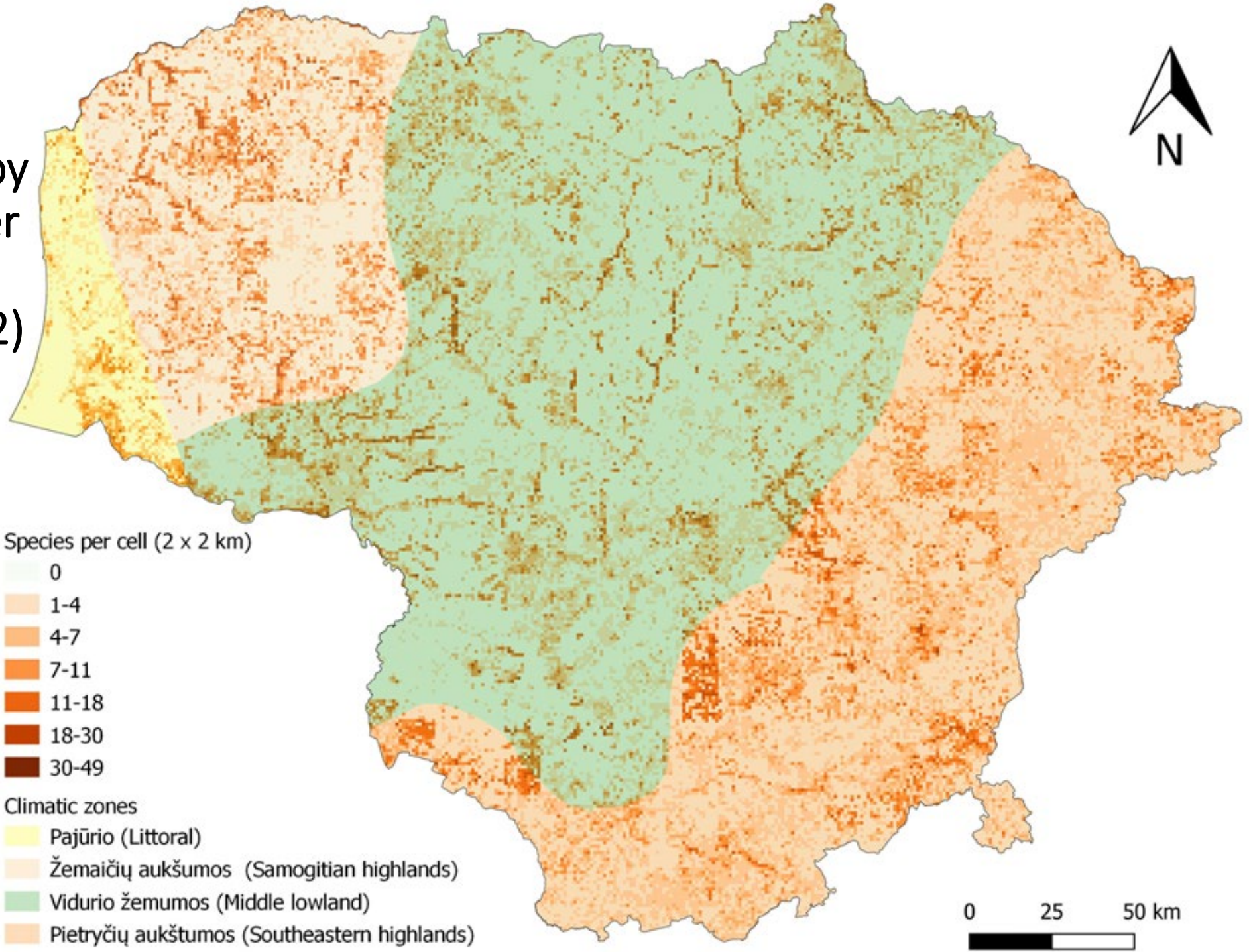
	Data source				
	BIGIS	**BILAS**	**EU-LT-001**	**GBIF**	
Main data table	259929	13	14	7656	**267612**
Taxon name	+	+	+	+	
Date	+	+	+	+	
Geographical coordinates	+	+	+	+	
coordinateUncertaintyInMet	+	-	-	+	
Country	+	+	+	+	
Location name	-	+	+	+	
Grid cell number	+	+	-	-	
Relative abundance	+	+	+	-	
Habitat	+	+	+	-	
Observer/Data owner	+	+	+	+	
Primary data source	+	+	+	+	
Additional data table					
Family	+	+	+	+	
Genus	+	+	+	+	
Species	+	+	+	+	



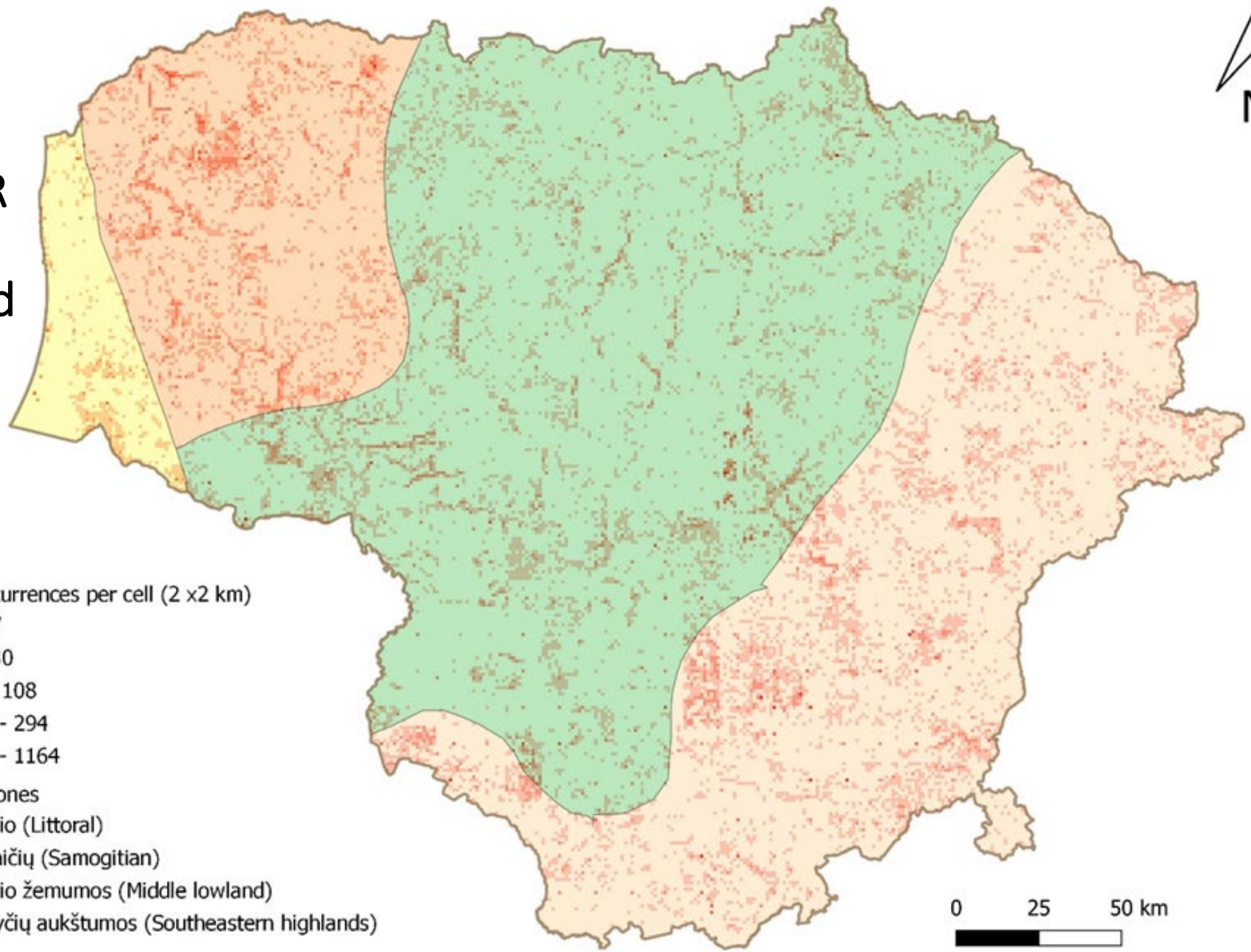
Assessment of CWR priority species by IUCN categories at the national level

	IUCN Category	Number CWR species	Percent CWR species
1.	Least Concern (LC)	103	79.2
2.	Near Threatened (NT)	11	8.5
3.	Data Deficient (DD)	8	6.2
4.	Endangered (EN)	5	3.8
5.	Vulnerable (VU)	3	2.3
	Total	130	100.0

Abundance of CWRs by number of species per 4-square-km grid (Data from 2012-2022)



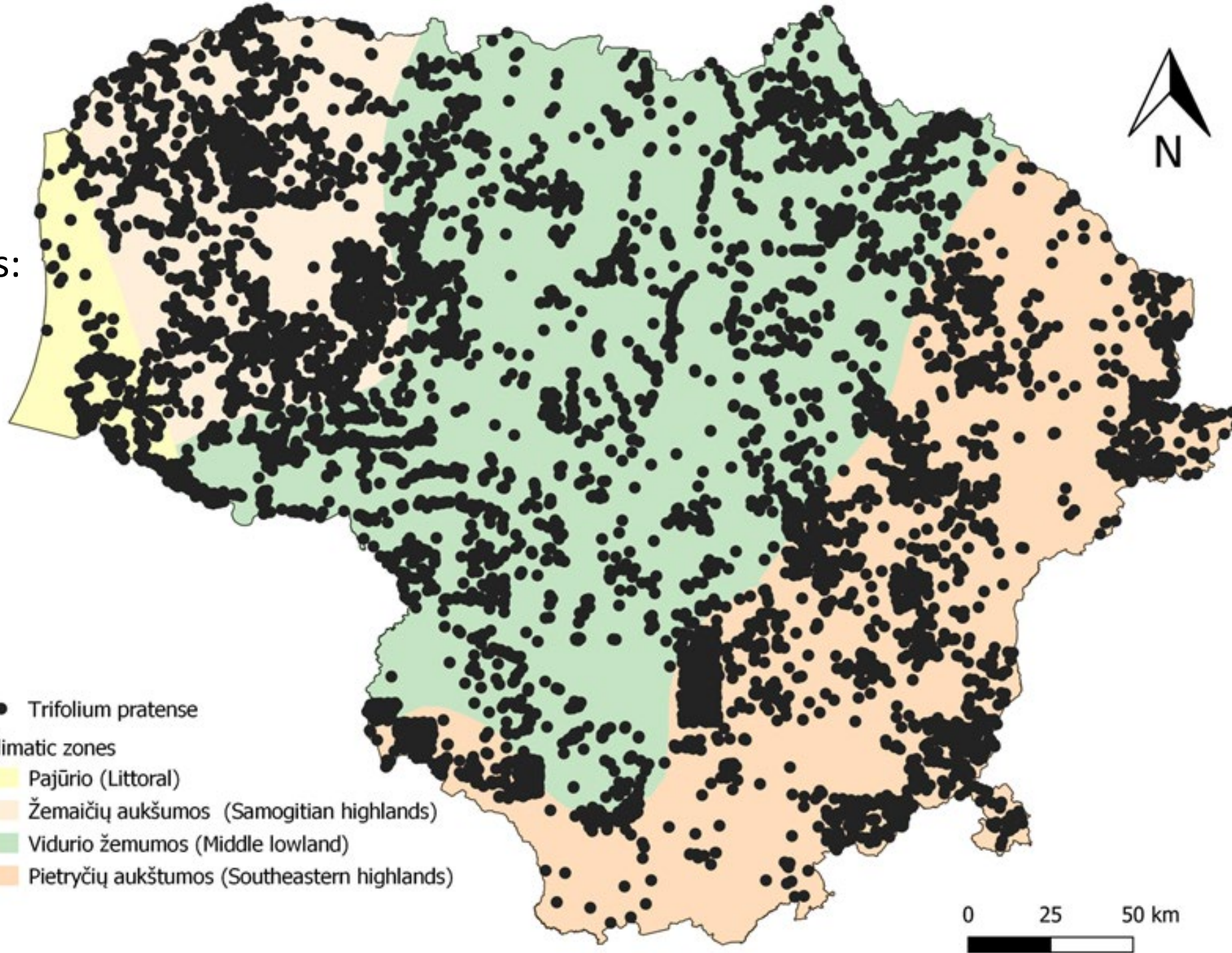
Frequency of occurrences of CWR species per 4-square-km grid



Distribution of the most frequent *Trifolium* species:

Trifolium pratense

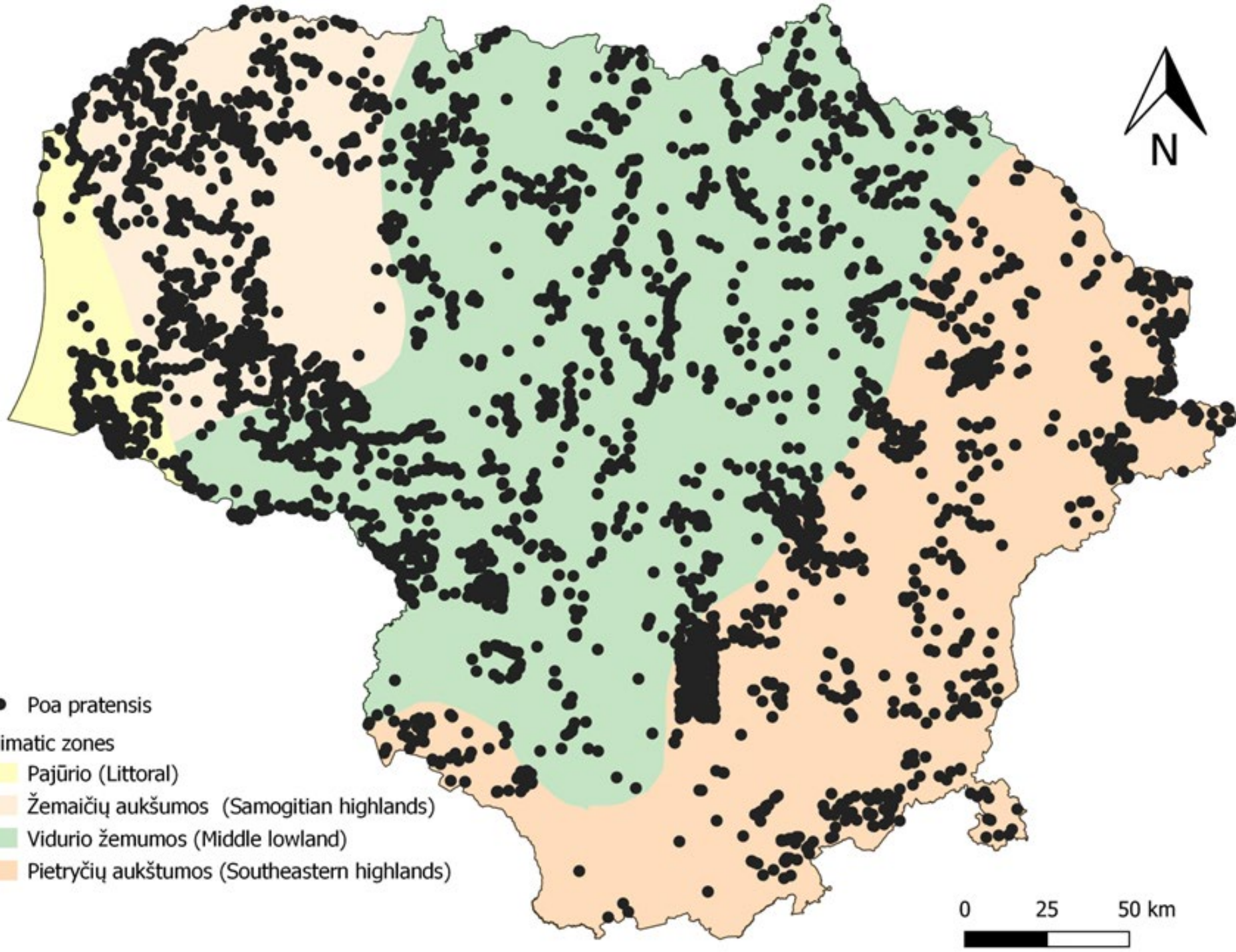
(8,025 observations)



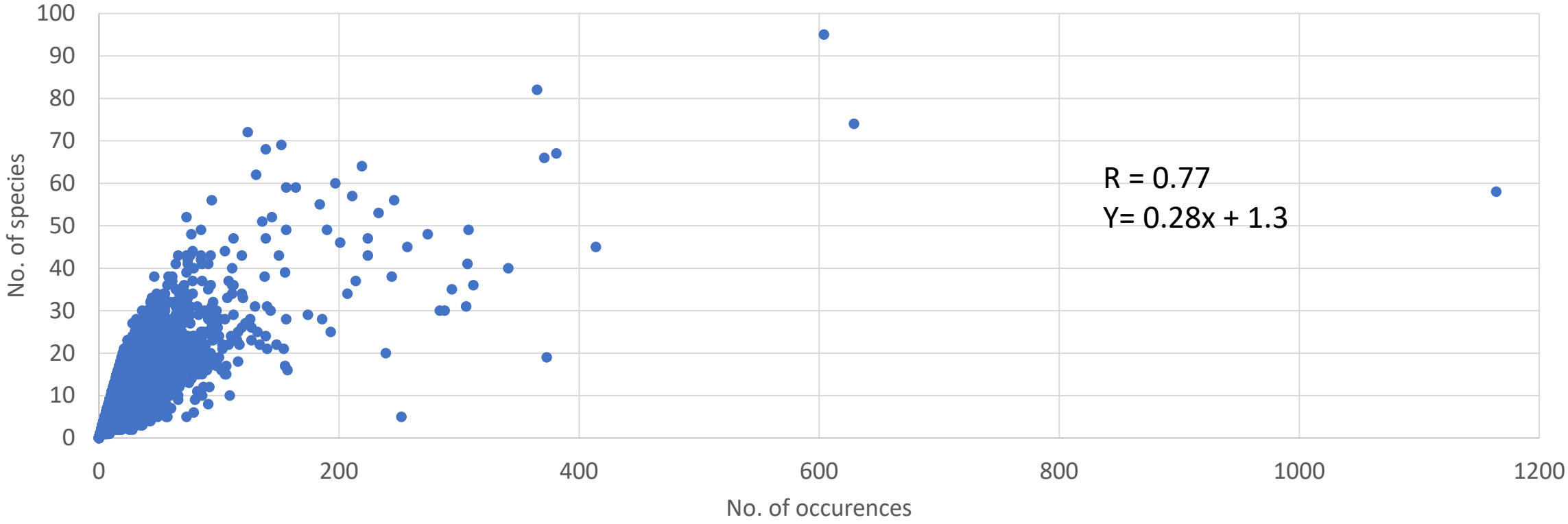
Distribution of the most frequent *Poa* species:

Poa pratensis

(4,799 observations)

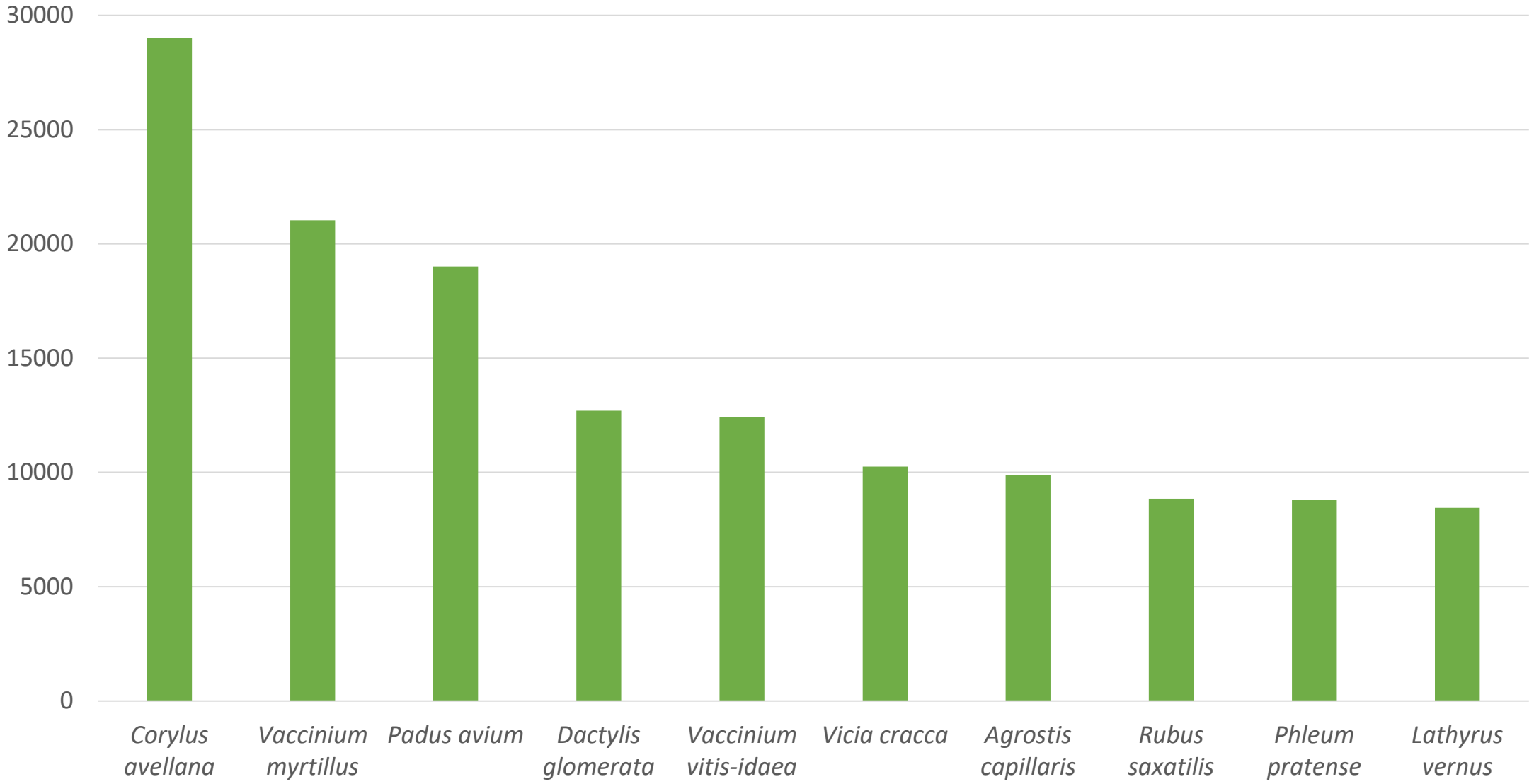


Relation between number of CWR species and number of their occurrences

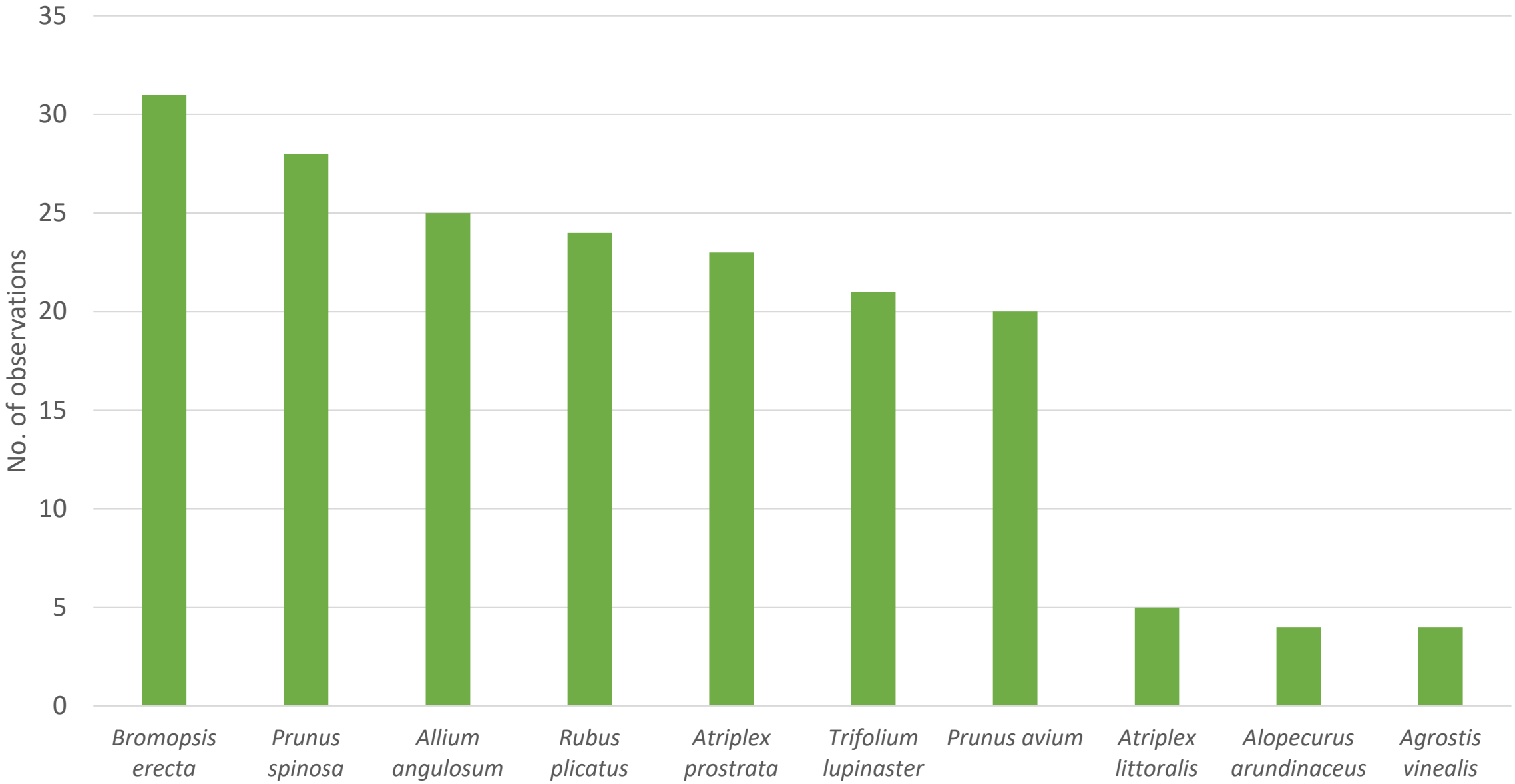


No. of observations	<10	11-100	101-1000	1001-3000	3001-10000	>10000
No. of species	15	32	43	16	19	6

Top 10 most abundant CWR species



Bottom 10 rarest CWR species



Statistics of data acquisition

- From 1893: three observations
- Up to 2022: 1885 observations
- Highest number in 2015: >250,000 observations (the national EU Habitat inventory project)
- Median: 157 observations a year.
- Average: 2904 observations a year.

Numbers of CWR observations by time in four databases

	BIGIS	BILAS	EU-LT-001	GBIF	Total
Older than 10 years		8,645	25,761	40	34,446
Recent data	**259,929**	**13**	**14**	**7,656**	**267,612**
Total	259,929	8,658	25,775	7,696	302,058

III. Organizing the network of data providers

The main data provider is Nature Research Centre (NRC). The NRC data could be structured as follows:

- Observations of individual researchers;
- Database of Habitats of EC Importance BIGIS;
- Herbarium Institute of Botany of NRC BILAS;
- Lithuanian Vegetation Database EU-LT-001.

Related data sources:

- Global Biodiversity Information Facility (GBIF)
- Protected Species Information System (SRIS) of the Ministry of Environment https://sris.am.lt/.

Supplemental and potential data providers may include:

- Researchers from different institutes and universities:
  Lithuanian Research Centre for Agriculture and Forestry, LAMMC;
  Vytautas Magnus University, VDU;
  Vilnius University, VU; etc.
- Protected area managers: mainly ecologists of National and Regional parks;
- Landowners and managers;
- Local communities and social networking groups including Facebook, iNaturalist (GBIF).

One of the major tasks to be implemented until 1 October 2023 is

to organize the potential data providers into an operational network.

Workplan

		2022				2023			
	Description of Activity/Deliverable	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Identify priority taxa and populations								
2	Prepare the national database structure;								
3	Organize the network of data providers;								
4	Collect and organize the data according to the agreed principles and data exchange format;								
5	Provide the data to EURISCO								