

International Scientific Conference

**Plant Genetic Resources: Opportunities and Challenges**

22-24 May, 2024

**Knowledge and Information About Forest Genetic Resources of Georgia and the Challenges of Reporting at the International Level**

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Tbilisi, Georgia

# Country context

## *International collaboration and reporting*

- FOREST EUROPE-Ministerial Conference on the Protection of Forests in Europe (MCPFE)
- UN FAO FRA Global Forest Resources Assessment
- Convention on Biological Diversity (UNCBD)
- United Nations Framework Convention on Climate Change (UNFCCC)



United Nations  
Framework Convention on  
Climate Change



Food and Agriculture  
Organization of the  
United Nations



## Science 2018 Georgia reporting to Commission on Genetic Resources for Food and Agriculture (CGRFA).

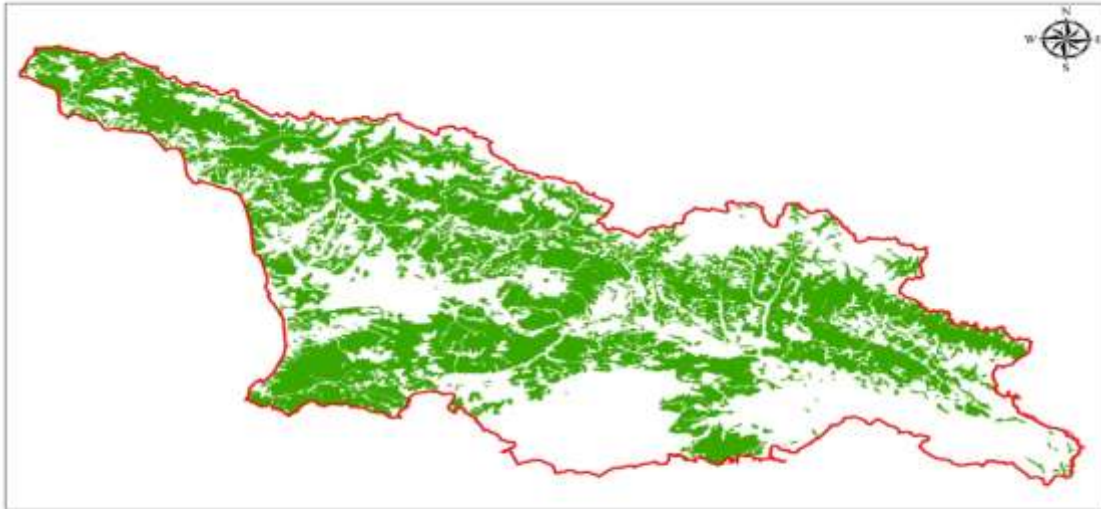
List of officially nominated National Focal Points on forest genetic resources

Updated 30 January 2024

Country	Role	Name	Position	Organization
Georgia	National Focal Point	Giorgi KAVTARADZE	Associate Professor	V. Gulisashvili Forest Institute, Agricultural University of Georgia



## *FGR of Georgia*



THE GEORGIAN TERRITORY COVERED WITH FOREST



Forest is the prevailing type of vegetation in Georgia and the major ecosystem in the Caucasus hotspot (Najafov et al., 2003; Nakhutsrishvili, 2013).

- **Area** - 3.1 ha (44.5,% of the country's territory) (NFI, 2023).
- 98.5% of the forest is of natural origin (NFI, 2023).
- Up to 500,000 ha are primary virgin forest (Gigauri, 2004).
- Most of Georgia's forests are represented by broadleaved stands - 83% (NFI, 2023).
- More than 150 species of trees grow in Georgian forests and more than 240 species of bushes. Among them, 61 species are endemic to the Caucasus and 43 are endemic to Georgia (Gigauri, 2004).

### ***Mountain Forests (98%)***

*In the mountains of Georgia, within the forest belt, three sub-zones can be outlined: low mountain, mid-mountain and high-mountain (from 500 to 1,900 m a.s.l.).*

### ***Lowland Forests (2 %)***

*The lowland forests are spread on swamps, flood plains and in the lowlands, where local irrigation conditions or groundwaters stimulate the development of forest vegetation.*

## Country context *continue*

### *FGR of Georgia-Colchic forests*

The Colchic region, which took shape mainly from the end of the Middle Sarmatian, i.e. 11-12 million years ago (Kolakovsky 1961; Shatilova & al. 2011), is located in the catch-ment basin of the Black Sea.

*Colchic forests are considered humid-and warm-requiring (hygro-thermophilous) broad-leaved forests (Dolukhanov 1980; Nakhutsrishvili, 1999; Doluchanov and Nakhutsrishvili 2003).* these unique forests can mostly be classified as temperate rainforests (Nakhutsrishvili, 2013).

*Colchic forests like Hyrcan forests (Azerbaijan, Iran) are the most important relicts of the Arcto-Tertiary forests in western Eurasia with many relict and endemic plants and rare fauna (Nakhutsrishvili, 2013).*

**Trees:** *Abies nordmanniana, Quercus hartwissiana, Q. imeretina, Q. pontica, Betula medwedewii, Sorbus subfusca, Castanea sativa, Staphylea colchica.*  
**Shrubs:** *Rhamnus imeretina, Corylus colchica, Daphne alboboviana, Rhododendron ponticum, Rh. ungeronii, Rh. smirnowii, Rh. caucasicum, Epigaea gaultherioides, Viburnum orientale.*  
**Lianas:** *Hedera colchica, Dioscorea caucasica*



Fig. Location of Colchic and Hyrcanian forest areas (Nakhutsrishvili et. al., 2016).

General Map of the potential natural vegetation of Europe



## Forest biodiversity in a regional context

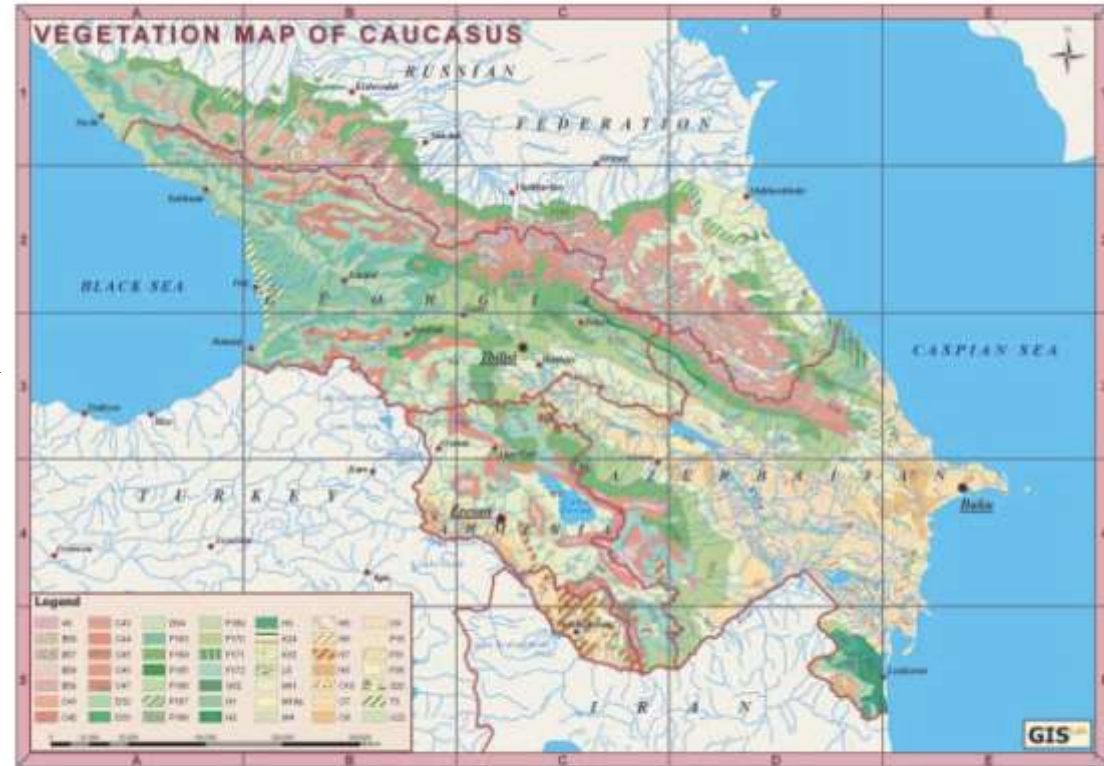


Fig. 2.

Bull. Geogr. Natl. Acad. Sci. Vol. 175, No1, 2007

Based on: BOHN/NEUHAUSEL et al (2000) Source: Federal Agency for Nature Conservation (BfN), 2002  
(scaled-down version of the generalized map at a scale of 1:10,000,000)

A1	D2	E	G4	K2	O2
A2	D3	F1	H	K3	P1
B1	D4	F2	J1	K4	P2
B2	D5	F3	J2	L1	R
B3	D6	F4	J3	L2	S1
B4	D7	F5	J4	M1	S2
B5	D8	F6	J5	M2	S3
C1	D9	F7	J6	M3	T
C2	D10	G1	J7	M4	U1
C3	D11	G2	J8	N	U2
D1	D12	G3	K1	O1	

Fig. 1. Reduced General Map of the Natural Vegetation of Europe (1:10 million) with main formations and sub-formations (source: BfN 2002).

# Forest biodiversity in a global context

Georgia, as part of the Caucasus Eco-region, are considered one of the 36 worldwide significant biodiversity hotspots based on the species richness and the significant level of species endemism (Conservation International) and among 200 globally unique ecoregions recognized by the WWF.



Conservation International (conservation.org) defines 36 biodiversity hotspots — extraordinary places that harbor vast numbers of plant and animal species found nowhere else. All are heavily threatened by habitat loss and degradation, making their conservation crucial to protecting nature for the benefit of all life on Earth.



Overall 6500 plant species are distributed in the Caucasus region out of which 4100 are found in Georgia

## *Legal framework – International agreements*

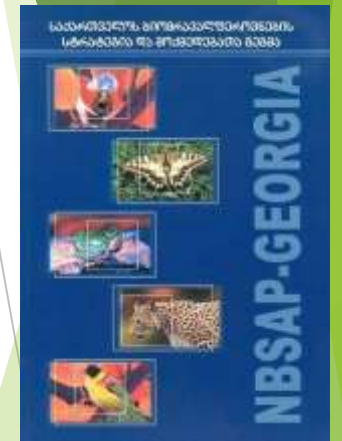
- *Convention on Biological Diversity* – Georgia has been a party since: 1994-08-31
- *Convention on the Conservation of European Wildlife and Natural Habitats* (Bern convention) – Georgia has been a party since: 2009
- *The Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) – Georgia has been a party since: 13/09/1996
- *The World Heritage Convention* (WHC) – Georgia has been a party since: 1992
- *International Plant Protection Convention* (IPPC) – Georgia has been a party since: 2006
- *The Convention on Wetlands* (RAMSAR) – Entry into force: 7 June 1997
- *The European Landscape Convention* – Georgia has been a party since: 2011
- *The United Nations Convention to Combat Desertification* (UNCCD) – Georgia has been a party since: 1999
- *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGRFA) – Georgia has been a party since: 2018
- etc.



# Country context *continue*

## *Legal framework – National policy documents*

- National Forest Concept for Georgia, *Adopted 11/12/2013*
- Fourth National Environmental Action Program of Georgia 2022-2026 (NEAP 4)
- National Biodiversity Strategy and Action Plan of Georgia 2014-2020 (NBSAP)
- Second National Action Programme to Combat Desertification
- Georgia's 2030 Climate Change Strategy





## *Legal framework – National legislation*

### **Legal acts:**

- Law of Georgia „**The Forest Code**”, *Adopted 22/05/2020*
- Law of Georgia „**On Environmental Protection**”, *Adopted 10/12/1996*
- Law of Georgia „**On the System of Protected Areas**”, *Adopted 07/03/1996*
- Law of Georgia „**On the Red List and Red Data Book of Georgia**”, *Adopted 06/06/2003. Updated red list adopted 20/02/2014. The red list includes 56 plant species, among them 46 is tree species (32-VU (Vulnerable), 13-EN (Endangered), 1-CR (Critically Endangered))*
- Law of Georgia „**On environmental responsibility**“, *Adopted 12/03/2021*

### *Legal framework – National legislation*

#### **Sub legal-acts:**

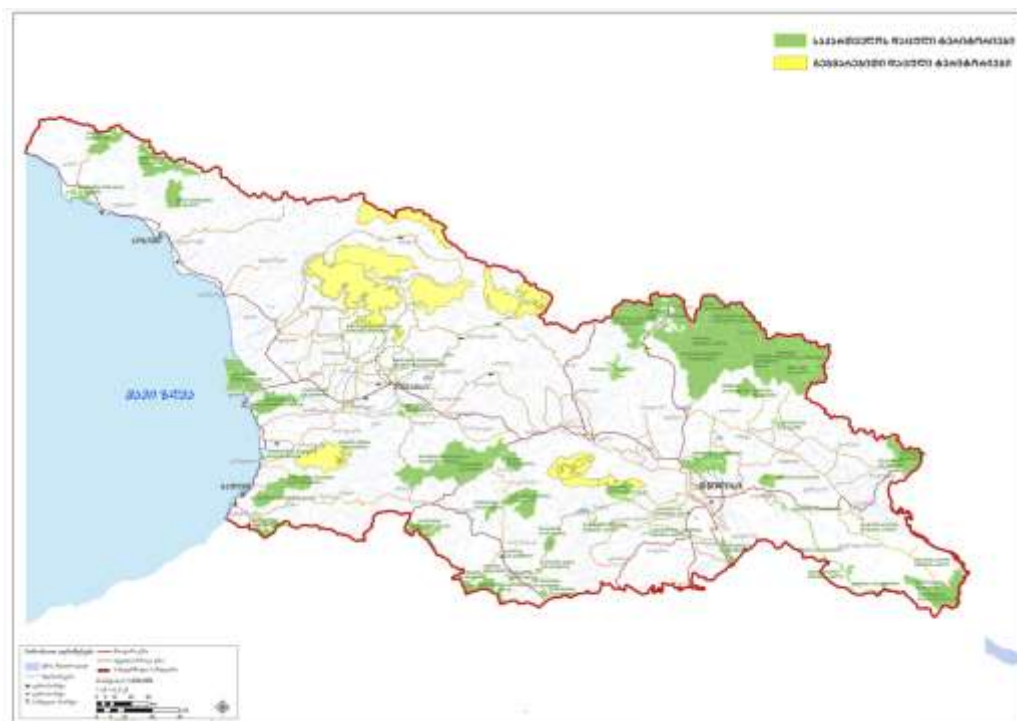
- On the criteria and indicators of sustainable forest management of Georgia. *Approved by Resolution №231 of the Government of Georgia, May 02, 2022*
- On the rules of import, export and production of forest reproductive materials. *Approved by Resolution №2-553 of the Government of Georgia, July 12, 2023*
- On the rule of Inventory, Categorization and Monitoring of forest of Georgia. *Approved by Resolution №427 of the Government of Georgia, August 25, 2021*
- On the rule of Forest Protection, Restoration and Maintenance. *Approved by Resolution №383 of the Government of Georgia, July 27, 2021*
- On the Rules of Forest Use. *Approved by Resolution №221 of the Government of Georgia, May 18, 2021*

### *FGR in-situ conservation – PAs*

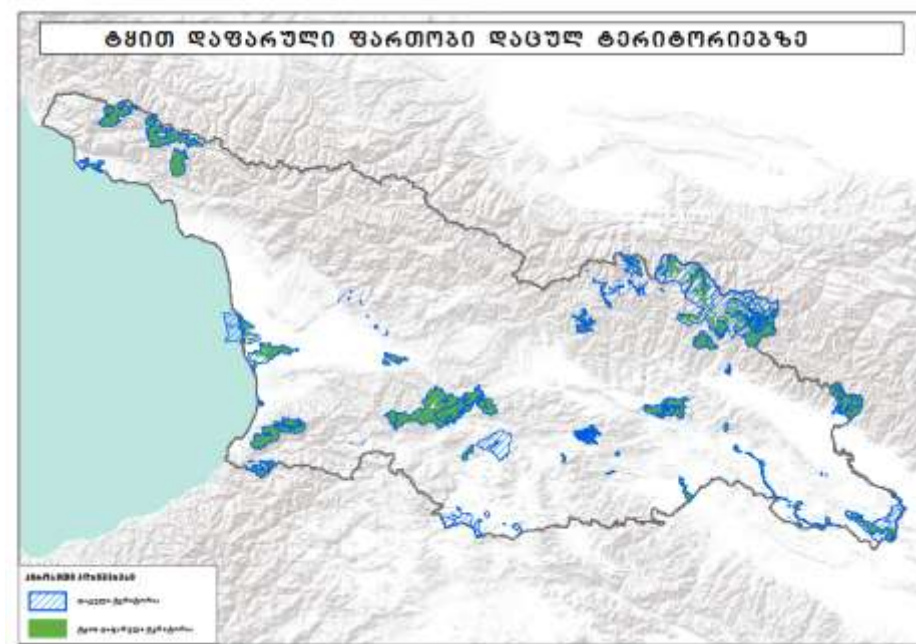
*Protected areas have played an important role in nature conservation in the Caucasus.*

*The first strict nature reserve in the region was created in 1912 in Lagodekhi Gorge on the southeastern slopes of the Greater Caucasus Range in Georgia.*

*Currently, about 12% (793 351 ha) of the country's territory is occupied by PAs and includes all (6) IUCN categories.*



[apa.gov.ge](http://apa.gov.ge)

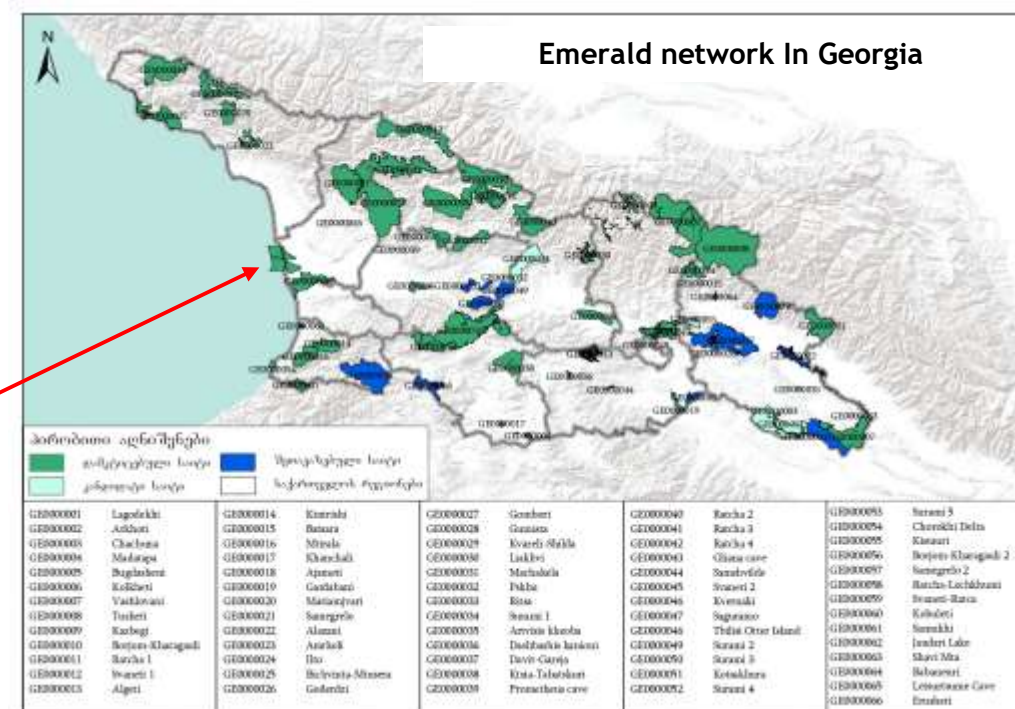
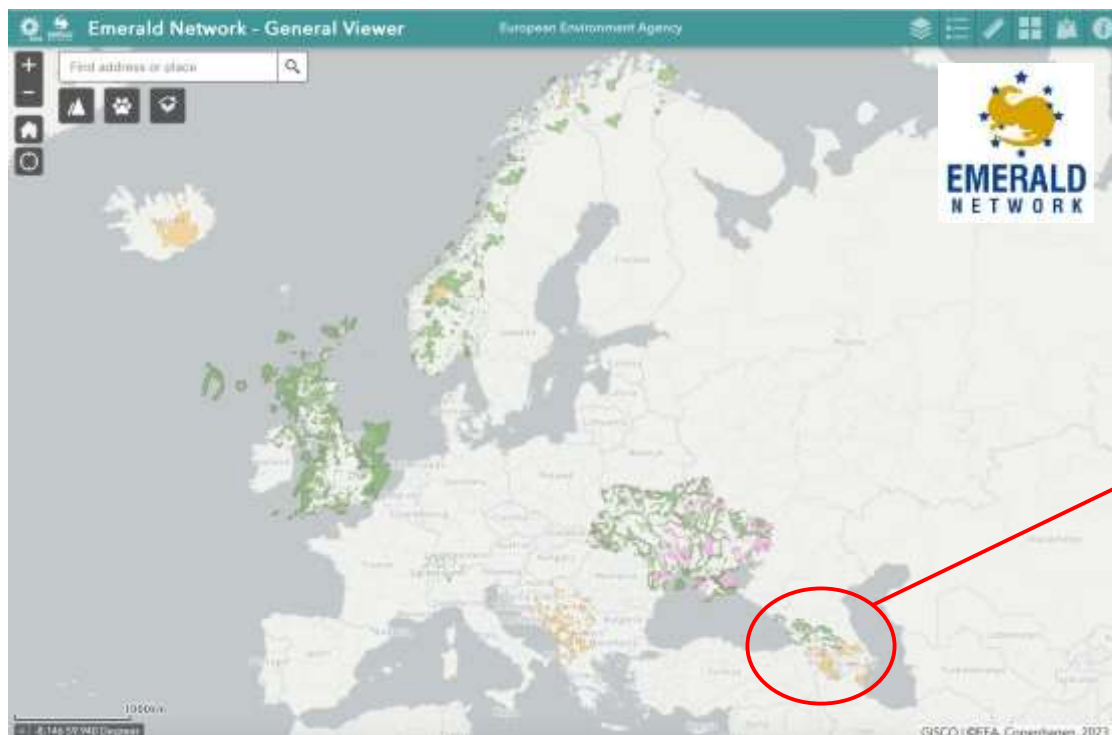
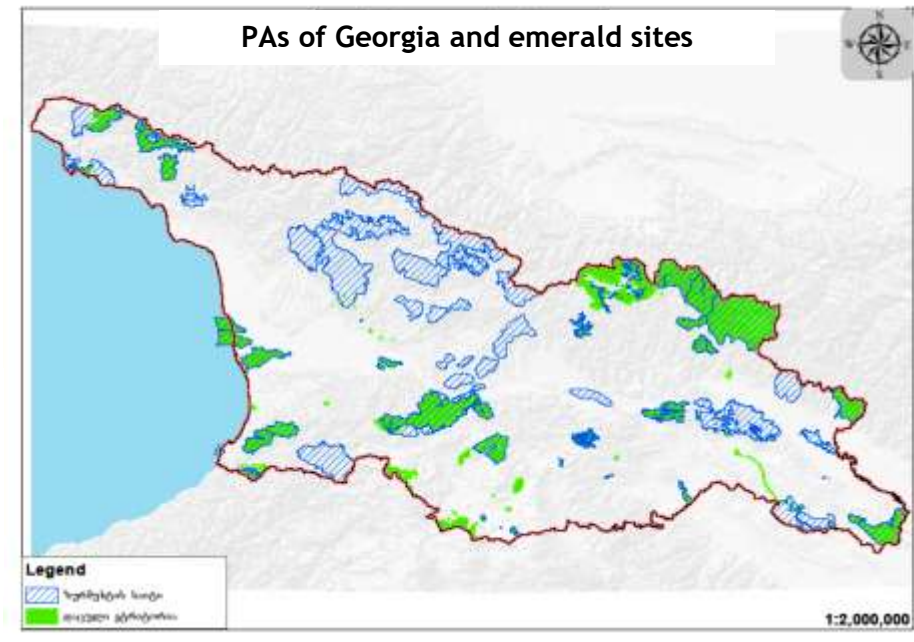


Currently, about 47% (369 189 ha) territory of PAs is covered with many types of natural forest.

# Country context *continue*

## *FGR in-situ conservation - Emerald network*

- According to the data of 2021, the total area of the emerald network in Georgia is 1,285,975 hectares.
- 44% of the total area of the Emerald Network is protected area.



## *FGR in-situ conservation – Natural heritage site*

*The first UNESCO natural heritage site in Georgia*



**Date of Inscription:** 2021

**Minor boundary modification inscribed year:** 2023

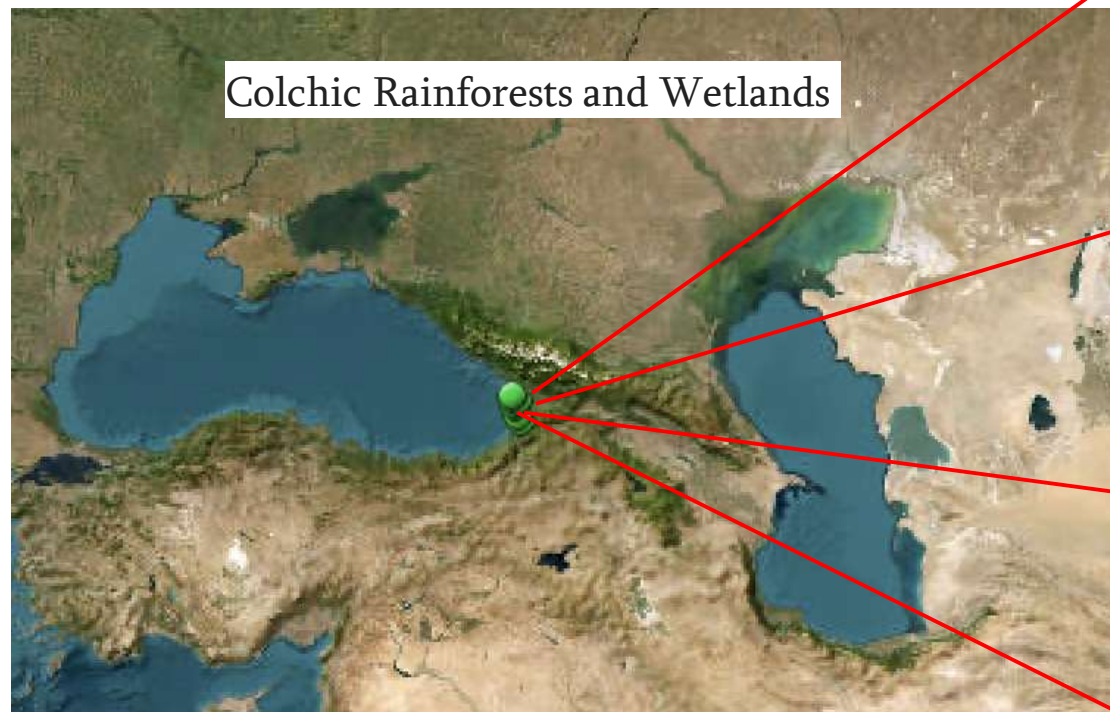
**Criteria:** (ix)(x)

**Property :** 31,253 ha

**Buffer zone:** 28,053 ha

**Dossier:** 1616bis

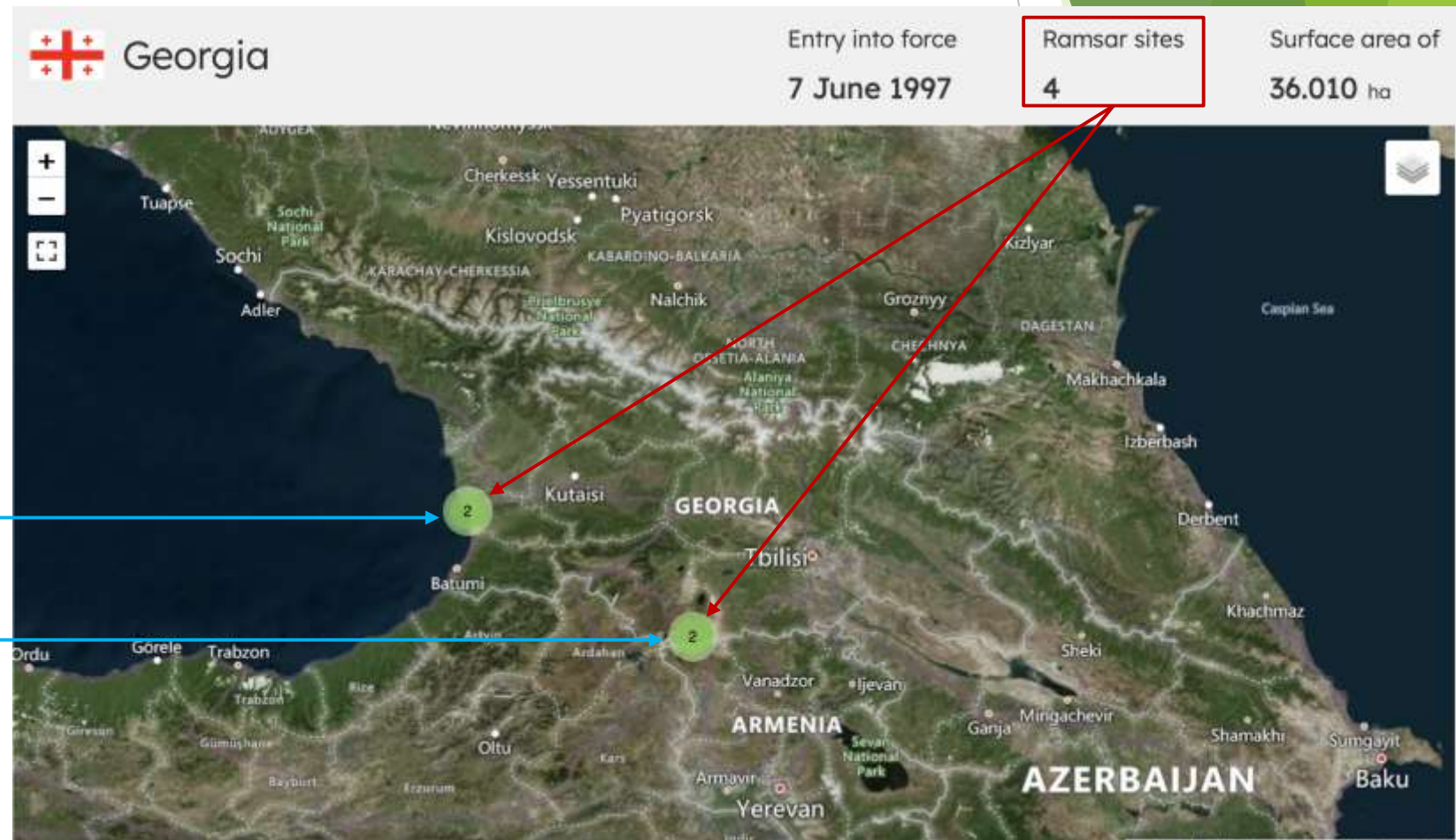
N41 42 8.2 E41 57 4.32



Includes the following 4 protected areas: *Kolkheti and Mtirala National Parks and Kintrishi and Kobuleti Protected Areas.*

# Country context *continue*

## *FGR in-situ conservation – Ramsar sites*



## *FGR in-situ conservation- other achievements*

In 2012-2018, the scientists of the V. Gulisashvili Forestry Institute conducted inventory of 14 rare and endangered woody species and database was created.

In 2019-2021, the scientists of the Scientific-Research Center of Agriculture conducted inventory and Molecular-genetic study of 3 additional rare and endangered woody species (*Acer ibericum*, *Amygdalus georgica*, *Quercus imeretina*).

A monograph „Inventory Materials of Forest Genetic Resources of Georgia” and other manuscripts where published based on the materials of the mentioned studies



### **Studded woody species:**

1. *Arbutus andrachne*
2. *Ostrya carpinifolia*
3. *Betula medwedewii*
4. *Rhododendron smirnowii*
5. *Rhododendron ungeronii*
6. *Osmanthus decorus*
7. *Taxus baccata*
8. *Amygdalus georgica*
9. *Acer ibericum*
10. *Populus euphratica*
11. *Quercus pedunculiflora*
12. *Pirus demetrii*
13. *Pyrus sakhokiana*
14. *Pyrus ketzkhoveli*
15. *Quercus imeretina*
16. *Tilia cordata*
17. *Ulmus minor*



Identification and genetic diversity of *Acer ibericum* (Aceraceae) in South Caucasus  
2021  
Paule, Juraj | Goginashvili, Nani | Tvauri, Irina et al.

## *FGR ex-situ conservation*

### Seeds banks:

1. National Botanical Garden seed bank
2. Seed bank of V. Gulisashvili Forest Institute of Agricultural University of Georgia (*13 endemic and relict woody species*)

### Botanical gardens:

1. **National Botanical Garden of Georgia**, was founded in 1936. It is the first Botanical Garden in the Caucasus and one of the oldest in the world (<http://nbgg.ge/>);
2. **Batumi Botanical Garden**, was established in 1912. The garden collection is comprised of up to 1800 taxonomic units, with 90 of Caucasian origin (<http://bbg.ge/en/home>);
3. **Zugdidi Botanical Garden** [https://en.wikipedia.org/wiki/Zugdidi\\_Botanical\\_Garden](https://en.wikipedia.org/wiki/Zugdidi_Botanical_Garden)
4. **Sokhumi Botanical Garden**, unfortunately now is located on the occupied territory of Georgia.

### Field collection

Collection of rare and endemic woody species of the Scientific-Research Center of Agriculture.





# Summary

## *Key findings and recommendations related to FAOs Global Strategic priorities for Action*

### **PRIORITY AREA 1- Improving the availability of, and access to, information on forest genetic resources**

#### **Key findings:**

- Lack of information and knowledge about FGR;
- Public awareness of the role and value of FGR is insufficient;
- FGR inventory and monitoring system is not developed.

#### **Recommendations:**

- Development FGR communication strategy and monitoring systems or/and integration into existing related systems (e.g. integrate into the „National Forest Program Process“;  
*to improve the availability of information and involvement on FGR for all stakeholders*
- Development FGR inventory and monitoring system or/and integration into FMI and NFI inventory system;  
*inventory and characterization of priority species' FGR; information management systems, including databases and GIS for inventory and monitoring*
- Support to strengthening educational and research capacities on FGR at the national level.  
*to ensure adequate knowledge support to related development programs*

## *Key findings and recommendations related to FAOs Global Strategic priorities for Action*

### **PRIORITY AREA 2 - In situ and ex situ conservation of forest genetic resources**

#### **Key findings:**

- FGR national in situ and ex situ conservation systems are not well developed;
- No priority species, populations, and areas for in situ conservation action have been identified;
- FGR in situ conservation outside of PAs and other conservation sites is a major challenge.

#### **Recommendations:**

- Identify priority species, populations and areas (habitats) for in situ conservation action and assessment of their genetic and reproductive status;  
*including identification of populations at the limit of their range (marginal and/or range-limits forest species populations), key biodiversity habitats and HCV forests;*
- Strengthen the contribution of protected areas and primary forests to in situ conservation of FGR;
- Strengthen the FGR in situ conservation outside of PAs and other conservation sites;
- Establishment and development of efficient and sustainable ex situ conservation programs, including in vivo collections and genebanks;
- Development sustainable management and conservation of FGR on farmland (*circa situm FGR conservation and management*)  
*including identification of options and potentials and development of methodologies for improved on-farm management*

## *Key findings and recommendations related to FAOs Global Strategic priorities for Action*

### **PRIORITY AREA 3 - Sustainable use, development and management of forest genetic resources**

#### **Key findings:**

- Unsustainable forest management (e.g. Illegal logging, unsustainable harvesting of fuel wood and non wood resources);
- The role and involvement of responsible authorities for the sustainable development and management of FGR is weak, including intersectoral cooperation practices.

#### **Recommendations:**

- Promote the development of sustainable forest management practices, especially outside Pas; *including SFM approaches to maintain FGR while optimizing production of goods and services*
- Categorization of forests according to their functions, which is necessary for sustainable forest management; *including sustainable management of FGR*
- Strengthen the contribution of responsible authorities for the sustainable development and management of FGR; *including intersectoral cooperation practices*
- Strengthen the role of indigenous peoples, local communities and other stakeholders in the sustainable management and conservation of FGR;
- Promote restoration and rehabilitation of forest ecosystems using genetically appropriate material (*According to the NFI, significant part of the forested area, 807 178 hectares (35.4%) is degraded*)
- Develop and reinforce national tree seed and breeding programmes to ensure the availability of genetically appropriate tree seeds.

## *Key findings and recommendations related to FAOs Global Strategic priorities for Action*

### **PRIORITY AREA 4 - Policies, institutions and capacity-building**

#### **Key finding:**

- National legal frameworks to regulate FGR are currently partial, and ineffective.

#### **Recommendations:**

- **Development of national strategy and action plan for in situ and ex situ conservation of FGR and their sustainable use**  
*In situ conservation strategy should be based on integrated approach (Species and Site-oriented)*
- **FGR conservation and management issues needs to integrate into wider policies, programmes, and frameworks of action at national levels** (e.g. NBSAP, NEAP and Climate Change Strategy);
- **Refinement of national legal frameworks to effectively regulate FGR;**  
*Amendments to the existing basic Legal acts are needed. it would also be better to ratify Nagoya Protocol and adoption of the Law on Biodiversity, which would also improve the legal framework related to FGR)*

### *Key findings and recommendations in the regional context, related to FAOs Global Strategic priorities for Action*

#### **Key finding:**

- Cooperation at the regional level and FGR regional in situ and ex situ conservation systems are not well-developed.

#### **Recommendations:**

- *Strengthening cooperation at the regional level for the development and implementation of regional conservation strategies; Countries should develop a genetic resources communication strategy and make forest genetic resources information more accessible*
- *Development of a regional forest genetic resources network and strengthening of mechanisms to conserve biodiversity of the Caucasus hotspot; effective conservation planning requires up-to-date information on the status of threatened species and the habitats on which they depend*
- *Promote the development of regional mechanisms for the exchange of forest reproductive materials for research and development, consistent with applicable international conventions.*

**Thank you for your attention!**

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