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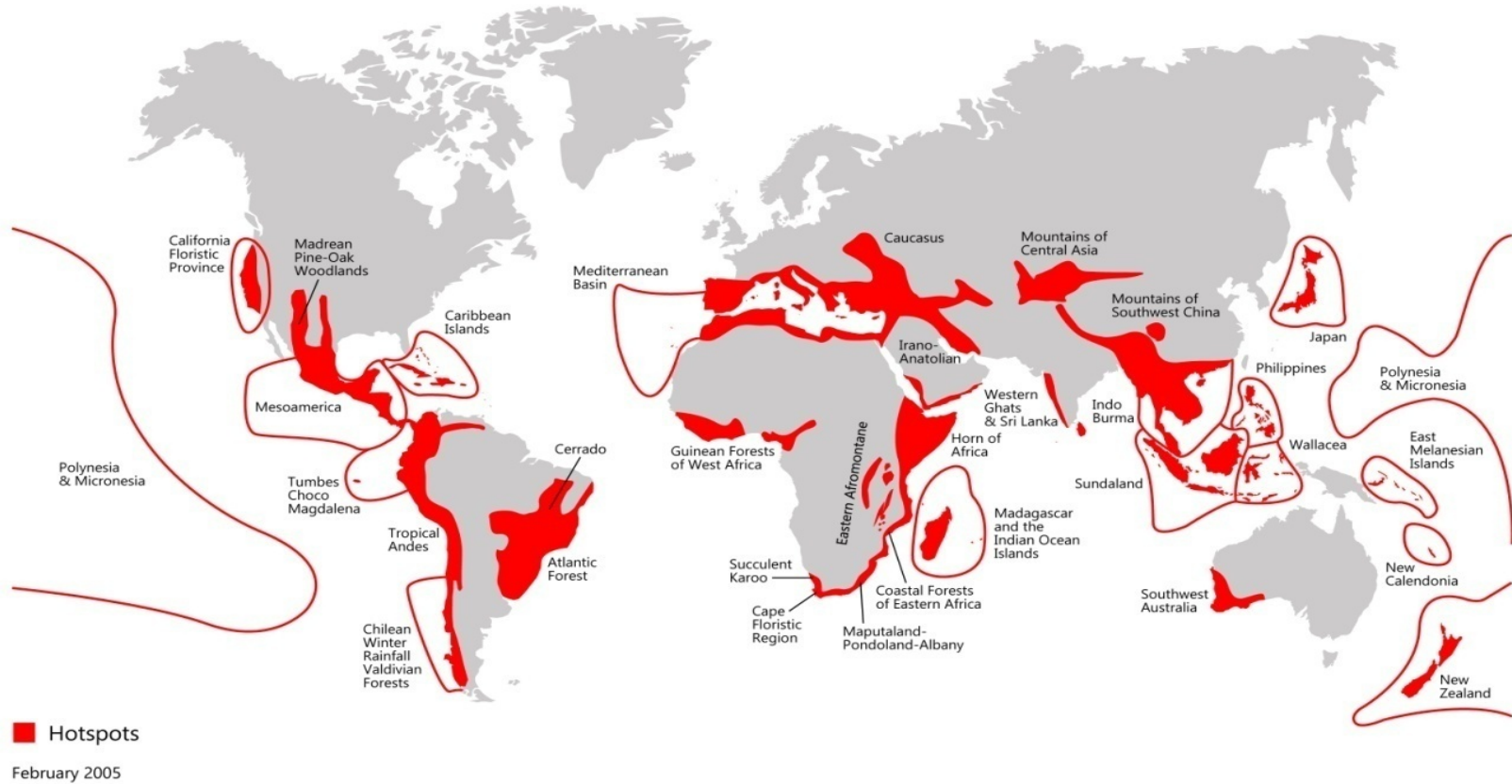


Because of its high landscape diversity and low latitude, In georgia we have very diverse bioms

Forest covers 40 % of Georgia

Biodiversity Hotspots

CONSERVATION INTERNATIONAL



Caucasus hotspots

- » 9 climate zones
- » Peaks higher than the Alps
- » 6,500 plant species
- » sub-tropical to semi-desert

The Caucasus is one of the most biologically rich regions on Earth. Home to an unusually high number of endemic plant and animal species, it ranks as one of the world's biodiversity "hotspots" according to both Conservation international and WWF.



Irano-Anatolian hotspot

The hotspot includes major parts of central and eastern Turkey, a small portion of southern Georgia, the Nahçevan Province of Azerbaijan, much of Armenia, northeastern Iraq, northern and western Iran, and the Northern Kopet Dagh Range in Turkmenistan.

Nearly 400 plant species are found only along the Anatolian Diagonal, a floristic line that crosses Inner Anatolia; many of Turkey's 1,200 endemic species occur only to the immediate east or west of it. The hotspot is also home to four endemic and threatened species of viper.

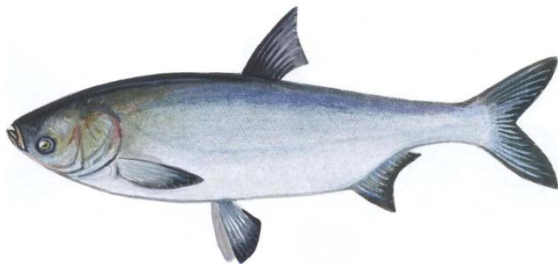
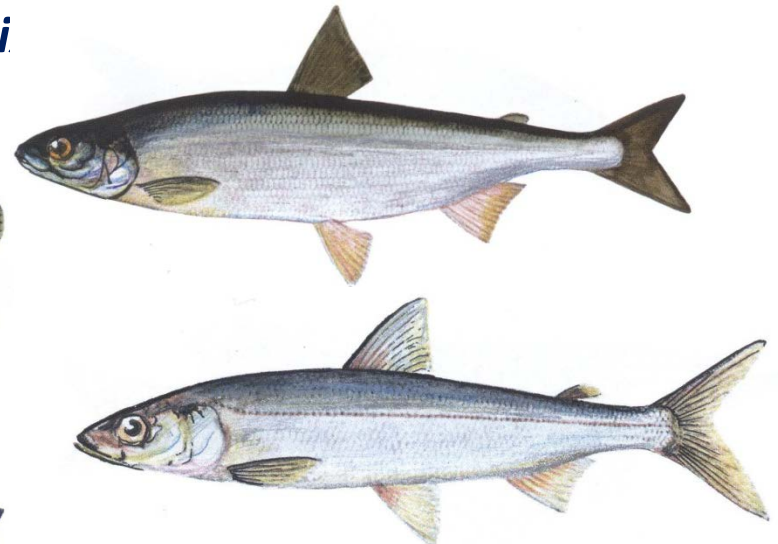


- In the past, there was no control of the introduction (both intentional and random) of alien species into Georgia and **many invasive alien species** are now found throughout the country. In some cases, the impact has been devastating (e.g. Prussian carp (*Carassius gibelio*) in freshwater lakes).
- Georgia's forests are suffering from pest species and diseases that have been unintentionally introduced into the country. These include great spruce bark beetle, chestnut blight, etc.
- No detailed studies have been conducted on the impacts of most alien species on local ecosystems and biodiversity.
- Presently, the introduction of non-native animal species is prohibited by law. However, there is no clear strategy for dealing with alien species, which are already widespread in Georgia.

Introduced fish species



- Gibel carp (*Carassius gibelio*)
- Stone morocco (*Pseudorasbora parva*)
- Mosquito fish (*Gambusia holbrooki*)
- European whitefish (*Coregonus laveretus*)
- Peled (*Coregonus peled*)
- European vendace (*Coregonus albula*)
- Bighead carp (*Hypophthalmichthys molitrix*)
- Grass carp (*Ctenopharyngodon idella*)



National Target B.2 By 2020, alien invasive species have been assessed with regard to their status and impact; their pathways have been evaluated and identified, and measures are in place to prevent their introduction and establishment through the management of these pathways; no new alien species have been recorded

Action	Time frame	Responsible/Implementing agency	Source of funding (potential)
Objective B.2-o1. Prevent the distribution of new alien invasive species and control the existing populations of alien species			
B.2-o1.1 Identify, assess and prevent the existing and potential pathways of invasive alien species into the country's terrestrial, freshwater and marine ecosystems	2014-2018	MoENRP; APA; research institutes; NGOs	State budget. donors
B.2-o1.2. Assess the status and distribution of invasive alien species and conduct a modelling of the threats they pose to native biodiversity and ecosystems	2014-2018	MoENRP; APA; research institutes; NGOs	Donors
B.2-o1.3. Develop a legal framework and strategy for the management of invasive alien species	2015-2020	MoENRP; research institutes; NGOs	State budget. Donors
B2-o1.4. Establish effective measures for the control of the populations of marine alien species, including <i>Mnemyopsis leidi</i> and <i>Rapana venosa</i>	2014-2020	MoENRP; research institutes; NGOs	State budget. Donors
B2-o1.5. Conduct monitoring of invasive alien species within the framework of the National Biodiversity monitoring System	2014-2016	MoENRP; research institutes; NGOs	State budget. donors



Invasive alien species pose a serious threat to Black Sea ecosystems. Intentional and accidental introductions of alien species into the Black Sea began in the 19th century. **Presently, there are 26 invasive alien species in the Black Sea.** Among them, the following species have had the greatest impact on Black Sea ecosystems and native biodiversity: 49 comb jelly (*Mnemiopsis leidyi*), mud crab (*Rhithropanopeus harrisi*), veined rapa whelk (*Rapana venosa*), Soft-shell clams (*Mya arenaria*), redlip mullet (*Liza haematocheila*) and *Cunearca cornea*.

Table 1 Synopsis of the native and alien flora of Georgia (% is given in brackets).
ცხრილი 1 საქართველოს ავტოქტონური და არაადგილობრივი ფლორის სინოფსისი (პროცენტული მაჩვენებლები მოცემულია ფრჩხილებში)

	Pteridophyta	Spermatophyta			TOTAL სულ
	Pteridophytes გვიმრანაირები	Gymnosperms შიშველთესლოვნები	Dicotyledons ორლებნიანები	Monocotyledons ერთლებნიანები	
Native species* ავტოქტონური სახეობები*	79 (2)	16 (0.5)	3089 (79.5)	700 (18)	3884 (100)
Families ოჯახები	24 (14)	4 (2)	114 (65)	34 (19)	176 (100)
Alien species** არაადგილობრივი სახეობები	5(1.4)	2 (0.6)	282 (74)	91 (24)	380 (100)
Families which include alien spp. ოჯახები, რომლებიც შეიცავენ არაადგილობრივ სახეობებს	4(5.4)	2 (2.7)	55 (74.4)	13 (17.5)	74 (100)
TOTAL no. species სახეობების საერთო რაოდენობა	84 (1.9)	18 (0.4)	3371 (79.1)	791 (18.6)	4264 (100)
% alien species of total no. species არაადგილობრივი სახეობების % ავტოქტონური სახეობების საერთო რაოდენობიდან	5.9	11.1	8.3	11.5	8.9

* excluding subspecies and varieties
ქვესახეობების და უფრო დაბალი რანგის ტაქსონების ჩათვლელად

** excluding cultivated species which are not, or only rarely, found in the environment
კულტურული მცენარეების ჩათვლელად, რომლებიც არ გვხვდებიან ან მცირე რაოდენობითაა ბუნებრივ გარემოში



Uncontrolled distribution of certain alien tree species such as *Paulownia tomentosa* and *Ailanthus altissima*, on the other hand, poses a threat to the country's natural (including flood plain) forests. Detailed studies are needed to assess the potential threats from certain invasive tree species in Georgia.

From Georgia only few articles are available reporting and discussing four invasive animal species in Georgia (Shoniya et al., 2011; Japoshvili et al., 2013; Mumladze&Paposhvili, 2016; Shvelidze 2016; Japoshvili, et al., 2017; Tarkhnishvili, et al., 2017). Undoubtedly, there are large gaps in our understanding on species invasion trends, their effects on native fauna and future research needs.

INSTITUTE OF ZOOLOGY



- Zoological studies in Georgia were launched in 1932 with the establishment of the Transcaucasian Zoological Sector, later to become the Georgian branch of the USSR Academy of Sciences. In 1941, it was transformed into the Institute of Zoology of the Georgian Academy of Sciences. Since then the Institute has focused its activity on three main fields:
- Fundamental study of Georgia's fauna;
- Practical application of research results;
- Educational activities
- Since 2009, the Institute has constituted an organizational unit of Ilia State University

<https://iliauni.edu.ge/en/iliauni>



Project : Biodiversity of Freshwater Molluscs of Georgia

There is a progressively increasing demand for freshwater services In Georgia. Among the groups of freshwater organisms, molluscs (Mollusca) are the most vulnerable to environmental changes.

The aim of this 3-year project is to study a freshwater mollusc fauna of Georgian inland waters, including:

- a) An extensive countrywide inventory of all kind of mollucs species
- b) Clarification of the taxonomy and systematics using modern integrative approach
- c) Developing thorough distribution database for each mollusc species
- d) **Develop DNA barcodes for some range restricted and endemic species**
- e) Study the biogeographic and phylogeographic patterns of the distribution and diversity of freshwater molluscs of Georgia

A close-up photograph of a large number of seashells and shells of various sizes and colors, including dark brown, light brown, and white, scattered across a light-colored, textured surface. The shells are densely packed, creating a complex pattern of organic shapes and textures. The lighting is soft, highlighting the different textures and colors of the shells.

Thank you for your attention