Azerbaijan National Academy of Sciences

INSTITUTE of BOTANY

Brief insight into investigations on biodiversity at the Institute of Botany

Dr. Rashad SALIMOV

www.botany.az

resad_selimov@gmail.com

Trends of the Institute of Botany research for the last decades

I. The study of biodiversity, conservation principles and ways, rational use of flora in Azerbaijan

- Problem: Plant taxonomy, documentation, protection and assessment of biological diversity of Azerbaijan

II. Molecular-genetic and physical-chemical bases of biological processes and biotechnologies

- Problem: Fundamental bases of biological productivity

Changes in the structure of the Institute

1936

- Establishment of the Institute of Botany

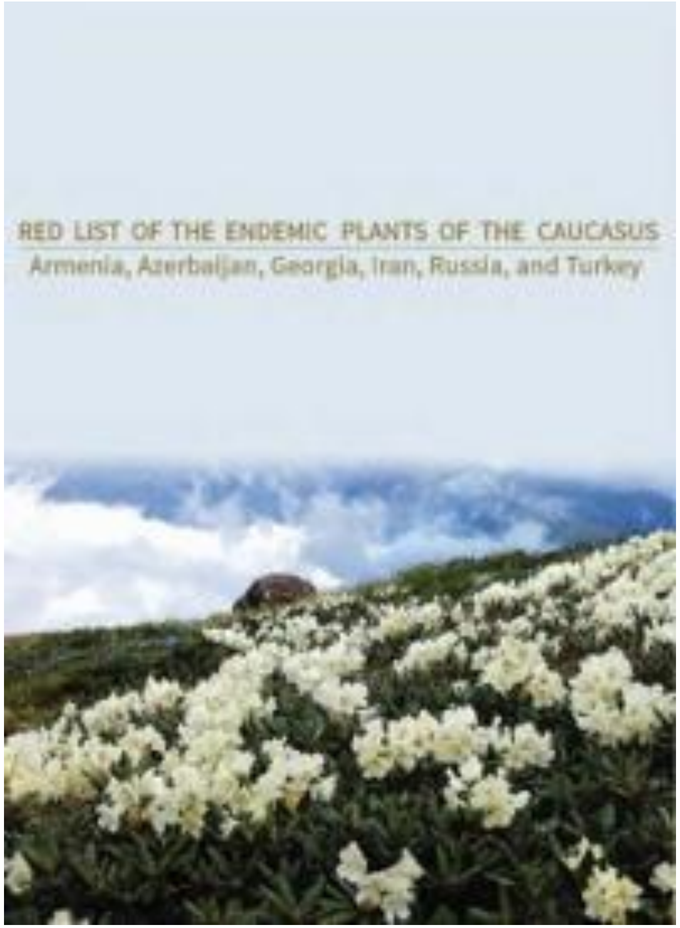
2016

- On the basis of the Department of Fundamental Problems of Biological Productivity, the Institute of Botany was established at the Institute of Molecular Biology and Biotechnology

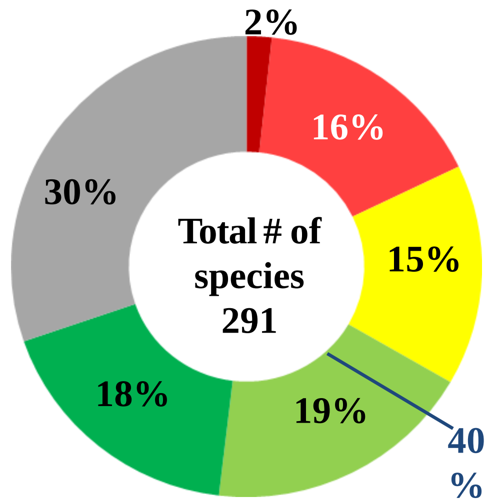
Some international projects of the Institute of Botany on plant biodiversity & conservation

- **2014-up to present** — "World flora online"
- **2014-2015** — Digitization of the type specimens stored in the Herbarium Foundation (GPI)
- **2013-up to present** — "Saving the Caucasus flora" (MSBP)
- **2012-up to present** — "Development of methods for the conservation of plant diversity in the Caucasus" (BGBM)
- **2007-2008** — "Plant Conservation in the Caucasus Protected Areas – identification of Important Plant Areas to meet the 2010 target" (IUCN)
- **2007** — "Survey and status assessment of potentially threatened Pyrus sp. in the Caucasus"(IUCN)
- **2006-2009** — "Coordination and Development of Plant Red List Assessmentsfor Caucasus Biodiversity Hotspot" (MBG, CERP)
- **2006-2008** — "Environmental security: monitoring of fungi associates and disease survey of some hardwood species in Azerbaijan" (Ayova State University, STCU)

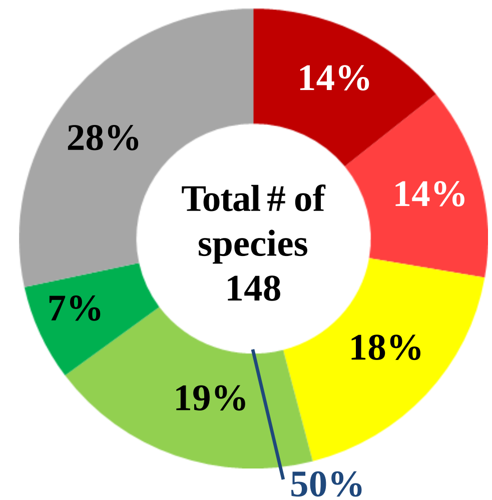
RED LIST of the ENDEMIC PLANT SPECIES of the CAUCASUS (2013)



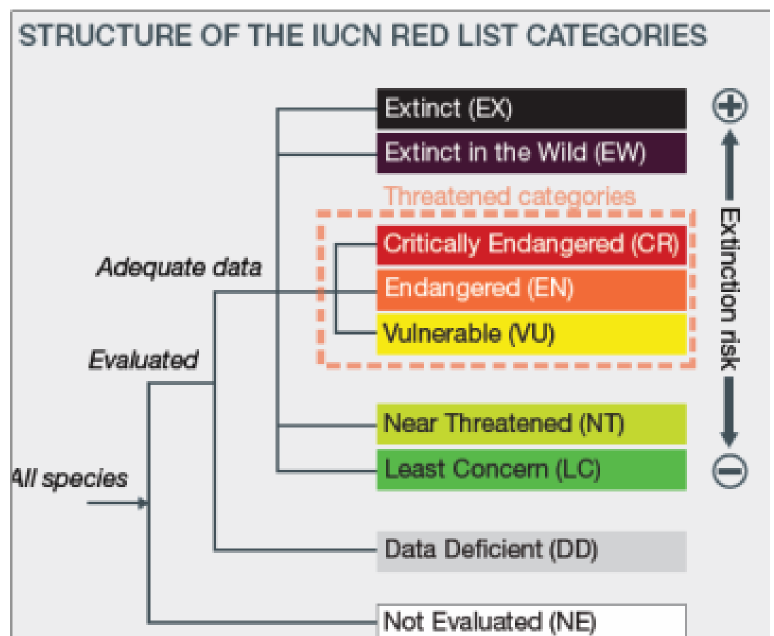
200 national and
950 Caucasian endemic
species of Azerbaijan
flora were assessed



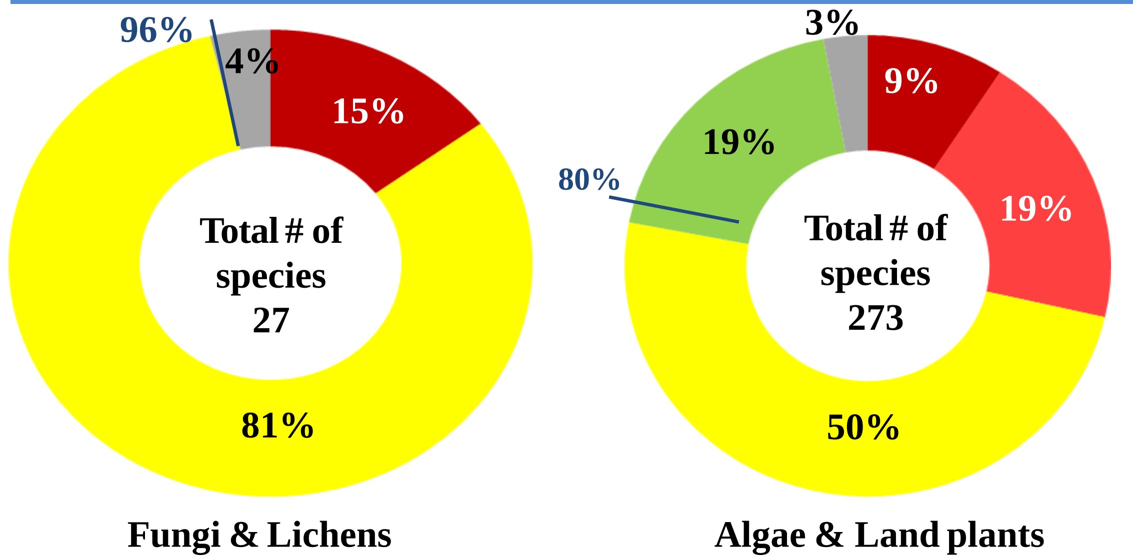
Caucasian endemic species

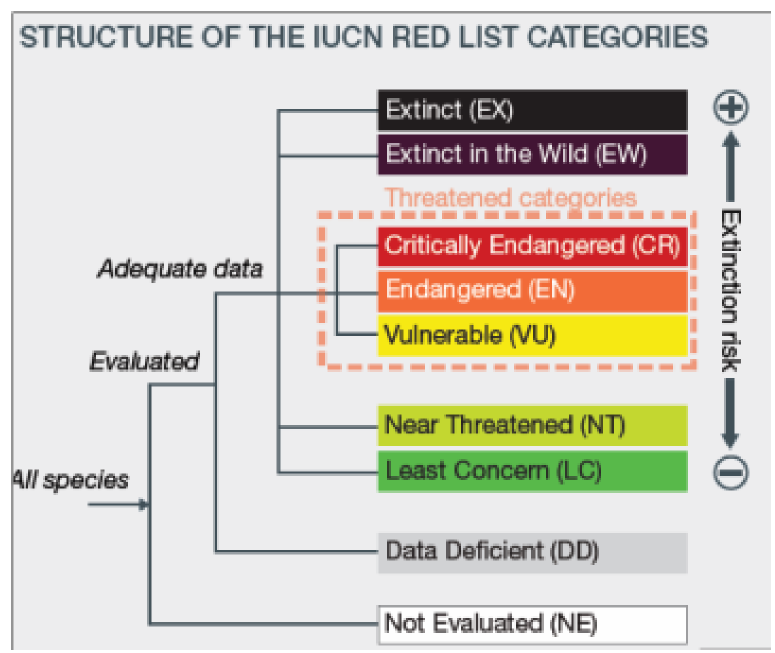


National endemic species



PLANT & FUNGI SPECIES in the RED BOOK OF AZERBAIJAN (2013)





125 families, 930 genera,
>4500 species
Red List Assessment
for 300 evaluated taxa

Caucasus Plant Biodiversity Initiative,

BGBM, 2009

Caucasus Plant Biodiversity Initiative, II phase meeting

Tbilisi , Georgia, 2017

Molecular evolutionary research on selected taxonomic groups

PhD Elmira Maharramova
MS Ayyub Mutallimov

To determine the proper genesis and endemism origin of some disputable species of Azerbaijan flora

Due to spontaneous hybridization with *Gleditsia triacanthos, the* rare and endemic relict tree *Gleditsia caspia* seems to be seriously endangered.

Herbarium Foundation of the Institute of Botany

Herbarium BAK was organized in 1936.

Contains about 600,000 sheets of cryptograms and phanerograms:

- **150 families**
- **1000 genera**

Develop Tools
for the Plant Diversity Conservation of the South Caucasus
(2nd phase)

https://www.grida.no/resources/7908

Pyrus L.

Scutellaria L.

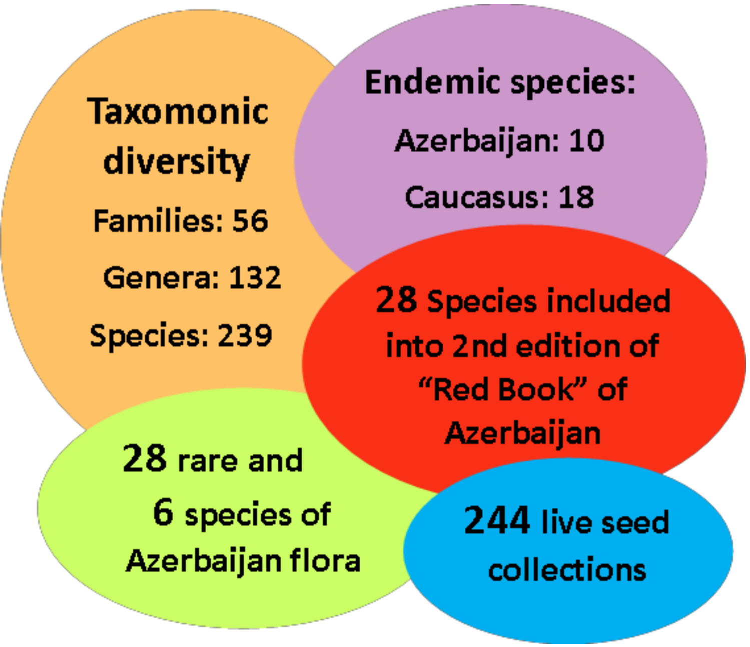
VolkswagenStiftung

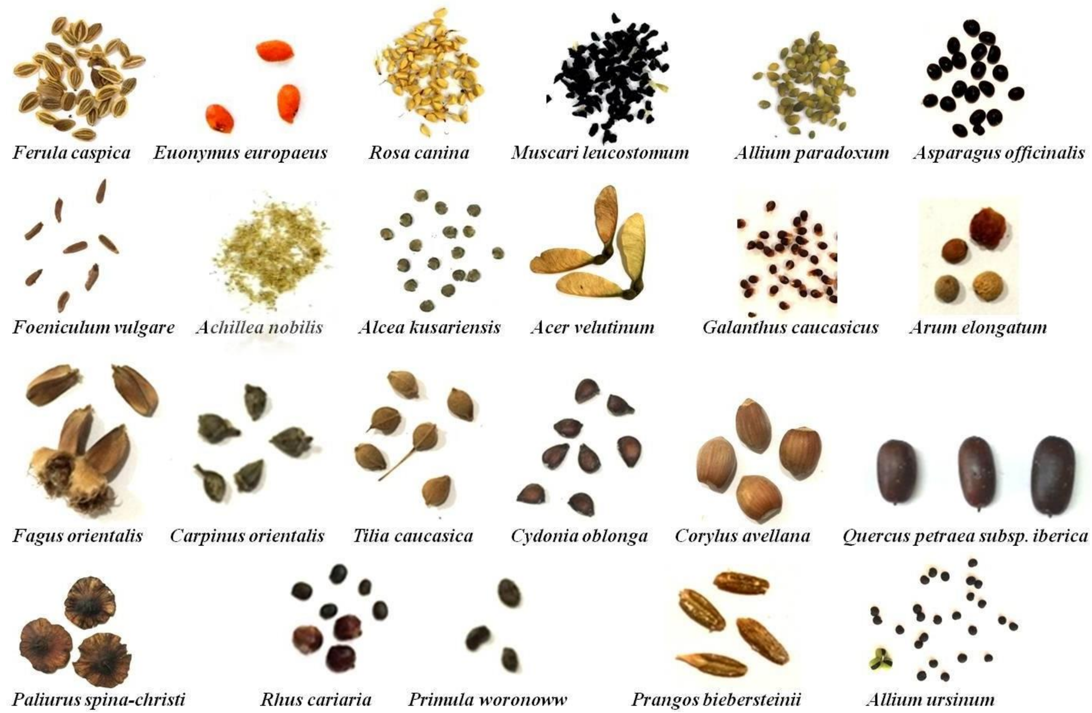
AZƏRBAYCAN MİLLİ ELMLƏR AKADEMİYASI
BOTANİKA İNSTİTUTU

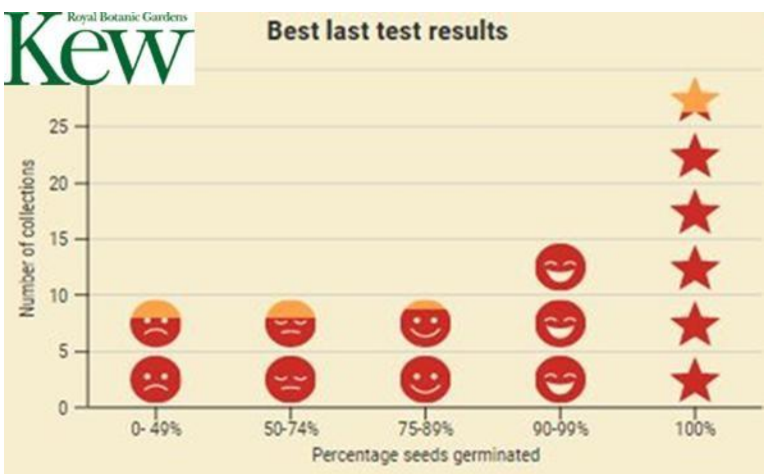
BG BM Botanischer Garten & Botanisches Museum Berlin

Freie Universität Berlin

Millenium Seed Bank Partnership: Saving the Caucasus flora
Project: Azerbaijan wild species collection – 2013-2017



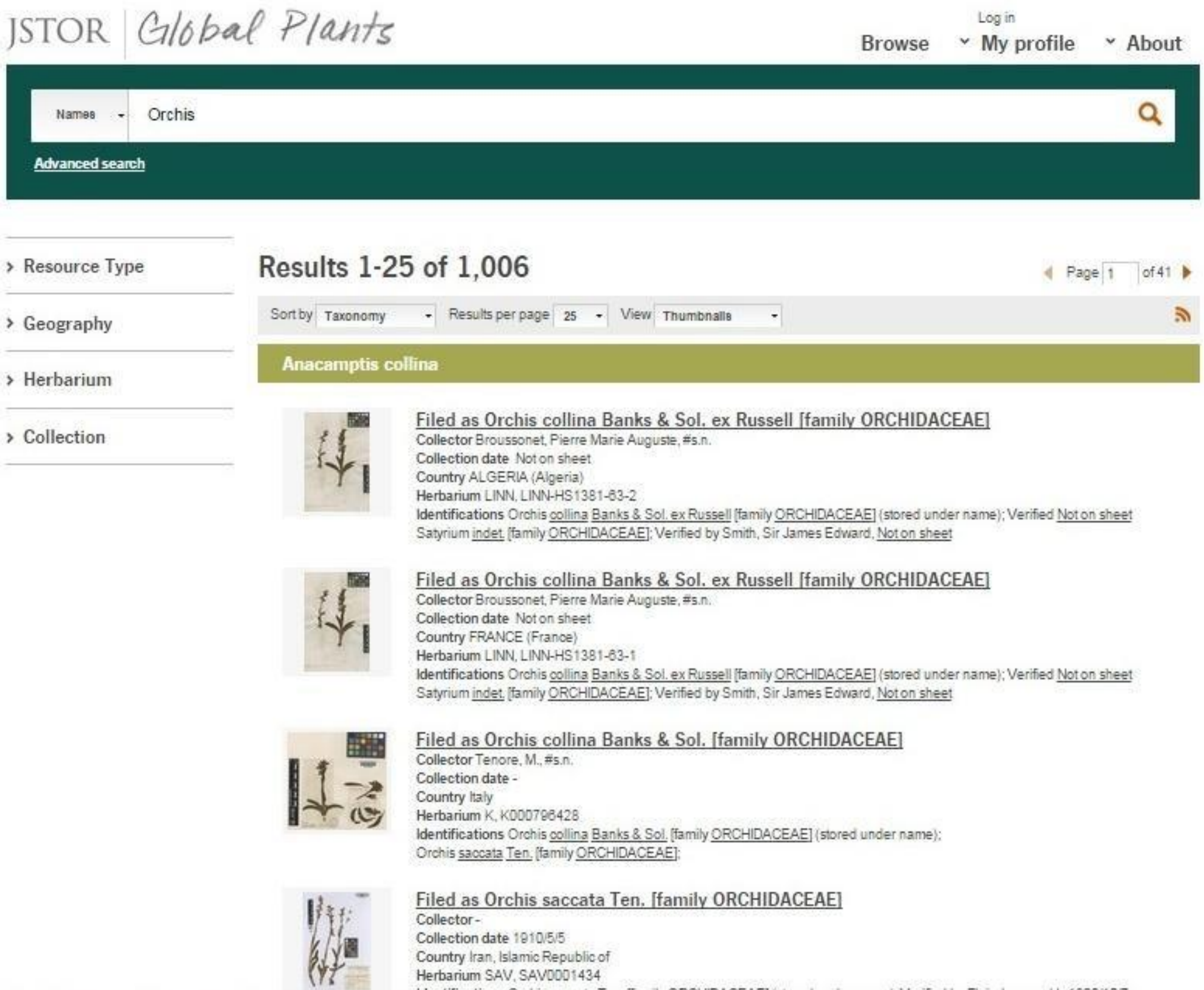




Azerbaijan National Academy of Sciences
Institute of Botany

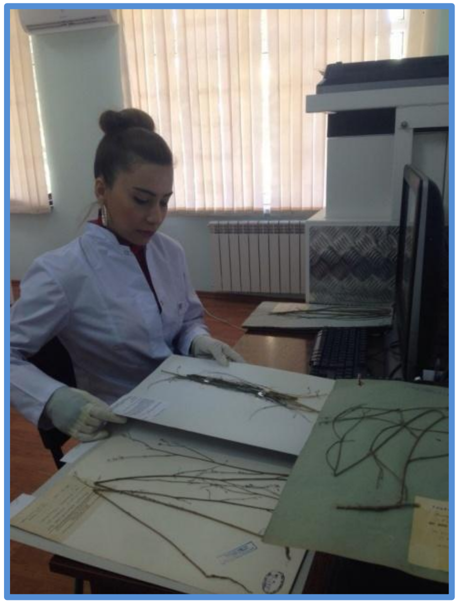
MILLENNIUM SEED BANK PROJECT Kew

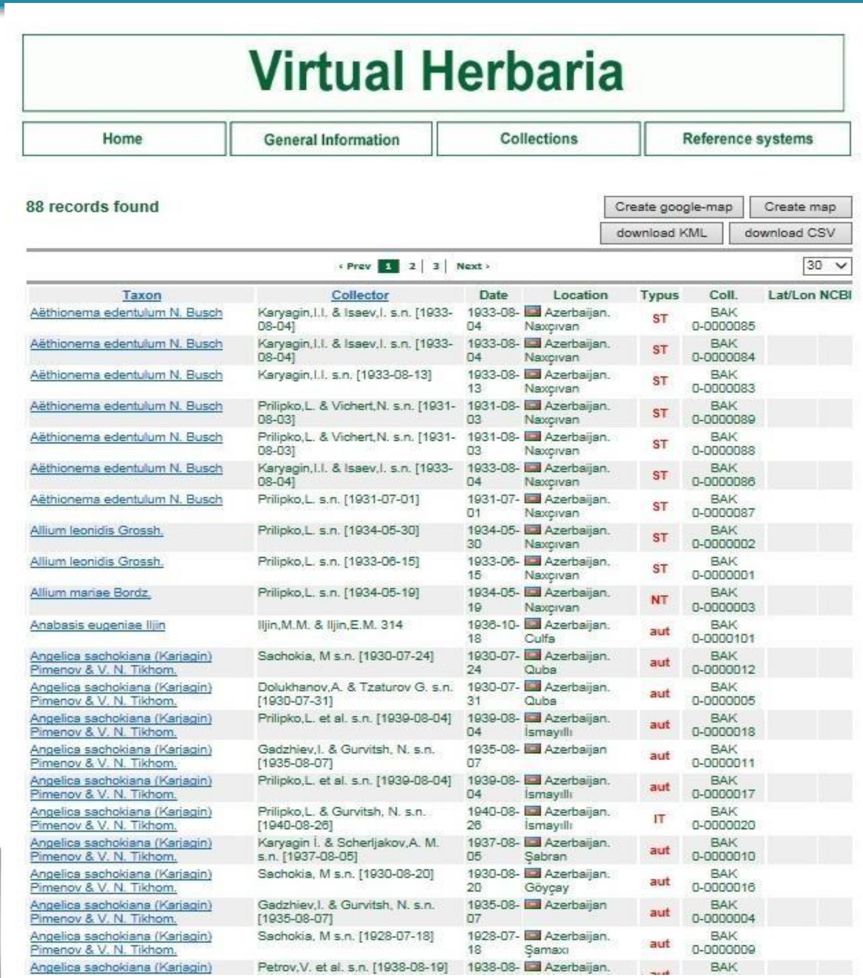
Digitization of type specimens - Global Plants Initiative (GPI) Database



Support by Andrew W. Mellon Foundation (USA)

Biodiversity informatics





Virtual Herbaria

Home | General Information | Collections | Reference systems

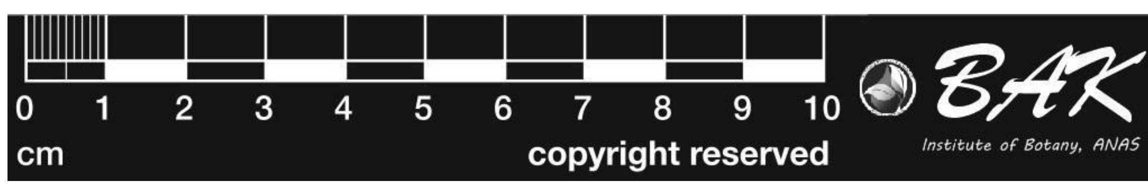
88 records found

Create google-map | Create map | download KML | download CSV

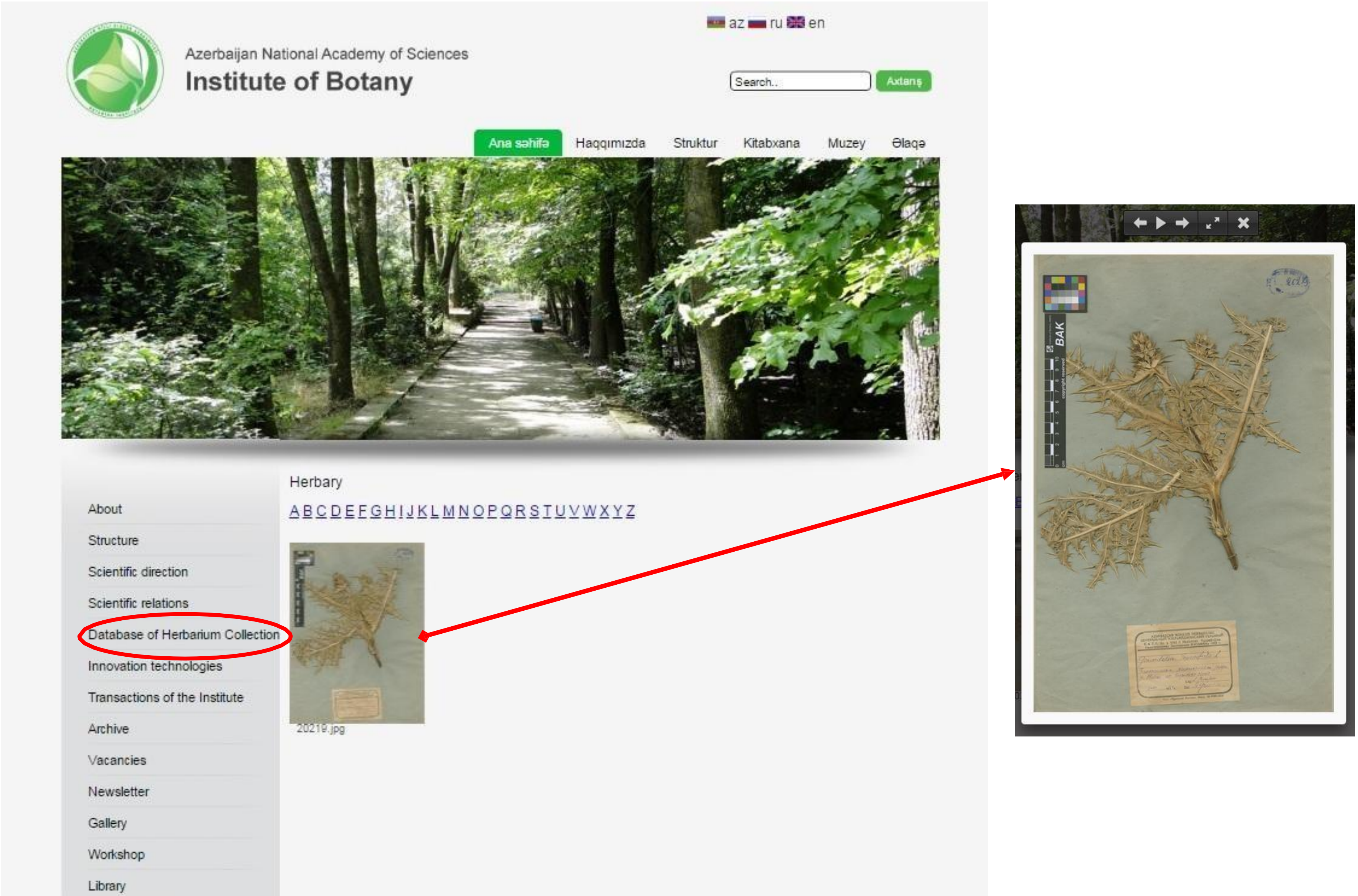
‹ Prev 1 | 2 | 3 | Next › 30

Taxon	Collector	Date	Location	Typus	Coll.	Lat/Lon	NCBI
Aëthionema edentulum N. Busch	Karyagin,I.I. & Isaev,I. s.n. [1933-08-04]	1933-08-04	Azerbaijan. Naxçıvan	ST	BAK 0-0000085		
Aëthionema edentulum N. Busch	Karyagin,I.I. & Isaev,I. s.n. [1933-08-04]	1933-08-04	Azerbaijan. Naxçıvan	ST	BAK 0-0000084		
Aëthionema edentulum N. Busch	Karyagin,I.I. s.n. [1933-08-13]	1933-08-13	Azerbaijan. Naxçıvan	ST	BAK 0-0000083		
Aëthionema edentulum N. Busch	Prilipko,L. & Vichert,N. s.n. [1931-08-03]	1931-08-03	Azerbaijan. Naxçıvan	ST	BAK 0-0000089		
Aëthionema edentulum N. Busch	Prilipko,L. & Vichert,N. s.n. [1931-08-03]	1931-08-03	Azerbaijan. Naxçıvan	ST	BAK 0-0000088		
Aëthionema edentulum N. Busch	Karyagin,I.I. & Isaev,I. s.n. [1933-08-04]	1933-08-04	Azerbaijan. Naxçıvan	ST	BAK 0-0000086		
Aëthionema edentulum N. Busch	Prilipko,L. s.n. [1931-07-01]	1931-07-01	Azerbaijan. Naxçıvan	ST	BAK 0-0000087		
Allium leonidis Grossh.	Prilipko,L. s.n. [1934-05-30]	1934-05-30	Azerbaijan. Naxçıvan	ST	BAK 0-0000002		
Allium leonidis Grossh.	Prilipko,L. s.n. [1933-06-15]	1933-06-15	Azerbaijan. Naxçıvan	ST	BAK 0-0000001		
Allium mariae Bordz.	Prilipko,L. s.n. [1934-05-19]	1934-05-19	Azerbaijan. Naxçıvan	NT	BAK 0-0000003		
Anabasis eugeniae Iljin	Iljin,M.M. & Iljin,E.M. 314	1936-10-18	Azerbaijan. Culfa	aut	BAK 0-0000101		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Sachokia, M s.n. [1930-07-24]	1930-07-24	Azerbaijan. Quba	aut	BAK 0-0000012		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Dolukhanov,A. & Tzaturov G. s.n. [1930-07-31]	1930-07-31	Azerbaijan. Quba	aut	BAK 0-0000005		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Prilipko,L. et al. s.n. [1939-08-04]	1939-08-04	Azerbaijan. İsmayıllı	aut	BAK 0-0000018		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Gadzhiev,I. & Gurvitsh, N. s.n. [1935-08-07]	1935-08-07	Azerbaijan	aut	BAK 0-0000011		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Prilipko,L. et al. s.n. [1939-08-04]	1939-08-04	Azerbaijan. İsmayıllı	aut	BAK 0-0000017		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Prilipko,L. & Gurvitsh, N. s.n. [1940-08-26]	1940-08-26	Azerbaijan. İsmayıllı	IT	BAK 0-0000020		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Karyagin İ. & Scherljakov,A. M. s.n. [1937-08-05]	1937-08-05	Azerbaijan. Şabran	aut	BAK 0-0000010		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Sachokia, M s.n. [1930-08-20]	1930-08-20	Azerbaijan. Göyçay	aut	BAK 0-0000016		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Gadzhiev,I. & Gurvitsh, N. s.n. [1935-08-07]	1935-08-07	Azerbaijan	aut	BAK 0-0000004		
Angelica sachokiana (Karjagin) Pimenov & V. N. Tikhom.	Sachokia, M s.n. [1928-07-18]	1928-07-18	Azerbaijan. Şamaxı	aut	BAK 0-0000009		
Angelica sachokiana (Karjagin)	Petrov,V. et al. s.n. [1938-08-19]	1938-08-	Azerbaijan.	[illegible]	BAK		

More than 15000 herbarium specimens were added to Virtual Herbarium



http://www.botany.az



Some international projects of the Institute of Botany on plant biodiversity & conservation

- **2014-up to present** — **"World flora online"**
- **2014-2015** — **Digitization of the type specimens stored in the Herbarium Foundation (GPI)**
- **2013-up to present** — **"Saving the Caucasus flora" (MSBP)**
- **2012-up to present** — **"Development of methods for the plant diversity conservation in the Caucasus" (BGBM)**
- **2007-2008** — **"Plant Conservation in the Caucasus Protected Areas – identification of Important Plant Areas to meet the 2010 target" (IUCN)**
- **2007** — **"Survey and status assessment of potentially threatened Pyrus sp. in the Caucasus"(IUCN)**
- **2006-2009** — **"Coordination and Development of Plant Red List Assessmentsfor Caucasus Biodiversity Hotspot" (MBG, CERP)**
- **2006-2008** — **"Environmental security: monitoring fungi associates and disease survey of some hardwood species in Azerbaijan" (Ayova State University, STCU)**

Conservation of flora diversity and its sustainable use is the main direction of the Institute of Botany (IB) investigations

ipbes
Science and Policy
for People and Nature

246 successful applications – 16 selected

Deliverable 2(b): Regional/subregional assessments on biodiversity and ecosystem services

Deliverable 2(c): Global assessment on biodiversity and ecosystem services

ipbes UNEP UNESCO FAO UNDP

Main scientific directions

- Study of molecular mechanisms for electrochemical and metabolic transformations of solar energy in photosynthesis
- Evaluation of molecular mechanisms for plant tolerance to abiotic and biotic factors
- Comparative study of the organization and expression of eukaryotic genomes
- Refinement and validation of macromolecular structures
- Elucidation of ways to solve problems of agriculture and human health using methods of molecular biology and cell biotechnology

International Cooperation

- Institute of Molecular Biology and Cambridge University (United Kingdom)
- Fraunhofer USA Center for Molecular Biotechnology and Delaware University
- US Agricultural Department (USDA), Agricultural Research Center
- Pusan National University of South Korea
- Bordeaux and Avignon Centers of the French National Institute for Agricultural Research
- French Institute of Vegetable Sciences (CNRS)
- National Research Council of Italy (CNR), Institute for Sustainable Plant Protection (IPSP)
- Ankara, Mustafa Kemal Ataturk and Akdeniz Universities in Turkey
- Brisbane University in Australia
- Institute of Fundamental Problems of Biology and Plant Physiology of the Russian Academy of Sciences
- Moscow State University
- Institute of Molecular Biology and the Institute of Cell Biology and Genetic Engineering of the Ukrainian National Academy of Sciences
- Institute of Breeding and Genetics of the National Academy of Agrarian Science of Ukraine

ANAS Genetic Resources Institute

Main scientific directions

- Inventory and passportization, collection, introduction, restoration, reproduction, evaluation according to the international descriptors of the cultivated plants and their wild ancestors, valuable, rare, threatened and endangered genus, species, aborigine varieties and forms, the local breeds of agricultural animals
- Study of scientific issues related to *ex situ* and *in situ* conservation; research on revealing resistant, high productive accessions with high quality and involving them into breeding
- Creation of new varieties and breeds and coordination of the activities of the different institutions in relevant fields

Goitered Gazelle *(Gazella subgutturosa)* in the Southern Caucasus

Objective of the research: To resolve taxonomic status of species; estimate the population genetic structure

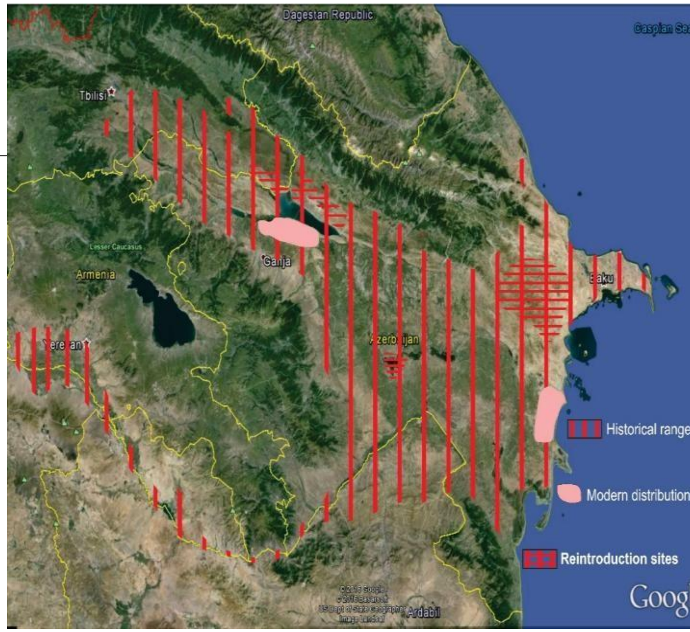
The main research areas are
Shirvan National Park,
Korchay State Nature Reserve,
Ajinohur steppe in Azerbaijan and
Vashlovani National Park in Georgia.

The main purpose of research is to study the population structure, isolation and effective population size in natural and newly reintroduced gazelles groups.

Collecting genetic samples in the field

Reintroduction of gazelles to their historical ranges

Historical and modern (cross line) range of Goitered Gazelle in the South Caucasus.



Reintroductions areas of Goitered Gazelle in the Southern Caucasus

1- Ajinohur –Sarija Steppe, 2- Gobustan plateau, 3- Mil steppe, 4- Bozdag ridge, 5- Eldar steppe, Vashlovani NP (Georgia) 6- Shahdili peninsula

150 individuals were re-introduced in Azerbaijan
10 individuals in Vashlovani NP
Source © WWF-Azerbaijan

Some invasive plant and animal species

Amaranthus albus L.,
A. retroflexus L.,

Conyza canadensis (L.) Cronquist

Xanthium strumarium L.

X. Spinosum

Arundo donax L.

Digitaria violascens Link

Phytolacca americana L.

Ailanthus altissima (Mill.) Swingle

Acroptilion repens

Ambrosia artemisiifolia

Solanum rostratum

comb jelly Mnemiopsis leidyi

American racoon (Procyon lotor)

Fall webworm (Hyphantria cunea)

THANK YOU FOR **ATTENTION!**