

## QUESTIONNAIRE

(\*) – mandatory fields

	<b>Details about organisation</b>
<b>* Organisation name</b>	A.M.Gorkiy Urals State University
Organisation acronym	USU
<b>* Organisation Activity Type</b> (RES - Research, HE - University, SME - Small and Medium Enterprise, IND - Industry, OTH - Other)	HE
<b>* Keywords of main research areas</b>	Basic and applied research in the humanities, natural sciences, sociology and economics
<b>* Head of organisation (first name, family name)</b>	Mr. Dmitry Bugrov
<b>* Post code</b>	620083
<b>* Country</b>	Russia
<b>* City</b>	Ekaterinburg
<b>* Street, House</b>	Prospect Lenina, 51
<b>* Telephone (+ country &amp; city codes)</b>	+7 343 350-75-12
<b>* Fax (+ country &amp; city codes)</b>	+7 343 350-75-12
<b>* E-mail</b>	<a href="mailto:Svetlana.Sokolova@usu.ru">Svetlana.Sokolova@usu.ru</a>

<b>* Description of organisation and its research achievements for the last five years (~ 5000 signs)</b>
<p>Main scientific schools of Urals State University were founded in 50th – 70th of the 20th century:</p> <ul style="list-style-type: none"> <li>• Theory of stability of movement and non-linear oscillations (founder – Prof. I.G. Malkin),</li> <li>• Mathematic theory of optimal control (founders – Prof. E.A. Barbashin and academic N.N. Krasovsky),</li> <li>• Algebraic structures (founder – Prof. P.G. Kontorovitch, initiator of creating the Ural Mathematic Society),</li> <li>• Theory of ill-posed problem (founder – corresponding member of the USSR Academy of Sciences V.K. Ivanov),</li> <li>• Solid-state physics, physics of magnetism (founder – academic S.V. Vonsovsky),</li> <li>• Thermal physics and molecular physics (founder – Prof. P.E. Suetin),</li> <li>• Chemistry of polymers (founder – Prof. A.A. Tager),</li> <li>• Chemistry of solids (founder – Prof. V.M. Zhukovsky),</li> <li>• Stellar astronomy (founder – Prof. K. A. Barkhatova),</li> <li>• Byzantine studies (founder – Prof. M. Y. Suzumov)</li> <li>• Toponymic school (founder – corresponding member of the Russian Academy of Sciences A.K. Matveev) is the leading school in Russia in onomastics and dialect etymology,</li> <li>• Art studies (founder – corresponding member of USSR Academy of Sciences B.V. Pavlovsky, present head –member of the Russian Federation Fine Arts Academy S. V. Golynetz),</li> </ul>

- History of philosophy (founder – corresponding member of the Russian Academy of Sciences M.N. Routkevitch),
- Modern Russian language (founder – Prof. E.V. Kouznetsova),
- Ural and Siberian archeology (founder – Prof. V.F. Gening),
- History of International Relations (founder – Prof. I.N. Chempalov),
- Ecology (head – academic of the Russian Academy of Sciences V.N. Bolshakov),
- Industrial botany (founder – rector of the university in 1963 – 68, corresponding member of the USSR Academy of Sciences B. P. Kolesnikov),
- Archeographics (founder – Prof. R.G. Pikhoya).

In December 1959 calculating center of Urals State University started its work (head – D.Y. Sharaev). One of the major results of its work was the creation of simulator for cosmonauts which allowed for successful docking of spaceships (1986).

In 1970 Botanic Garden of Urals State University was founded.

President of the Russian Academy of Sciences Y.S. Osipov is the graduate of Urals State University of 1959.

In September 1987 by the decree of the Ministry for higher education Urals State University was awarded with the status of higher educational institution training personnel for the Ural branch of the USSR Academy of Sciences.

Urals State University is the head contractor for many large projects of the federal program “Integration” (since 1997). Four higher educational institutions and 15 research and academic institutions of the Ural region work together within the framework of these projects.

In 1997 Urals State University Internet Center started its work. In the same year student computer society was created.

Scientific Union “USU-Ural Branch of the Russian Academy of Sciences” 11 specialized councils on doctoral and candidate theses; 54 post-graduate specialties; 10 doctoral specialties.

Besides chairs academic and research work is conducted at two research institutes: Institute of physics and applied mathematics and Institute of Russian culture. Research branches of the University are: astronomic observatory, Botanical garden, biological station, 10 topical laboratories, open access Internet center and cryogenic station.

University is famous for its many active research and scientific expeditions, such as Ural-Siberian, Crimean, Novgorod archeological expedition, Ural archeographic expedition, ecological and physiological, geobotanical, toponymic and folklore expeditions, that are of interest to many international scientists.

Urals State University is the only higher educational institution in the Ural Federal Area that was given the status of academic organization.

Within the framework of the Russian – American program “Basic research and higher education” (BRHE) an educational – academic center “Advanced materials” was created at the University (together with the Urals State Technical University)

Within the framework of the Russian – American program “Inter-regional research in social sciences” Interregional institute of social sciences was created at the university and is actively working in the field of studying different aspects of tolerance in civilizations.

Cryogenic station of the University produces liquid nitrogen and helium for academic research at low temperatures (up to 0,4 Kelvin degrees) and for work conducted by students.

<b>Contact Information</b>	
<b>* Contact person (first name,</b>	Ms. Natalia Kutlunina

family name)	
* Department / Laboratory	Botanic Department
* Position	Associated Professor
* Qualification and research experience	Ph.D., participant and leader grants of the Russian Foundation of Basic Research. Author of more than 30 publications
* Post address (house, street, city, code, country)	44/4-69, Posadskaya st., Ekaterinburg, 620086
* Telephone (+ country & city codes)	+7 (343) 2616048 +7 (343) 2330609
* Fax (+ country & city codes)	(343)3507401
* E-mail	<a href="mailto:natakutlunina@mail.ru">natakutlunina@mail.ru</a> Natalya.Kutlunina@usu.ru

	<b>* Please, use "X" to indicate the scientific area/s of your potential project</b>
CHEMISTRY	
SOCIAL AND HUMAN SCIENCES	
ECONOMIC SCIENCES	
ENGINEERING SCIENCE	
ENVIRONMENT	X
AGRICULTURE AND FOOD	
HEALTH	
MATHEMATICS	
INFORMATION SCIENCE	
PHYSICS	
NANOTECHNOLOGIES	
ENERGY	
TRANSPORT	
SPACE	

<b>* Summary of potential research project envisaged hosting of European researcher for the period of between 1 and 2 years</b>
<b>Origin, speciation and settling of allotriploid <i>Tulipa riparia</i> Knjasev, Kulikov et Philippov (<math>2n=3x=36</math>)</b>
The genus <i>Tulipa</i> L. comprises more than 100 species (Hall, 1940; Botschantzeva, 1962) in modern classifications – 55 species (Raamsdonk & De Vries, 1995). The genus has historically been subdivided into two subgenera, <i>Tulipa</i> ( <i>Leiostemones</i> Boiss.) and <i>Eriostemones</i> Boiss., which are clearly distinguished by morphological characteristics (Raamsdonk & De Vries, 1992, 1995). <i>Tulipa</i> species are mainly diploids (2 sets of 12 chromosomes, $2n=2x=24$ ) and rare tetraploids ( $2n=4x=48$ ), triploids (mainly Darwin hybrids) and even hexaploids (Botschantzeva, 1962, Petrova, 1977; Kroon, Jongerius, 1986). Majorities of polyploids belong to subgenera <i>Eriostemones</i> . <i>T. biebersteiniana</i> (subg. <i>Eriostemones</i> ) may be diploid and rare tetraploid (Botschantzeva, 1962; Kroon, Jongerius, 1986). Autopolyploidy is the main kind of polyploidy in tulips (Botschantzeva, 1962; Danelia, 1989). Natural hybridization in genus <i>Tulipa</i> isn't mentioned while artificial is very common. Species of the same section can often be crossed while crosses between species of different sections are difficult and usually not successful (Raamsdonk et al, 1995).

*Tulipa riparia* Knjasev, Kulikov et Philippov was separated from *T. biebersteiniana* (Knyasev et al, 2001) on the South Urals on the basis of various characters. Predominance of pink flowered plants, morphological difference, triploid level and sterility were among them. Both *T. biebersteiniana* and *T. riparia* freely produce daughter bulbs. We examined genetic structure of population of *T. riparia* with pink and yellow flowers on Kuryak River by analyzing a pattern of allozyme variation (Kutlunina et al, 2005). We discovered the presence of two great mixed clones. It suggests the great role of vegetative propagation in *T. riparia* and the main role of the river in spreading of bulbs. Chromosomal analysis was used to determine level of ploidy in different clones (Kutlunina et al, 2005). All samples of population with both pink and yellow flowers are triploids ( $2n=36$ ). Karyotype can be divided into three sets in 12 chromosomes, 24 chromosomes from 36 form pairs, the rest differ from them significantly. Differential staining of chromosomes using GC-specific fluorochrome Chromomycin A3 and AT - specific fluorochrome DAPI was made to confirm or disprove autopolyploid nature of *T. riparia*. The first and second sets have similar banding patterns while the third differs greatly. So banding pattern and specific morphology show hybrid nature of *T. riparia*.

It is known four other species of genus *Tulipa* on the South Urals: *T. biflora* (sec. *Biflores*), *T. biebersteiniana* and related to it *T. patens* and *T. scitica* (all sec. *Eriostemones*). Introgressive hybridization might have been at the end of Ice Age where all three species of sec. *Eriostemones* spread and their areals were contiguous.

**The aims of the project:**

- To study the evolution history of *T. riparia* by assessing intra- and interspecific sequence variation at noncoding chloroplast DNA loci and nuclear rDNA ITS sequences in *T. riparia* and its presumed progenitor species *T. biebersteiniana*, *T. patens* and *T. scitica*. Sequences from nuclear genes, such as the nuclear ribosomal ITS not only allow the identification of parents, but may provide information about the age of the hybrid *T. riparia*. Intraspecific variation of cpDNA makes it possible to study allopolyploid evolution because it may indicate repeated origin of hybrid. So in result of this study we can identify parental species of *T. riparia* and maternal parent, suggest single or repeated origin of introgressive hybrid end to estimate the age of the species.
- To determine trend of ploidy level in gradient north-south, east-west using flow cytometry. It allows to estimate a limit in *T. riparia* settling and to discover transitional area

	<b>Please, confirm your agreement on data publication and dissemination</b>
<b>I agree with the publication of the data</b> on the web-site <a href="http://www.inco-ecca.net">http://www.inco-ecca.net</a> , and <b>dissemination</b> among Mobility National Contact Points of the EU MS and AC <b>(YES / NO)</b>	YES