How to use the initiatives of the Russian Government in the field of science for vegetation biodiversity study in the Russian Arctic (propositions of Russian partners)

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Russia is a big country with the arctic region covering vast territories... and great transport network problems in the North.

Financing?
Жители Арктики
Investigators of vegetation and flora of the Arctic
North-Eastern Federal University (Yakutsk)

Ufa     Moskau     Sankt-Peterburg     Tomsk     Syktyvkar
AVA – Russia – Forever!

Vicious circle

? How
Russian policy in the sphere of science and technology

- Since 2010, the Government of the Russian Federation has been conducting the policy of attraction of the leading scientists of the world to participate in scientific investigations and establishment of research centres of the world level in the territory of our country.

- The grants, 3-5 millions USD each, have allowed to found a number of laboratories of world level in the leading higher educational institutions.

- A network of federal and research universities have been established all over Russia.
- Each university gets a special-purpose support up to 70 million USD for conducting research works in all scientific fields.
Priority in supporting certain scientific directions in Russia

- Today, the investigations in physical and technical scientific fields are best supported in Russia, as well as remote regional branches (Far East and Siberian). Among natural sciences, the medical-genetic and molecular biology studies are supported as well.

Scientific directions of grant winners in 2011

<table>
<thead>
<tr>
<th>Directions</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics, physical nanotechnologies</td>
<td>18</td>
</tr>
<tr>
<td>Genetics, molecular biology, biotechnology, bionanotechnologies, bioinformatics</td>
<td>15</td>
</tr>
<tr>
<td>Technical sciences, technical nanotechnologies</td>
<td>11</td>
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<tr>
<td>Math, informatics, telecommunications</td>
<td>11</td>
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</tbody>
</table>
Priority in supporting certain scientific directions in Russia

- However, there is a possibility to attract attention to important research activities concerning the Arctic.
- And this should be done regardless of possible results in grant competition.

<table>
<thead>
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<tbody>
<tr>
<td>Earth sciences, geodesy, cartography, GIS, ecology, ecophysiology</td>
<td>8</td>
</tr>
<tr>
<td>Medicine</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry and chemical nanotechnologies</td>
<td>4</td>
</tr>
<tr>
<td><strong>Biology</strong></td>
<td>2</td>
</tr>
<tr>
<td>Economics</td>
<td>2</td>
</tr>
<tr>
<td>Psychology</td>
<td>1</td>
</tr>
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Russian botanical investigations that covered territory from Kola Peninsula to Chukotka have yielded a net of thoroughly studied local floras and vegetation. A great contribution to this was made by Komarov Botanical Institute, RAS (Dr. B.A. Yurtsev and Dr. N.V. Matveyeva headed floristic and geobotanical studies respectively). However, the vast territory of the Russian Arctic (especially its Asian part) is still promising for collaborative investigations.

Koroleva et al., 2013
• Participation of the world’s leading specialists in comparative floristics and geobotany will allow:
  - to increase the level of knowledge of plant communities and floras of the Russian Arctic,
  - to raise financing both for the arrangement of unified database of plant communities and plant conservation issues.
To solve the AVA tasks, the initiative of the Government of the Russian Federation provides great possibilities for additional financial support of investigations, including fields work arrangement in remote areas of the tundra zone in Russia.
1. Requirements to contestants.

1.1. Requirements to higher educational institutions and research institutions

1.1.1. The participants of the contest should be:

a) **Russian higher educational institutions** of any category, including non-governmental;

b) Research institutions of state scientific academies: Russian Academy of sciences, Russian Academy of medicine sciences, Russian Academy of agricultural sciences, Russian academy of architecture and construction, Russian Academy of fine arts, Russian Academy of education;

c) State scientific centres of Russian Federations (47).
1.1.3. Higher educational institution or research institution are obliged to:

a) contribute own extra-budgetary funds no less then 25% of grant size provided by the Russian Government;

b) Provide with rooms and equipment to conduct a research work;

c) Conclude permanent or fixed-term employment agreements with the leading scientists and members of a research team;

d) Pay a salary to the members of a research team for conducted research work considering the qualitative and quantitative equivalents of contribution of each member of a team.

1.2. **Requirements to leading scientists**

1.2.1. Participants can be both Russian and foreign specialists taking a leading position in a certain scientific field.
1.2.5. In 2013-2015, a leading scientist personally (being present at a higher educational or research institution) heads a Laboratory and conducted research work for no less than 4 month (in total) in each calendar year.

2. **Requirements to members of a research team**

a) A research team working at a higher educational institution should consist of no less than 2 Candidates of Science, 3 post-graduate students and 3 students studying at a higher educational institution where the research work is conducted;

b) A research team working at a scientific institution should consist of no less than 3 Candidates of Sciences and 4 post-graduate students studying at a scientific institution where the research work is conducted.
## Recommendations to experts who will review the applications for the grants of the Government of the Russian Federation

<table>
<thead>
<tr>
<th>№</th>
<th>Criteria</th>
<th>Criteria requirements</th>
<th>Conditions (requirements) to get the highest score (5 points)</th>
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<tr>
<td></td>
<td><strong>1. Scientific achievements and working experience of a leading scientist</strong></td>
<td></td>
<td>The following requirements are obligatory: 1) during the last 3 years, a leading scientist publishes no less then <em>1-2 papers</em> in leading international magazines annually; 2) the citing index, or H-index, of a leading scientists is no less than <em>40%</em> of the world leading specialists in a given field of science</td>
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<tr>
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<td>Criteria</td>
<td>Criteria requirements</td>
<td>Conditions (requirements) to get the highest score (5 points)</td>
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<td>3.</td>
<td>State and development dynamics of an organization, expected characteristics of a laboratory to be established within the project’s framework</td>
<td>Number of papers, monographs, conference proceedings prepared by the team during the last 3 years, as well as the level of magazines, publishing houses; number and level of Web-of-Science and Scopus magazines; expected number of papers in Web-of-Science or Scopus magazines to be published during 2 years</td>
<td>At least 3 of 4 requirements are met: 1) For the last 3 years the team published no less then 4-6 papers annually in international magazines; 2) For the last 3 years the team made no less than 3-5 presentations at key international conferences; 3) The team has specialists with citing index or H-index no less then 60% of indices of the leaders in Russian science; 4) During 2 years of the project, the team expects to publish or to submit no less then 4-6 papers in international Web-of-Science or Scopus magazines, including the papers in the leading international magazines</td>
</tr>
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Yakutsk-Moskau-
Krakow – Moskau-Yakutsk=
29 000 – 30 000 Rubles

Yakutsk-Chersky-
Yakutsk=
48 000 Rubles

1 Euro = 40 Rubles
Numerous areas within the landscape have been documented for plant community studies. These include

- Alexandra Land (Aleksandrova, 1983)
- Bolshevnik Island (Matveyeva, 2006)
- Sivaya Maska (Katenin, 1972)
- Wrangel Island (Kholod, 2007)

These areas have published or available relevees, indicating thorough study and characterization of plant communities.
History of the Russian Arctic vegetation studies
1990s: State policy and science

An optimal way to the Arctic for geobotanists

A scientist. Distracted…

… but nice
### Grant awardees in 2011

<table>
<thead>
<tr>
<th>Central higher educational institutions</th>
<th>Federal universities</th>
<th>Regional higher educational institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>44</strong></td>
<td><strong>6</strong></td>
<td><strong>28</strong></td>
</tr>
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</table>

- Regional higher educational institutions: 36%
- Federal universities: 8%
- Central higher educational institutions: 56%
Current situation

We have a small but unique chance to help ourselves to solve the problems concerning the study of the Russian Arctic vegetation
Title of proposed project: Vegetation cover diversity of the Russian Arctic

- When composing the grant application, focus on large, global-scaled, targets
One of the conditions specified by the Government of the Russian Federation is co-financing of investigations from organization’s extra-budget no less then 25%, as well as the presence of young people (undergraduate and post-graduate students, candidates of sciences) in the research team.

Most preferable institution that should apply for the grant is the M.K. Ammosov North-Eastern Federal University (Yakutsk) which has already agreed to contribute 25% of its extra-budget.
The list of key executants should consists of the leading specialists from higher educational and research institutions that have a great experience and large database for the whole Russian Arctic

- Komarov Botanical Institute RAS (Saint-Petersburg)

- Saint-Petersburg State University

- Institute of Biology of the Komi Scientific Centre, Ural Branch of RAS (Syktyvkar)

- Central Siberian Botanical Garden of Siberian Branch of RAS (Novosibirsk)

- Polar-Alpine Botanical Gardern-Institute of the Kolsky scientific centre of RAS (Apatity)

- Institute for Biological Problems of Cryolithozone, Siberian Branch of RAS, et al.
In case we win the mega-grant, what are the profits for AVA?

- **Arrangement of the unified database within the AVA project’s framework.** As a result, thousands of relevés will be accepted internationally, both already **published** and just collected during field seasons in new regions.
The Russian partners plan to establish a Youth database centre where students and young specialists will enter the geobotanical and floristic data.

In case we win the mega-grant, what are the profits for AVA?
In case we win the mega-grant, what are the profits for AVA?

- The mega-grant supported investigations are expected to summarize the syntaxonomy of the Arctic vegetation including the Russian part.
- GIS projects will be created for mapping given Arctic territories. Approaches of geobotanical regionalization of the Russian Arctic will be elaborated.
In case we win the mega-grant, what are the profits for AVA?

- Published data on plant communities will be in open access to a wide circle of like-minded people. Collected raw field data (non-published) will never be lost.

- The studies that have such a long and glorious history and have yielded splendid results will never stop.
The team of authors of this presentation proposes all the interested partners to discuss the key questions on mega-grant application compilation (for autumn 2013) within the AVA workshop.

Discussion of this issue is to be continued.
Фото: П.А.Гоголевой
Типичный ландшафт Анабаро-Оленёкской ПП
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Фото: П.А.Гоголевой
Thank you for your attention!

Let's go ahead in the study of the Russian Arctic!

On, people, on!!!
Proposition

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