

**ISCKMC 2020**  
**International Scientific Congress «KNOWLEDGE, MAN AND CIVILIZATION»**  
**NIGHT OF MUSEUMS IN PETER THE GREAT BOTANICAL**  
**GARDEN**

Yuri Kalugin (a)\*, Larisa Musinova (b)  
\*Corresponding author

(a) V.L. Komarov Botanical Institute of Russian Academy of Sciences, St. Petersburg, Russia, ykalugin@binran.ru

(b) V.L. Komarov Botanical Institute of Russian Academy of Sciences, St. Petersburg, Russia, larmuss@rambler.ru

### Abstract

Global attention to the botanical gardens as places of informal environmental education is growing from year to year. The article examines annual international event the Night of Museums in one of the oldest gardens of Russia, i.e. Peter the Great Botanical Garden of the BIN RAS in St. Petersburg. The objective of this Project is to introduce the latest knowledge in the field of botanical science, environmental study, as well as to involve young people in the problems of preserving the planet's biodiversity. The authors show how the topic of the event announced by the organizers in 2019 is being implemented in the Garden through various activities with the involvement of visitors. The data on the attendance of the event in St. Petersburg and in the Botanical Garden from 2017 to 2019 is provided. Using the method of indirect survey, the motives of the participants of the Night of Museums, who chose the Garden as a platform for leisure, entertainment and education, are investigated. One of the areas of work is a survey of guides participating in the event, who subjectively rated visitors in the process of communication at the Night of Museums as "lacking in knowledge" in the field of ecology and plant biology.

2357-1330 © 2021 Published by European Publisher.

*Keywords:* Botanical garden, Night of Museums, education, motives, visitors, ecology



## 1. Introduction

The botanical gardens are excellent platforms for the implementation of informal education. Goal 4 of the Global Strategy for Plant Conservation is to “promote education and awareness of plant diversity, its role in sustainable livelihoods and its importance on earth”. As the latest BGCI’s 10th International Congress on Education in Botanic Gardens in Warsaw (Poland 2018) summarized, the gardens successfully exchange practical tools and technologies in the field of education. Besides, the topic Impact Assessment is relevant, which is dedicated to the study of the impact of educational work of botanical gardens on visitors.

Currently there are about 2000 botanical gardens in the world. A comprehensive and generally accepted definition of botanical gardens is given by Wyse Jackson: Botanical gardens are institutions that store documented collections of living plants for the purposes of research, conservation, demonstration and education (Wyse-Jackson, 1999). The responsibility for environmental education and plant conservation issues has long been in the focus of the world’s botanical gardens (Willison, 1997). The kindergarten specialists have created their own programs with a variety of methods and forms of educational activities.

As stated in the International Agenda for Botanic Gardens in Conservation, the botanical gardens receive 150 million visitors annually, and environmental education has become the main concern of the gardens. Guided by priority directions in the field of sustainable development with their goals, the botanical gardens of Europe are engaged in the preservation of endangered plants (Maunder et al., 2001). Gardens are also developing different approaches, such as “Citizen science,” where people collaborate with scientists to develop monitoring of the impact of environmental change on biodiversity (Pocock et al., 2018). Gardens provide people with opportunities for harmonious interaction with nature and are even able to heal from stress when therapeutic elements are combined with nature and garden environment (Adevi & Lieberg, 2012).

There are more than 200 botanical gardens in Russia. The function of education of students of natural science departments is based on the work of university gardens and such activity is intervened into formal education. Botanical gardens of the Russian Academy of Sciences, such as Peter the Great Botanical Garden of the BIN RAS (St. Petersburg, Russia); the Botanical Garden-Institute, FEB RAS (Vladivostok, Russia); the Botanical Garden of the Ural Branch of the Russian Academy of Sciences (Yekaterinburg, Russia), etc., along with the functions defined in the Charter of the organization provide opportunities for life long education.

The Director of Tver Botanical Garden (Russia) Yuri Naumtsev believes that currently it is our duty to develop, such reserachand educational programs that will make botanical gardens a “showcase” of both botanical achievements and research results, as well as an environment, which would disclose real problems of biodiversity conservation and nature protection for ordinary people (Naumtsev, 2018).

The traditional forms of biological and environmental education in Russian and botanical gardens around the world are presented as the environmental actions, games, expositions, excursions, trainings, etc. However, these forms can be both one-time events and can be implemented in a larger format.

This format can be considered the annual international event the Night of Museums, which helps familiarize participants with museum treasures and provides opportunity for knowledge and skills development.

People have started to master the event relatively recently. For the first time, the Night of Museums was held in Berlin in 1997 and was known as the Long Night of Museums (Lange Nacht der Museen). In 1999, following the initiative of the Ministry of Culture and Communications of France, an action called the Spring of Museums was held. In 2001, 39 countries of Europe and America took part in this action; in 2005, the Spring of Museums changed into a Night of Museums. Later, the events were given themes, i.e. Five Senses, Secret Revelations or History and Stories. In addition to the main events, fairs, theatrical performances, masquerades and concerts were organized. Thanks to the event, both “children and adults have the honor to admire the abundance of cultural wealth and unexpected facets of museums of art, history, folk traditions, science in a festive and friendly atmosphere” (Spotlight on: the European Night of Museums).

In 2002, Krasnoyarsk Museum Center was the first in Russia to offer visits of the museum at night. Botanical gardens, as a rule, rarely participate in the Night of Museums, but the first participation of the Peter the Great Botanical Garden in 2011 attracted public attention. The result was a leading position in terms of attendance (Tab. 01). Along with the Peter the Great Botanical Garden, the Artillery Museum, the Leningrad Zoo and the Peter and Paul Fortress became the leaders in terms of attendance in St. Petersburg.

**Table 1.** Participants of the Night of Museums event in St. Petersburg (Russia), 2017-2019

Year	Topic	Number participants		
		Number of museums, galleries, exhibition halls and libraries	Total, people	Botanical Garden
2017	The program is dedicated to the Year of Ecology in Russia	115	Over 92 000	11 500
2018	Metamorphosis	122	Over 95 000	12 038
2019	Elements	120	Over 100 000	14 775

The implementation of almost any theme of the Night of Museums event is possible due to a great collection of plants and intellectual resources. Educational activities of the Night of Museums campaign in the Botanical Garden of Peter the Great are characterized by different forms and age of people. In 2011, the Garden provided visitors only with an overview of specialized greenhouse exhibitions and walks in the arboretum park. In recent years, various interactive events have become more popular: family quests and logic tasks. For example, the theme Elements in 2019 in the Garden was implemented through the following activities:

1. Display of the collection of subtropical plants; a story about the mineral elements necessary for the growth and development of plants, a story about taxonomy and its elements, a story about plants as elements of our environment (we see them in nature, in an apartment and in an office); a story that the plants are a source of various nutrients necessary for our body (story about proteins, fats and carbohydrates).

2. Observation of plants representing regions of the planet: Australia, New Zealand, North and South America, Europe, Asia, Africa, which in turn are constituent elements of the planet Earth.
3. Display of plants that “seek to confuse us”; the story of plant organs as constituent elements of a living organism (leaf, stem, bud, flower, fruit – everything seems obvious, but sometimes it is difficult to distinguish one from the other).
4. Observation of the temporary educational exhibition How Pants and Shirts Grow. Demonstration of plants as elements for making fabrics, ropes, sails, hats, etc. Quest for youth as part of the exhibition.
5. Creative workshops.
6. Family quest in the park Landscape elements of the Peter the Great Botanical Garden.

Thus, now the visitors to the Night of Museums get involved in a set of educational events: 1) the exposition of the greenhouse route; 2) quest in the park-arboretum; 3) 2–3 exhibitions; 4) workshops. Music and theatrical shows perfectly complement the event. Among the visual methods, the most popular are the demonstration of greenhouse, park and museum objects (plants and other elements that help to implement the theme of the Night of Museums) and the method of illustrations (display of paintings, photographs, posters). Practical methods are presented by creative workshops and classes aimed at practical skills development. Through their own sensory experience, cognition is activated, and it is important that a person acquires knowledge, skills and abilities during his own social activity. At all stages of the Night of Museums event, the reliability of the information provided is significant. This can be useful feedback between participants and employees in the social network, which allows you to answer questions online or after the event.

The Night of Museum format seems to be extremely interesting for several reasons:

- a. mass character and youth orientation of this event makes it necessary to invent new forms of education;
- b. employees, participating in the work of various platforms, raise topical issues of academic science, thereby realizing the directions of the World Strategy for Biodiversity Conservation
- c. garden specialists pursue their own cognitive interests.

## **2. Problem Statement**

Since we have not found data on the motivation of participants in the international action the Night of Museums in the botanical gardens of the world, we tried to study the motives of visitors to the botanical gardens during their daily activities (without any actions) in our work. There are studies in this area, but almost none in Russia.

Recently, the studies of the motivations of visitors to botanical gardens indicate that people are often guided not by education, but by the interests of recreation and leisure. Thus, the Connell (2004) studied “the features, behavior and motivation of 546 visitors to 13 gardens in the UK”. The categories of visitors were as follows: age over 40 (84.6 %), high-income visitors (80.2 %), garden owners (94.8 %). The reasons for visiting the garden were concerned with having a good time and having some rest. Other interests of the study groups were visits to cultural and natural sites such as historic houses. Data

presented by Connell (2004) showed that visitors to the Botanical Gardens in England were often white, middle-class and elderly, and the reasons given by the majority for visiting them were as follows: “have a good time, enjoy the world the gardens offer, relax, support wellness through a leisurely walk; and few had looked for educational or security-related activities” (Tab. 02).

**Table 2.** Visitors and reasons for visits of three botanic gardens in the UK (Connell, 2004)

Name of Botanic Garden	Visitors	Reason for visit
Westonbirt (National Arboretum)	Disabled people (16 %); High Society (84 %); over 55 (53 %); children and young people (2 %)	–
Royal Botanic Garden Edinburgh	Over 55, women; retired (48 %)	Explore the gardens (78 %); look at plants (79 %)
Royal Botanic Gardens Kew	White, middle class	Enjoy the gardens (50 %); learn about plants or gardens (15 %); learn on issues of conservation (8 %)

The research from California Polytechnic State University using end goal theory has shown that a botanical garden and plants can be significant garden attributes. The garden and plants encouraged participants to “learn new experiences” and “promote stress relief and relaxation,” which ultimately helped to achieve an improved quality of life (Wassenberg et al., 2015).

Mt Coot-tha Botanic Gardens concluded that garden visitors are less interested in plant conservation and less motivated than visitors to museums, zoos, aquariums, heritage sites, natural areas and tourism activities. Ballantyne et al. (2008) list the most important motives for visiting the Botanical Gardens as “having fun, admiring the garden landscape, spending time with family or friends, and enjoying nature. Comparing visitors to Mt Coot-tha Botanic Gardens and National Park, scientists concluded that motives were similar: “recovery” was important, while “learning and discovery” was less important.

Our first studies of the motives of visitors to Peter the Great Botanical Garden (St. Petersburg, Russia) were published in 2016. The research was based on the formula of modern sociocultural Three D animation: *délassement* (French for relaxation, rest) → *divertissement* (French entertainment) → *developpement* (French development). The participants of the survey were asked to answer the following question: “What is a visit to the Botanical Garden for you?” Besides, they were asked to vote for the sequence of these concepts according to the degree of their significance. The results of the survey showed that the majority of the audience over 18 years old considers visiting the Botanical Garden as a way of “relaxation” – relieving nervous and emotional stress – 39.8 % of 284 people, and visitors under 18 years old considered the “development” in the first place – 25 % of 405 people (Musinova & Volchanskaya, 2016).

In 2019, the range of motives was slightly changed and it was asked to describe the Garden as a place of “conservation”, “research”, “beauty of nature”, and “benefits for humans”. Out of 1165 people the majority – 79.48 % – answered that they associate the Garden “with beauty”, followed by “research” – 13.48 %; 3.52 % of respondents voted for the “benefit” and “protection” (Kalugin et al., 2019). A direct

survey was conducted among 77 parents who came with their children on an excursion. The majority of respondents – 40 % – consider the botanical garden as “a place for education and relaxation”, 21 % – only “as a place for education”, none of the respondents considers the garden “as a place for entertainment”. Nevertheless, 21 % of respondents voted for three options – a place for education, a place for relaxation and a place for entertainment.

In 2018, specialists of the Botanical Garden of Yekaterinburg (Russia) Ovsyannikov and Kiseleva (2018) conducted a study among the participants of the Night of Museums, reflecting the age structure and interests. The participants’ age under 25 – 17.6 %; 25-45 years old – 48.6 %; 45 years and older – 15.5 %; visitors with a child -18.2 %. Most of all, the tourists were interested in historical and cultural facts about plants (63 % of visitors). This is the etymology of the Russian and Latin names, mythical legends or real stories associated with this plant both in the national historical and cultural field (folklore) and in modern associative perception of plants, the context in the literal and figurative meaning in colloquial speech (jargon, phrases and words out of use). They also noted an interest in the symbolism of plants in the life of a person, ethnic group, society, state, and the world. The area of practical use of plants is less interesting to visitors (57 %): as a food resource, everyday life, medicine, industry, and crafts. To a lesser extent, the visitors were interested in specialized scientific information (43 %): taxonomy, habitat, physiology, morphology, flowering, fruiting, symbiotic relationships. The least interested information was about agricultural cultivation (39 %) and the potential for using plants in landscape design, indoor or greenhouse breeding, gardening in the Urals.

Experts from Yekaterinburg conclude that there is a wide informative spectrum of information in excursions to the Night of Museum and about a shift in semantic accents depending on the prevailing age category of people in the group of tourists (Ovsyannikov & Kiseleva, 2018). Thus, botanical garden specialists are puzzled by the problem of visitor motivation. The problem area can be viewed in two dimensions:

- a. A visitor, having an opportunity to visit more than 120 museums in the city on the Night of Museums faces a serious choice: where to go, how to spend this time with benefit, whom to invite, etc.
- b. It is important for an organization participating in the Night of Museums events to study the motive of the visitor for the purpose of competent management development and organization of educational events.

### **3. Research Questions**

1. The motivation of Night of Museums visitors in the Botanical Garden was studied for their desire to “relax outside”, “the opportunity to gain knowledge”, “to take beautiful photos”, “to have fun” and “to acquire skills during workshops”.
2. We analyzed the age of visitors and their motives when visiting official website of the Botanical Garden during the Night of Museums event in 2019.
3. Due to the need to study the environmental awareness of visitors, the surveys were conducted among guides who rated visitors in the process of communication in the Night of Museums

event against three criteria: actively interested visitor with insufficient knowledge; inert, uninterested visitor; environmentally conscious and interested visitor.

#### 4. Purpose of the Study

The research in the field of motives for visiting botanical gardens during the Night of Museum" is extremely scarce; therefore, it seems relevant to study issues in this area. The aim of the work was to study the activity, motives, age and ecological awareness of visitors to the Night of Museums event in the Peter the Great Botanical Garden.

#### 5. Research Methods

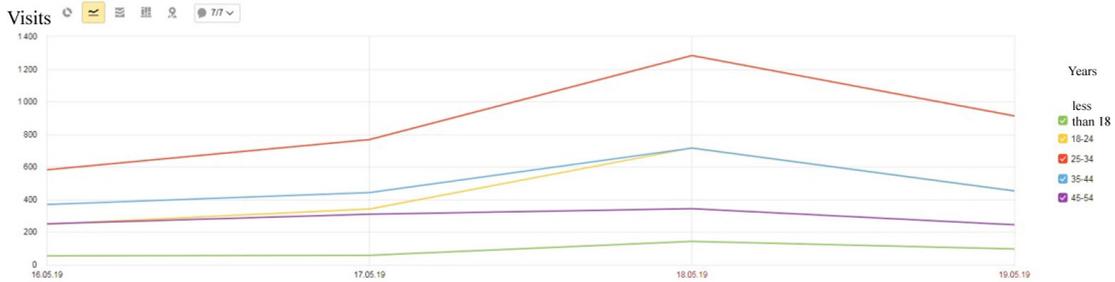
The main research methods were an indirect survey of participants in the Night of Museums event in the botanical garden, analysis of official website use, and a survey of guides participating in the event.

Such content of a social network as the VKontakte group (the Russian analogue of Facebook) Botanical Garden of the BIN RAS made it possible to interrogate 191 participants in 2019. The survey showed the similarity of the results of foreign studies of visitor motivation. The motivation to come to the garden for the Night of Museums was primarily the desire to “relax outside” – 42, 41 %, “the opportunity to gain knowledge” – 25, 13 %, “to take beautiful photos” – 12.04 %, “entertainment” (musical and theatrical shows) – 8.9 % and “the opportunity to acquire skills during workshops” – 4.19 % of visitors.

The indicators of activity and motivation of visitors to the website of the Botanical Garden of Peter the Great (Yandex. Metric counter) were studied. The age of people most interested in information in the period before the Night of Museums and during the Night of Museums from May 16 to May 19, 2019 on the website of the Botanical Garden of Peter the Great was analyzed. People aged 25–34 (3548 people) used the website most often. People under 18 years old (353 people) used the website less often (Tab. 03, Fig. 02 and 03). The peak of website visits was recorded on May 18 during the event the Night of Museums among visitors aged 25–34 – 1284 people (38.2 %) (Fig. 01 and 02).

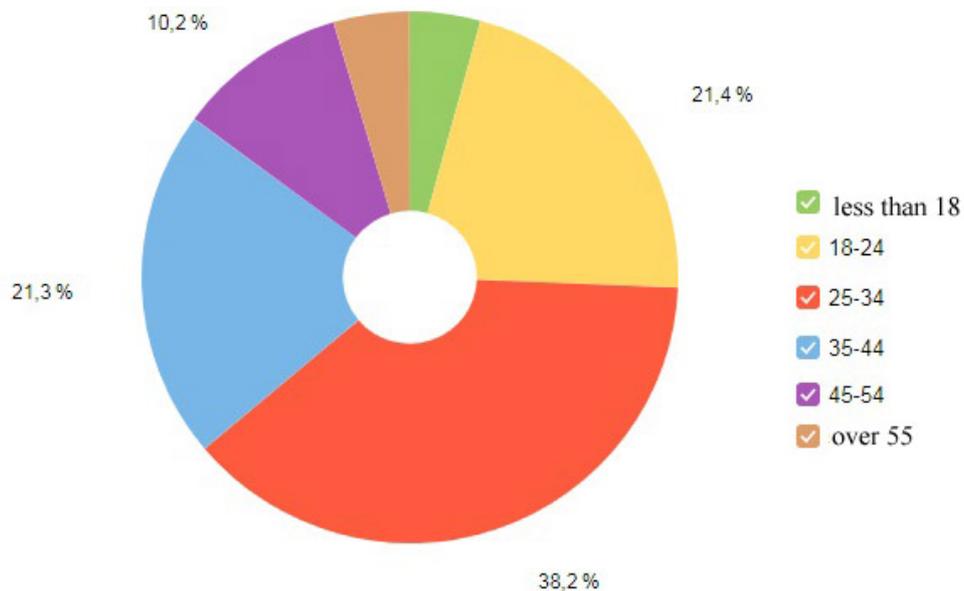
**Table 3.** Age of visitors using website from May 16 to May 19, 2019 and May 18, 2019

Age	Number of website visits, 6–19 May, 2019	Number of website visits, 18 May, 2019
25–34	3548 (37.9 %)	1284 (38.3 %)
35–44	1 981 (21.1 %)	715 (21.3 %)
18–24	1761 (18.8 %)	717 (21.4 %)
45–54	1 150 (12.3 %)	354 (10.6 %)
55 years old and above	580 (6.2 %)	154 (4.6 %)
under 18 years old	353 (3.8 %)	143 (4.3 %)
Total	9373	3357



**Figure 1.** Number of website visits of the Botanical Garden of Peter the Great by age in the period from May 16 to May 19, 2019 (the period before the Night of Museums and during the Night of Museums), Yandex. Metrica counter

## Visits

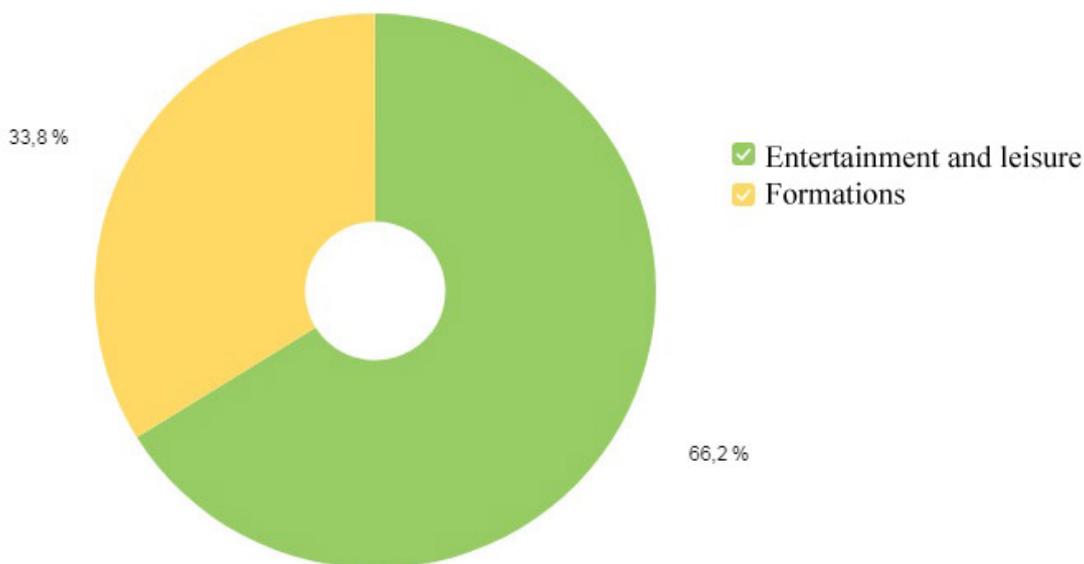


**Figure 2.** Visitor age accessing using website during the Night of Museums, May 18, 2019, Yandex. Metric counter

The analysis of the same period of time of long-term interests of visitors regarding the official website use of the Botanical Garden of Peter the Great showed the following: “entertainment and leisure” – 7 659 references and “education” – 3 922 references (Fig.03), i.e. 66, 2 % and 33.8 %, respectively (Fig. 04). The peak of references was registered in May 18, 2019 – 2 750 related to the “entertainment and leisure”, 1 407 related to the “education” (Fig. 03).



**Figure 3.** Diagram showing long-term interests (motives) of website visitors of the Peter the Great Botanical Garden from May 16 to May 19, 2019 (period before the Night of Museums and during the Night of Museums), Yandex. Metric counter



**Figure 4.** The ratio of motives of visitors who used website of the Botanical Garden of Peter the Great on the "Night of Museums, May 18, 2019, Yandex. Metrica counter

Employees of Peter the Great Botanical Garden, who have extensive experience in educational activities and who regularly take part in the Night of Museums event, were interviewed by us after the event in 2019. A total of 16 guides participated in the survey. The guides had to rate visitors from 1 to 3 in relation to plants. The description of the visitors included such characteristics as interactive activity, high awareness of botany and ecological literacy. The analysis of the results showed that the guides described them as “interested in ecology” – 22 %, “with insufficient knowledge and actively interested” – 49 %, “inert and not interested in anything – 29 % of the visitors. It should be mentioned that the guides first study the topic of the Night of Museums and prepare for their educational mission in advance. Their merits are most significant, because they are responsible for the effective delivery of information and subsequent motivation of the visitors.

## 6. Findings

1) A survey of participants of the Night of Museums in 2019 showed that the motivation to come to the Botanical Garden was primarily the desire to “relax outside” – 42.41 %, “the opportunity to gain

knowledge” – 25.13 %, the desire “to take beautiful photos” – 12.04 %, the desire “to entertain themselves” (music and theatrical shows) – 8.9 % and the opportunity “to acquire skills during workshops” – 4.19 % of visitors.

2) The analysis of visits of Peter the Great Botanical Garden website by people of different age, according to the Yandex. Metrica counter in the period before the Night of Museums showed that young people aged 25–34 are most interested in the website (which means the opportunity to actually visit the botanical garden) – 37.9 %. The least interested were people under 18 years old – 3.8 %. The peak of references was registered on the Night of Museums, May 18, 2019 by visitors aged 25-34 – 38.3 %.

3) The analysis of long-term interests of Peter the Great Botanical Garden website visitors in the period before the Night of Museums in 2019 according to the Yandex. Metrica counter showed the following: “entertainment and leisure” – 7 659 references, “education” – 3 922 references. The peak of requests was registered on May 18, 2019 – 2 750 – requests for “entertainment and leisure”, 1 407 – requests for “education”.

4) Employees of the Botanical Garden involved in the Night of Museums in 2019 provided the following estimation of visitors: 49 % – “with insufficient knowledge, actively interested visitors”; 29 % – “inert, uninterested visitors; 22 % – “environmentally friendly, interested visitors”.

## 7. Conclusion

Peter the Great Botanical Garden is an excellent platform for the international event the Night of Museums, covering a range of educational activities and providing opportunities for informal environmental education for people of all ages. The annual leading place among museums testifies to the permanent interest of the event participants in the Botanical Garden of Peter the Great. It is important that a person acquires knowledge and experience during his own social activity. Educational goals can motivate people to visit the Garden, but planning activities should take into account the different levels of plant and environmental awareness, values and motives of different groups of population.

We believe that the study in the field of such an important social event is necessary for its replication to other institutions that implement large educational projects.

## Acknowledgments

The work was carried out within the framework of the state assignment on the topic Collections of Living Plants of the Botanical Garden named after V.L. Komarov (history, current state, future of use), number AAAA-A18-118032890141 – 4.

## References

- Adevi, A. A., & Lieberg, M. (2012). Stress rehabilitation through garden therapy: A caregiver perspective on factors considered most essential to the recovery process. *Urban Forestry & Urban Greening*, 11(1), 51–58.
- Ballantyne, R., Packer, J., & Hughes, K. (2008). Environmental awareness, interests and motives of Botanic Gardens visitors: Implications for interpretive practice. *Tourism Manag.*, 29(3), 439–444.
- Connell, J. (2004). The purest of human pleasures: The characteristics and motivations of garden visitors in Great Britain. *Tourism Manage*, 25, 229–247.

- Kalugin, Y. G., Musinova, L. P., & Volchanskaya, A. V. (2019). Open Ground Collections of Saint Petersburg Botanic Garden for the Benefit of Botanic and Environmental Education. *Int. sci. and pract. Conf. AgroSMART – Smart solutions for agriculture, KnE Life Sciences*, 956–967.
- Maunder, M., Higgens, S., & Culham, A. (2001). The effectiveness of botanic garden collections in supporting plant conservation: a European case study. *Biodiversity and Conservation*, 10(3), 383–401.
- Musinova, L. P., & Volchanskaya, A.V. (2016). Community “Botanical Garden for Children” as a tool for an informational and educational environment. In *Botanical Gardens in the Modern World: Science, Education, Management. Mater. of the First Int. Sci. and Pract. Conf.* (pp. 52–57). Polygraphic Complex LLC.
- Naumtsev, Y. V. (2018). Introduction of plants in Botanical gardens – whether botany should be understood and accepted by ordinary people. In *Proc. of the XIV Congr. of The Russ. Botanical society and the Conf. Botany in the modern world. Vol. 2* (pp. 290–293). ALEF.
- Ovsyannikov, A. Yu., & Kiseleva, O. A. (2018). Experience of participation in the multicultural interdisciplinary project “Night of museums in Yekaterinburg-2018” in the Botanical garden of the of the Ural branch of RAS. In *Coll. of sci. papers of the State Nikitsky Botanical Garden* (pp. 234–236). Order of the Red Banner of Labor Nikitsky Botanical Garden – National Science Center of RAS.
- Pocock, M. J. O., Chandler, M., & Bonney, R. (2018). A vision for global biodiversity monitoring with citizen science. *Advan. in Ecolog. Res.*, 59, 169–223.
- Wassenberg, C.L., Goldenberg, M.A., & Soule, K.E. (2015). Benefits of botanical garden visitation: a means-end study. *Urban For. Urban Green*, 14(1), 148–155.
- Willison, J. (1997). Botanic Gardens as Agents for Social Change in Touchell. In *Conservation into the 21st Century Proc. of the 4th Int. Botanic Gardens Conservation Congr.* (pp. 339–344). Kings Park and Botanic Garden.
- Wyse-Jackson, P. S. (1999). *Experimentation on a large scale – an analysis of the holdings and resources of botanic gardens*. Botanic Gardens Conservation International.