Botanic Gardens in the Baltic Sea Region

The fifth international conference in

Latvia and Lithuania 27 – 30 September 2012

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List of participants, see Appendix.
Secretary: Lars-Erik Sojdelius

Session 1- 3, 27 – 28 Sept. Botanical Garden of the University of Latvia, Riga; Latvia University of Agriculture, Jelgava.

Arrival of the participants to the Botanical Garden of the University of Latvia (ULBG). Signe Tomsone, Anta Sparinska and other staff members of the garden guided the participants in the garden and in the new butterfly-house.

The ULBG covers an area of 15 ha and has a total number of 5354 taxa. It dates back to the year 1922 and is the oldest BG in Latvia. The annual member of visitors is estimated to approx. 50 000 (2010). The garden also runs a rhododendron breeding and testing nursery in Spilve, covering an area of almost 12 ha.

Total number of staff is 37 (2010). Entry to the garden requires an admission fee (normally 1,5 Lats, equivalent to 2 euros), but many categories of visitors are exempted, i.e. senior citizens, disabled persons, persons suffering from war injuries.

A butterfly-house has recently been erected in the garden – the initiative and funding comes (partly) from a private donor. Participants who visited the butterfly-house could enjoy the colour-brilliance of various butterfly species, mainly from South and Central America. It is notable that a visit requires a certain hardiness with the atmospheric conditions in the house! The temperature is kept at 30 degrees Celsius and the humidity is around 90 percent. See also session 2.2 below.

Bus transfer to Jelgava 27 Sept. afternoon.

1. Latvia University of Agriculture, Jelgava

Registration, poster session.

Welcome speeches by Asta Klimiene , Director of the Siauliau University Botanic Garden, Deputy State Secretary Jurijs Spiridonovs, Ministry of Environment and Regional Development, Peters Rivza, Latvian University of Agriculture, Andrejs Svilans, Director of the National Botanic Garden of Latvia, and Anta Sparinska, Director of the Botanical Garden of the University of Latvia.

The University is since 1936 located in an 18th century baroque palace, Jelgava Palace, which was originally the residence of the Duke of Courland and Semigallia.

1.2. Plenary sessions. Strategy of Botanical Gardens on Scientific Research, Education and Conservation of Local Flora.

Moderator Heiki Tamm.

1.2.1. Jette Dahl Möller presented the New Natural History Museum of Denmark and its recently restored botanic garden. The new museum, when finished, will be the largest and most ambitious museum constructed in Denmark in our time. The architect´s project was presented on May 31 this year. Only a minor part is overground. Underground tropical greenhouses will be an important feature of the museum. The project will bring together all sections of the museum that are now in separate buildings. The present Zoological Museum will move from its present location some 5 km from the new museum to merge with botany and geology. Financing is a joint venture by the University, the State and private funds. The total cost of the project is estimated at DKK 1,375 milliard (181 million euros), and the financing must be finally solved by the end of this year. Construction work must begin early next year to meet the already announced date for the inauguration of the new museum: September 2017.

The restored Botanic Garden was inaugurated on September 5 this year after 3 years of renovation and made possible by a donation of DKK 17 million from the A.P. Möller Foundation. The garden is now more user-friendly than before

and has been expanded by 10 000 square meters. All the paths have been renovated. Coating materials on the paths and squares are made of gravel and granite. Access for disabled persons has improved significantly. New maintenance free pergolas and espaliers made of glass blown stainless steel have been erected along the lake and in the Perennial Quarter. The renovation has been carried out in line with H.A. Findt´s original garden plan from 1874.

1.2.2. Jerzy Puchalski. Genetic Resources Conservation of Historical Apple Cultivars in Polish Botanic Gardens.

Genetic resources of old apple cultivars are nowadays still the significant genetic materials for breeding the modern cultivars, as well as for amateur gardening. The Polish BG:s are the active participants of national projects on crop genetic resources conservation. The efforts are in line with the target on genetic diversity of cultivated plants from the World Summit Environment Meeting in Rio 1992; as they are with the Global Strategy for Plant Conservation adopted in Montreal in 2001.

Many efforts were devoted to the conservation of old historical apple cultivars. The biggest collection, which started in early 1980, was established in the Botanical Garden of the Polish Academy of Sciences in Warsaw. At present the collection of historical apple cultivars (i.e. before 1939) consists of more than 500 accessions and among them 338 cultivars were identified, evaluated and described. The apple collection in Warsaw also contains 113 wild taxa of Malus, including wild taxa closely related to Malus x. domestica, likewise M. Sieversii ecotypes from Central Asia. Besides pomological orchard, grown in the botanical garden as display opened for public visitors, the germplasm of Malus species and cultivars is preserved in cryogenic gene bank as dormant buds stored in liquid nitrogen. A very valuable collection of historical apple cultivars was established in the Arboretum Bolestraszyce located in southeast Poland. This collection includes more than 460 accessions collected mainly in former Galicia, now Malopolska Region and Western Ukraine. In the last 5 years the collection of historical apple cultivars was introduced to the youngest, but the largest at present botanical garden in Poland, the Silesian Botanical Garden in Mikolow, near Katowice. This collection consists of 270 apple cultivars, mainly from upper Silesia.

1.2.3. Marko Hyvärinen: From a Strategy to Action – the first Steps in ESCAPE Project.

A recently published national ex-situ conservation strategy and action plan for Finland includes five targets, 1) secure the extant ex-situ collections, 2) increase the number of ex-situ conserved taxa, 3) develop ex-situ conservation for boreal and arctic alpine species, 4) incorporate ex-situ conserved species into restoration and reintroduction programmes, 5) increase the use of ex-situ collections in education and public outreach. In order to achieve these targets a new Life+ project called ESCAPE (Ex-situ Conservation of Finnish Native Plant Species) was successfully launched in September. One of the first tasks is to establish a national seed bank that will accumulate seed of endangered taxa. Moreover, a cryogenic unit is in function as storage of micropropagated tissue collected from those species that do not set seed. First trials of assisted migration from ex-situ conserved plant material are reported.

The project has a total budget of 2 million euros, co-financed by EU Life+ programme and the Finnish Ministry on Environment.

Four parties are involved – the Finnish Museum of Natural History, the Botanic Garden of the University of Oulu, the Finnish Environment (Research) Institute and the National Heritage Service of Metsähallitus.

What is there in the ESCAPE project for our Baltic Region BG:s Network? Well, it gives us a possibility to learn from practical experiences, to collaborate and to exchange material from seed banks. Moreover, there will be an international workshop in Helsinki in 2014 or 2015 on ex-situ conservation.

1.2.4. Ludmila Visnevska: Scientific Research in the National Botanic Garden of Latvia (N BG) in 2006 – 2011.

For the collection amount and taxonomic identity, as well as the area of scientific and popular scientific activities, the NBG is a leading botanic garden in the Baltic states. The collections cover an estimated amount of 15 000 taxa in an area of 129 ha. Number of staff is 86 (2011). In Latvia the NBG is the main

institution, where ex-situ collections of rare and endangered plants of Latvian flora are developed and wide range conservation-related studies are undertaken. Cultivars of large-fruit cranberries and high blueberries are introduced and bred in the NBG and their growing technologies are implemented in Latvian national economy. Cultivars of park roses bred in NBG are wide spread in Latvian gardens, as well as in North Europe and North America. NBG is an environmental education and information agency; it promotes rational and sustainable use of nature resources. Research work in NBG is developed in three main directions: research and gene found conservation of open area plants (about 60 % of scientific activities); plant biological diversity conservation in vitro (30%) and gene found conservation of indoor plants (10 %). The main priority for the nearest three years is to build an ex-situ conservation center. The project will be supported by ERDF (European Regional Development Fund) with more than 3 million euros and will provide formation of a new infrastructure for conservation and propagation of rare and endangered plants, as well as for growing and renewal of houseplant collections of national importance.

Session 2. Public Arrangements, Exhibitions, Information and Tourism.

Moderator Ludmila Visnevska.

2.1 Vida Mildaziene: Development of Public Arrangements and Tourism in Kaunas Botanical Garden in 2012.

Several attempts are undertaken in 2012 to improve Kaunas BG functions directed towards public arrangements and tourism. These activities may be grouped in three main directions; 1) increasing access to local and international activities dedicated to practical part of studies and volunteer programmes: 2) arranging events for public on various scales; 3) developing programmes for educative tourism. Availability of rich botanic collections and expositions in the greenhouse and outdoors as well as unique landscapes are suitable for implementation of practical training on botanics, plant pharmaceutical, ecology and other science subjects, as well as for decorative gardening and landscape architecture. Student groups from 5 Lithuanian universities and 3 colleges (more than 1600 students per year) perform here a practical part on regular

basis. In 2012 we successfully started collaboration for practical studies on the international level – 2 agronomy students from Anger university in France and 6 landscape architecture students from Wroclaw university in Poland have successfully implemented their practical study projects. Local volunteer activities in 2012 were supplemented by the youth voluntary service group and by the group of senior volunteers from Greece.

A large diversity of events was presented to the public in 2012; some of them are local, like fairs, and some are addressed to Kaunas citizens. The largest event was the international Fascination of Plants Day, that took place in May 18 in 6 Lithuanian cities under coordination by Kaunas BG (previous record was beaten – more than 5 000 visitors per day). A children science laboratory named NSO (Naturales Scientia Omnibus) has gained a lot of popularity in 2012. The number of visitors in 9 months approached 1 500 including excursion groups from all Lithuania. The mobile programme of the NSO laboratory has already been demonstrated in September for more than 600 school-children.

From these activities can be concluded that botanic gardens have an important role not only in plant exhibitions but also in the area of tourism development, educational programmes and cultural events.

2.2. Anta Sparinska: Compilation of Resources for New Expositions in the Botanic Garden of the University of Latvia – Butterfly House.

Through collaboration between public and private investors, a new unique exposition has been created in the ULBG – a new butterfly house covering some 300 sq.m. The butterfly breeds come from South and Central America, mainly. The number of species varies between 30 and 80.The temperature in the house is kept at 30 degrees Celsius and the humidity at 90 %. This means that the energy issue must be considered thoroughly. Plans have been discussed to introduce a new energy system and replace the present manually operated system. It is a sun-induced shade system, inspired by the opening and closing mechanisms of certain plants, for instance Drosera, which was originally the working name of the project.

2.3. Irina Pautova: Collections of Botanical Garden in the Open Ground.

The Botanic Garden of Peter the Great is one of the most northern BGs in the world (located in Moscow). In 2013 the garden will celebrate its 300-anniversary. The total area of the garden is almost 23 ha. The outdoor area with trees and bushes, nursery gardens and exhibitions with herbaceous perennials and ornamental annuals covers more than 16.5 ha. At present the outdoor garden consists of 8 collections.

One of the oldest collections of the garden is the Introduction Nursery for useful plants, which is historically connected to the Apothecaries Garden founded by order of Peter the Great. The Park-Dendrarium is older than the Introduction Nursery and comprises more than 150 genera from 50 families. There are many rare plants. The collection “Alpiskye gorky” where the plants from alpine and mountain regions are grown was founded in the beginning of the 20th century. The Nursery for Perennial herbs has many rare species, such as orchids and other ornamental plants. The collection of Iridiaceae family (“Iridiarium”) was founded in 1947 and includes more than 15 genera. The “Rosarium” was organized in 1950 – more than 715 varieties of roses have been tested. In 1973 the first “Liliarium” in Russia was created. Rare bulbous plants were tested there during many years. A lot of attention was given to cultivation of the new varieties of lilies. From 1981 a new collection “The Garden of Continuous Blossoming” emerges on the basis of the polyploid plant collection. Now this collection comprises more than 210 genera from 80 families.

2.4. Andrej Filimonov: Relationship between World´s Botanic Collections Number and Socio-economic Factors.

A study of the relationship between socio-economic indicators and the number of botanic collections (BC) in different countries shows a strong positive correlation between the number of BC and the level of GDP (Gross Domestic Product) of countries and territories surveyed (r=0,92). Equally strong correlation existed between the number of BC on the one hand, and the number of universities (r=0,90), publications in the scientific and technical

journals (r=0,90), and total length of the road network (0,90) on the other hand.

At the same time, the correlation between BC number and GDP per capita as well as between BC number and human development index (HDI) was extremely weak (r=0,16 and r=0,27 respectively).

Intermediate values of the correlation coefficient were obtained on the pairs number of BC -territory of the country (r=0,66) and number of BC-forest area (r=0.53).

A more complex pattern was observed in the case of demographic indicators. The values of the correlation coefficient between the number of BC, urban and rural populations differed significantly (r=0,65 and r=0,35 respectively). At the same time, correlation between BC number and population density was not statistically significant.

Finally, the possible relationship between economic development and worldwide foundation of BC is discussed.

One of the sources that Andrej Filimonov refers to is the “Garden Search”function of BGCI:s homepage, the only global source of information on the world´s BGs. Search can be made geographically or by key word.

Session 3, Understanding of Environmental Problems, Ecological Connections and Climate Change, ex situ and in situ Conservation. Moderator: Anta Sparinska.

3.1. Heikki Tamm: Development of the Department of Native Flora in the Botanical Garden of the University of Tartu (BGUT).

During more than 200 years, many specimens of the local flora were planted in the BGUT by supervision of professors Germann, Ledebour, Bunge and others. In 1919 – 1923 a special plot for native plants was separated and the collection of native plants was developed by supervision of prof. F. Buchholtz. Plant geographic mapping and ecological explanations of native plants were done by prof. T. Lippmaa in 1937.

In 2008, following the targets of GSPC (Global Strategy for Plant Conservation), more attention was delivered into the Department, and the botanist K. Tambets checked the collection and found 135 species of vascular plants growing. Since 2011, more attention has given to endangered and protected species. The number of such species was 76 in 2012, which is equivalent to 33 % of 251 protected species in all Estonia.

In 2012, the Department of Native Plants occupies 750 sq.m. in total and contains 240 species of vascular plants, including 60 endangered species in Estonia.

3.2. Linda Strode: Conservation of Local Wild Flora in the National Botanic Garden of Latvia (NBG): Activities and Perspectives.

The NBG, located in Salaspils, was established in 1956 and covers an area of 129 ha. It is probably located on an old riverbed. It has a wide diversity of habitats.

The main research activities in this field include evaluation, conservation and increasing of biological diversity. This presentation introduces preliminary results of habitat and local wild flora inventory, as well as research work carried out ex situ and in situ. Long term studies, made by authors of this paper, allows conclusions that the combined ex situ and in situ species studies give a more complete picture of the local wild flora ecology. Results of these studies can be successfully used to develop endangered species localities conservation and management activities. Further activities include supplementing of local wild flora collection, reconstruction of protected plant collection area in NBG, continuing of flora inventory, creating of checklist and database of wild plant species growing in NBG, habitat models with rare and protected plant species, and educationally scientific exposition “The trail of habitats”.

3.3. Aija Dizgalve: The Cognition and Preservation of the Distinctive Identity through the Environment of Zemgale Region, Activities and Cooperation.

The activities cooperation was supported by the Latvian-Lithuanian cross border cooperation programme in 2007 – 2013. There are three project partners: Siauliai University, Latvia University of Agriculture and Joniski Agricultural School. The project focuses on the “Lielupe flood plain meadows”,

a nature reserve established in 1999 and now proposed as a Natura 2000-place. Universities and schools have an interest to contribute to the conservation of plant diversity and solving environmental problems of the region. During the project, organized environmental education focused on exploration activities – pupils and students in workshops, seminars, exhibitions, open days, and an international scientific conference in Jelgava. One of the project goals is to raise the society´s awareness, understanding about the variety of plants in the Zemgale region, encouraging to contribute to the preservation of plants performing various ecological campaigns of education and interaction. Project partners investigate the green environment landscape objects which are under preservation. Five counties in the Zemgale – Jelgava region collaborate in the project.

3.4. Heikki Tamm: Restoration of Communities of the Endangered Species Dianthus Superbus in Estonia.

Dianthus Superbus is a rare and protected plant species in Estonia, and is growing mostly in the north-western part of the country. During the period of 2005 – 2012, destroyment of the natural habitats of this species led to the replanting and restoration of dianthus communities at the new site. In 2012, the Botanical Garden of the University of Tartu made a contract with the Estonian Road Administration on conservation and recovery of Dianthus Superbus. 2400 seedlings were grown in greenhouses. Plant area studies were performed, and the plant sites were prepared in August. 2080 plants were introduced, and thanks to the rainy summer the result was satisfactory. The monitoring of the plant sites carries on in 2013. In 2014, the result of the project will be finally presented.

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28 Sept. evening: dinner at the Jelgava History and Art Museum.

Session 4, 29 September

Transfer to Siauliai University, Lithuania; before arrival short visit at the Joniskis Agricultural School. The school was celebrating its 25th anniversary with a colourful market, exhibitions, music and stage performances.

Welcome speech by Asta Klimiene and Alfredas Lankauskas, former Mayor of Siauliai.

4.1. Raimondas Ginkus: Delegate of Association of National Parks and Reserves.

The Zagares Park was established in 1992 as a nature reserve to preserve the landscape, the cultural heritage and the natural ecosystem of the Svete valley and Zagare forest. It is located in the Zoniskis district in Lithuania. In this district there are 7 national parks, covering over 7000 ha. Lakes and swamps benefit the migration of birds. In 1980 were found over 500 plant species, in 2008 the number had increased to over 600. Several botanic reserves are located in the area. Dendrologically interesting oaks and ashes are being preserved. The primitive mixed forests are a perfect place for many wild animals.

4.2. Alicja Kolasinska: Problems of ex situ Cultivation of Protected Plant Species – the Case of Apium Nodiflorum in the Botanic Garden of Adam Mickiewicz University in Posnan.

The Global Strategy for Plant Conservation Target 8 imposes on BGs ex situ cultivation of rare and endangered plants species. Apium nodiflorum ("Fool´s watercress") is native to Western Europe and occurs in ditches or streams with water currents. Due to the extreme rarity of this species in Poland, it is critically endangered and protected by law since 2004. It is known only from one place, Królów near Trzebiel, close to the western border of the country. It is the most eastern location of this species in Central Europe. Proposed road works put this population under a threat of destruction. Therefore, the General Directorate for National Roads and Motorways has requested the AMU BG to develop a programme of ex situ cultivation of these plants. Imposed deadlines and contracts prolongated the repair work till winter. Therefore plants were collected from the ditches under extremely unfavorable conditions, snow and frost. The plants wintered in the basement, where they started to develop young shoots. During a warmer period in January they were planted into the ground. A sudden temperature drop to around minus 20 degrees Celsius, with no snow cover, caused the plants´ death. In June seedlings grown from seeds that were imported in soil with plants were observed. This indicates the

importance of plant collection for ex situ cultivation with earth, which allows transfer of diaspores from the soil seed bank.

4.3. Asta Klimiene: Botanical Garden Activities in Conservation of Local Flora (Project LLIII-123 Green Environment) – a shortened overview.

The main role of BGs in the world is “To mobilize botanic gardens and engage partners in securing plant diversity for the well-being of people and the planet”(http//www.bgci.org). In Lithuania, the main institution working for conservation and protection of local flora is the Ministry of Environment. The Lithuanian National Strategy for Sustainable Development was approved by the government of the republic in 2003 and updated in 2009. It stipulates that the Strategy implementation reports shall be drafted every 2 years. BGs of Lithuania are unified by one mission – to multiply and save genetic resources of plants, to develop academic and scientific exploratory activity in the field of natural sciences and to create optimal conditions for the country´s recreational needs, and also to attract tourists from abroad.

Siauliai University BG, Joniskis School of Agriculture and Latvia University are pursuing a project “The Cognition of Distinctive Identity Through Flora of Semigallia Region” in 2011 – 2012.

The northern part of Lithuania (Semigallia, or Ziemgala) is peculiar in its natural environment and historical heritage. The Semigallia region is unique in its geological heritage. In this region there are many areas where rock layers are stratified in the earth outcrop. There is Papile clay exposures with fossils of the Jurassic period. Climatic differences and local conditions of relief and soil also determined peculiarities of vegetation in northern Lithuania. Leafy forests and mixed trees, such as aspens, black alders, birches, ashes and maples are typical in this region, but also firs are quite common in mixed forests. Plant species of limited prevalence are typical to north and north-west Lithuania, and some of these species are included in the “Red Book” of Lithuania. In this part of Lithuania unique complexes are found, formed in glacial and postglacial periods, which belong to mountain-Baltic elements, including rare mountain species such as Primula farinosa, Sesleria caerulea and biotopes of other plants.

Transfer to Siauliai University Botanic Garden. It is, like the DBW Botanic Garden, not so extensive in area (2,5 ha). The total number of taxa is 4134.

5. Plenary session. Previous Targets of Conferences and Future Strategy. Moderators: Göran Allard and Justina Wiland-Szymanska.

Asta Klimiene and Göran Allard opened the discussion and defined the crucial questions that should be deliberated and – if possible – agreed on concerning the future of our network.

Bengt Jonsell gave a retrospective statement on the origin of the network and its activities from 2008 till now, including targets and conclusions from previous sessions. So what have we achieved during these years of collaboration? Certainly, the opportunities for colleagues to meet and exchange experiences have been valuable from the botanic point of view and also socially agreeable. A large number of scientifically interesting abstracts and presentations have been introduced to the participants of the conferences. Extensive conference reports have been delivered to SIDA. But as far as the previous 10 targets are concerned, we have only reached a bit in some of them. The information on ex situ and in situ conservation work has been quite satisfactory. The staff exchange target has been fulfilled to a certain level. In many areas of cooperation, we have only to a minor extent lived up to our commitments.

Facing the (possible) future networking, the Visby group has decided to step down from its present position and transform itself into a reference group, so to say a group of “senior advisors”. If the cooperation is to continue in one way or another, it is desirable that other (and younger) members of the network are willing to take over the responsibility – the future is yours!

After this introduction by Bengt Jonsell, delegates from all participating countries gave their opinion on the future of the network. All speakers recognized the value of the network and agreed – with some minor reservations – that the cooperation should go on in some way or another. Some ideas were put forward: Arrange conferences with 2 years´ intervals, establish a formalized network, invite more countries to participate (i.e. botanic gardens within “ reasonable distance” from the Baltic area), impose

membership fees for administration and conferences, use the EuroGard meetings to keep the network alive, apply for funding of meetings from the EU COST (European Cooperation in Science and Technology) Programme, organize meetings in the country-side to reduce accommodation costs, etc.

Vida Mildaziene declared that she was prepared to invite the network to Kaunas in 2013. (This proposal didn´t come to further discussion since Vida M. had to leave the meeting).

Several delegates expressed their wish that the Visby group continues as an active and organizing body within the network. The meeting decided that the Visby group should compile a comprehensive report on the 5 conferences that have as yet been organized in Visby, Vilnius, Tallinn, Tartu, Gdansk and Jelgava/Siauliai in the years 2008 – 2012.

Conclusions

Göran Allard concluded the result of the discussions as follows:

1) Justina Wiland-Szymanska will take over the staff exchange programme efforts from Katrina Rautala who now is occupied at Kew Gardens for two more years;
2) The host of guest gardeners is supposed to cover the costs of lodging,
3) Marko Hyvärinen checks possibilities to get funding. Application no later than the end of March 2013;
4) Invitations will be sent out of the “SEEDBANK-meeting” in Poznan,
5) Andrej Filimonov takes over the homepage again. All gardens are supposed to give information on the gardens, links etc. Skype addresses are also important. Göran Allard informs Ann-Britt Magnusson on this matter so that all material and information can be sent to A. Filimonov;
6) Every garden in the network can invite other gardens in their own country to participate in the network;
7) A retrospective report is to be made by the Visby group, see above. The report should be performed at such time that it can be included by Marko Hyvärinen in a funding application, see 3) above.

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29 Sept. afternoon – evening:

Bus transfer to Vainagiai Forestry, demonstration of Rhododendron plantation in woodland.

Bus transfer to Kurtuvenai Regional Park.

Dinner in Kurtuvenai in traditional Lithuanian style, musical entertainment from kantele players and other artists.

During the dinner, Bengt Jonsell extended our warm thanks to the organizers for their time and effort in preparing and accomplishing a very fruitful conference.

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30 Sept.

Bus transfer to Salaspils. Guided tour in the National Botanic Garden of Latvia, Salaspils (see also session 3.2 above). Director Andrejs Svilans with colleagues demonstrated the garden with a territory of 129 ha and a total number of 13560 taxa. Maybe the most memorable elements in the garden were the colourful dahlia plantations and the dendrarium, containing i.a. 900 species of conifers.

Appendix

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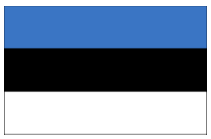

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