

Society of Irish Foresters 75th Annual Study Tour to Lithuania

11th – 15th September 2018

On Tuesday, 11th September thirty-six members of the Society of Irish Foresters departed Dublin Airport on a late-night flight to Vilnius for the Society's 75th annual study tour and our first tour to Lithuania.

Lithuania is almost the same size as the Republic of Ireland, but it has a population of just 2.8 million – its population has declined substantially since joining the EU. It is situated along the south-eastern shore of the Baltic Sea, to the east of Sweden and Denmark. It is bordered by Latvia to the north, Belarus to the east and south, Poland to the south, and Kaliningrad (a Russian exclave) to the southwest.

Lithuania has 33% forest cover (2.1 million ha). This is substantially less than its Baltic neighbours Estonia and Latvia, each of which has almost 50% forest cover. Approximately 50% of Lithuania's forests are publicly owned, 40% are privately owned. The remaining 10% are reserved for possible future privatisation. Lithuania's private forest sector has 234,600 owners and the average forest size is 4.5 ha. Holdings with an area up to 3 ha account for 58% of all private forests in the country. About 55% of private forest owners live in rural areas. Generally, newly established private forest owners want to exploit the financial benefits of their holding and don't give much consideration to its management and maintenance. Recent surveys of private forest owners tend to indicate that the main problem identified by the forest owners themselves is a lack of knowledge and experience in forest management.

The dominant tree species are Scots pine (*Pinus sylvestris* L.; 42%) and Norway spruce (*Picea abies* (L.) H. Karst.; 23%). There are small percentages of alder (black and grey; *Alnus glutinosa* (L.) Gaertn and *A. incana* (L.) Moench), aspen (*Populus tremula* L.), ash (*Fraxinus excelsior* L.), birch (*Betula* spp.) and oak (*Quercus* spp.). The average age of forest stands is 53 years. Annual timber production is 7.0 million m³. It is processed locally but pulpwood (20% of annual production) is exported, mainly to Scandinavian countries.

On arrival in Vilnius airport we were met by our guide, Aidas Pivoriūnas, who looked after our needs for the duration of the tour acting as our guide and interpreter. During the study tour we travelled extensively throughout Lithuania from Vilnius in the south east to Nida on the Baltic Sea and got an opportunity to see many different forest types.

Overnight: Hotel Air Inn, Vilnius Airport

John Mc Loughlin, Tour Convenor

Wednesday, 12th September

We were accompanied for the duration of the tour by our host and guide, Aidas Pivoriūnas. A graduate of the Swedish Forestry College, he is the Managing Director of the Private Forest Owners Association in Lithuania. We departed Vilnius at 9.00 am and began a 120-km journey to Grūtas Park in southern Lithuania. On the outskirts of Vilnius we passed by a 120 MW district heating plant. Formerly this plant used oil and gas but is now fuelled exclusively by wood chips. Almost 40% of Lithuania's energy needs are now produced from wood chips. To meet the soaring demand for wood chips, Lithuanian producers are importing supplies from Ukraine and Belarus. However, it transpired that some of the Belarussian material was produced from Chernobyl-impacted forests and these chips are now quarantined.

As we travelled south to Grūtas Park, Aidas gave us a useful overview of forestry in Lithuania. Forest cover is now 33% of the land area – an impressive increase from 15% in 1921. This significant expansion in forest cover took place mainly after World War II, on the poorer lands in southern Lithuania bordering Poland and Belarus. Norway spruce and Scots pine were the main species used and they were frequently planted in pure stands. The most heavily forested areas are in eastern and southern Lithuania while the better agricultural land and larger farms are located mainly in the west and north.

Lithuania's forest estate is currently expanding by approximately 10,000 ha per annum. About half of this expansion is planned and supported by EU schemes while the remainder is the result of natural forest expansion onto abandoned agricultural land. Birch, oak, and pine/spruce mixtures are the main species which are creeping onto the abandoned land. The national forest estate is split 50:50 between private and state ownership. Approximately 10% of the private forest area is reserved for restitution to the former owners who were dispossessed during the Communist era. However, much of this category of the forest estate is poorly managed.

In Lithuania, forestry is a very sensitive topic. In spite of the obvious importance of the forest industry to Lithuania's national economy, forestry is frequently subject to adverse public opinion. Currently, there is an energetic social media campaign aimed at ending the practice of clearfelling completely. As a result many over-mature forest areas have had their felling dates extended by several years so that only just over half the annual increment is being harvested¹. Continuous cover forestry practices are increasing rapidly.

Our first stop on Wednesday was at Grūtas Park outdoor museum. Located in a 20-ha forest, the Grūtas Park serves as a national reminder of the devastating impact of communism on Lithuania. More than 800,000 people, out of a 1940s population

¹ Annual increment in Lithuania is approximately 12 million m³ but the annual harvest in only 7 million m³.

of 4.1 million inhabitants, were exiled to Siberia. The museum includes an original train and wagons which were used to transport them to Siberia. Grūtas Park has an outdoor display of 84 very large sculptures; many of these are statues of Lenin, Stalin and other communist leaders (Figure 1). During the past 20 years more than 1.2 million Lithuanians have emigrated, mainly to other EU countries. This exodus of the young and better-educated Lithuanians has the potential to create considerable social and economic problems as a large segment of its economically active population has gone abroad.

We left Grūtas for our next stop at Marcinkonys, a distance of 38 km to the east. On our journey there Aidas discussed fire management in Lithuania. Forest fires are managed by foresters and not by the Fire Service. In the past, they relied on manned lookout towers to warn of fires. However, there is now a greater dependence on technology as sensors, cameras and drones are being deployed to monitor the forests for outbreaks of fire. Aidas also discussed other aspects of forest protection. *Dendroctonus pini* has caused widespread damage to pine stands and it now appears to be spreading to oak. Ash, though a minor species in Lithuania, is also suffering from ash dieback. There is also a problem with deer damage (from both red and roe species) to the forest. Wolves, a protected species, are increasing in numbers as the forest area increases. Wild boar population numbers have soared in recent years, so it is planned to reduce their numbers by almost 80% over the next seven years. Beavers



Figure 1: Grūtas Park outdoor museum features an extensive display of statues and busts of communist leaders which were removed from Lithuanian towns and villages after independence in 1990.

are also now causing major problems in some areas in the south of the country. The European black bear is also starting to make a comeback.

Near Degsnė we saw a remarkably fine stand of European larch (*Larix decidua* Mill.) which was planted in 1856 and now carries 1,600 m³ per ha (Figure 2). The tallest trees are over 50 m in height. European larch is not native to Lithuania and it has been decided to curtail future planting of this and other exotic species because of the potential impact on native trees.

We departed Degsnė for our final stop at Dubravai, 120 km to the west. On the way Aidas explained that Lithuania is the fourth-largest supplier of wood products to IKEA. Although there are no pulp and paper plants in Lithuania, the country is home to five



Figure 2: A fine European larch tree planted in 1856.

large sawmills which produce 200,000 m³ timber each. Production in southern Lithuania is generally exported to Poland while production in the north is largely exported to Latvia. All timber from state-owned forests is sold through an online auction system.

Our final stop of the day was at Dubravai which is 20 km south east of Kaunas, Lithuania's second city. This is a 500-ha plantation in a swamp area which has been left unmanaged for more than 200 years. The main species present were birch, Scots pine, Norway spruce, oak and aspen. The site is monitored to see how it will develop. Approximately one third of the forest at Dubravai is a protected site and harvesting of the surrounding area is determined by the age of the trees. In general in Lithuania, final felling cannot take place until the trees reach the following minimum ages: birch, 61 years; Scots pine, 100 years; Norway spruce, 70 years; oak, 150 years and aspen, 45 years.

We departed Dubravai and set out for our overnight accommodation at Hotel Vienkiemis on the Baltic Sea, 245 km to the north-west.

Overnight: Hotel Vienkiemis, Padvariai, Kretinga

Pacelli Breathnach

Thursday, 13th September.

On our way to the port of Klaipėda, we passed through an area which our guide referred to as "Little Lithuania". It was formerly Prussian territory and during World War II the Germans and the Poles took possession of roughly one third each, so that only one third of it remained as part of Lithuania.

When we reached Klaipėda we took a short ferry trip across to the peninsula which in former times was completely treeless. In order to stabilise the shifting sands and also to provide some shelter, afforestation began in the early years of the 17th century. The main tree species used were Scots pine and *Pinus mugo* Turra. There are now 1,820 ha planted on this narrow 99-km-long peninsula. However, *Pinus mugo*, which has grown well since its introduction, is non-native and environmentalists and conservationists want to remove it from the area altogether. Thus, during the course of the past 15 years, large areas of *Pinus mugo* have been replaced with a mixture of *Scots pine* and birch. We saw some of these "replacement" stands as we passed in the bus. We then travelled north-west until we reached Neringa National Park. There are four villages within this park, the largest of which is Nida, about 50 km south of the park entrance. Aidas, our guide, told us that for the past few years the park has been under threat from a mystery arsonist who starts forest fires, usually during July or August when there are strong winds coming from the west in order to cause maximum damage. In 2016, almost 500 ha were destroyed. Extensive fire belts have been cut through the forests to help reduce the potential for fire spread. Prior to 2010 there was a forest office on the peninsula but not any longer so the foresters must now travel over and back on the ferry, as do the contractors who carry out all of the forest operations.

Our first stop of the day was at an area of Scots pine that has been severely damaged and many trees killed by the droppings of the large numbers of nesting cormorants! Cormorants are not native to Lithuania but a few unsuccessful attempts were made to introduce them since the 1960s by amateurs. In 2002 two enthusiasts brought cormorant eggs from Poland and raised and released the chicks which subsequently bred and spread at an alarming rate. They have spread even as far as the capital Vilnius; officials had believed that the bird would not spread beyond the peninsula. The current very large population of cormorants is a cause of major concern to both foresters and fishermen. However, the cormorant is on the IUCN Red List of Threatened Species and so it is heavily protected. We climbed to a high viewing platform which was built by the Department of Environment specifically to allow park visitors to survey the extent of the damage that has been caused. It is estimated that several hundred ha of Scots pine on the peninsula have been destroyed by the cormorant and the damage is continuing to spread. Appeals have been made to government officials to allow culling and/or eradication of this non-native bird.

On our journey to the village of Nida we passed a fine stand of black alder growing on good humus soil which our guide said is one of the most productive stands in the country. Nida is a very scenic area with a small harbour and marina which has become very popular with tourists. No new houses are allowed to be built within the confines of the national park. Only reconstruction and renovation of existing habitable



Figure 3: *A Scots pine stand which was severely damaged by nesting cormorants. This non-native bird was introduced in 2002 and the population has since increased at an alarming rate.*

houses is permitted. The houses are heated by firewood or wood chips from the local forests. At this stage, we were quite close to the border with Kaliningrad, a Russian exclave on the Baltic Sea, between Lithuania and Poland. Kaliningrad City (with a population of 431,000) is an important manufacturing base which was designated a Special Economic Zone in 1996. It is strategically important to the Russian Federation as it is the only Baltic sea port which remains ice free all year round. Kaliningrad hosted several games in the FIFA World Cup 2018.

In the afternoon we returned to the Lithuanian mainland and journeyed through central Lithuania which has vast expanses of flat, highly fertile agricultural land. An interesting feature of this otherwise flat landscape is the world-famous Hill of Crosses (Figure 4). During the 19th century a local custom developed of placing crosses and crucifixes on this hill to remember deceased family members. In 1900 it was estimated that there were 20,000 crosses here. During the Soviet occupation of Lithuania the authorities attempted to remove the crosses and destroyed large numbers of them with bulldozers. However, since Lithuania regained its independence in 1990, the custom has resumed. It is estimated that there are now 100,000 crosses there and that number is rising. The Hill of Crosses has become an important tourist destination and a place of pilgrimage which was visited by Pope John Paul II in 1993.

Overnight: Hotel Karpynė, Raseiniai

Eugene Griffin



Figure 4: Since the early 19th century, crosses and religious statues have been placed on this hill near the city of Šiauliai in memory of deceased family members.

Friday, 14th September

The day began with a very informative presentation on forestry in Lithuania from our guide Aidas Pivoriūnas. Forest cover in Lithuania is 33%, the state owns 1,089,000 ha of forested land and a further 883,000 ha is privately owned. The main species are pine (41.6%), spruce (22.9%) and birch (22.2%). Each year almost 5,000 ha are afforested and 7.0 million m³ of timber is harvested. Four million m³ of the annual harvest comes from state owned forests and 3.0 million m³ from privately owned forests. Most of these private forests are under managed as the owners are generally quite elderly. Even though Lithuania clearfells a large volume of timber annually it must still import timber because of widespread public opposition to current clearfelling practices. This is slowly changing in response to forestry promotion and public education campaigns.

During harvesting and extraction operations, brash mats are used to protect the forest floor, these are collected after and used for woodchip. In this area, a single furrow plough is used to prepare the site for reforestation and the trees are usually pit planted at variable spacing. While stocking rates vary for different species, it is 2,000-3,000 ha⁻¹ for most conifers.

After this presentation we travelled via the A8 motorway to the Pašiliai European bison sanctuary in the region of Panevėžys. While travelling along this route we saw “fake hills” which are the remains of gypsum waste from a fertiliser factory near Kėdainiai. Pollution from the plant has damaged large areas of the surrounding pine forests.

The European bison sanctuary is located in Krekenava Regional Park which was established in 1992 in order to preserve the Nevėžios river landscape (Figure 5). The aim is to preserve and maintain the natural ecosystem and heritage value of the parkland and the region. The park has nearly 12,000 ha of meadows, forest and bogs which stretch across both sides of the Nevėžios valley. This park is home to 846 species of mammals, of which 52 have protection status. The bison are descendants of the aurochs, a large species of cattle which were once common in Europe but are now extinct. Up until the 16th century, bison were widespread in this part of Europe where they lived in sparse, mixed, broadleaf forests and mountain terrain. Deforestation, agricultural development and increased hunting forced the bison to seek refuge in forest types which did not suit them and this ultimately brought about their extinction. It is believed that no bison have lived in Lithuania since 1854 and the last bison in Europe was shot in 1919 in Belovezh forest. The 50-ha bison sanctuary was established in 1969 when two bison (male and female) from the Prioksko-Terrasny reserve in Russia were introduced. Shortly afterwards eight more bison were introduced and the first calf was born in 1971. In 1973 the first bison born in Lithuania were released into the Pašiliai forest. Since then they have

been allowed to roam freely and breed in the wild. The sanctuary is fenced in some areas but open in other areas so bison have been seen in the wild and in some cases seen mating with cows. In 2005 the Pašiliai bison sanctuary was transferred from the Krekenava Regional Park to the Panevėžys Regional Office of the State Forest Enterprise.

We then visited a birch plywood plant, Likmerė in Ukmergė, which is owned by a Latvian company, Latvijas Finieris. This factory, which opened in 2008, sells its entire veneer production to a sister company which is one of the largest plywood producers in the world. The sole purpose of this factory is to secure raw material and produce veneer for plywood manufacturing in the sister company. It produces 100,000 m³ of birch veneer annually and 160,000 m³ of high-quality birch timber is used annually (Figure 6). The 60,000 m³ excess is chipped and sold as biofuel as the factory's power requirements are supplied with gas. Only local birch is used because of high transport costs and timber prices. Good quality birch sells for approximately €100 per m³. Almost 60% of birch harvesting is carried out with motor manual labour in order to avoid damage to the birch bark by the measuring wheel on harvester heads. Timber is bought at private auctions and assessed in the forest by quality assessors before purchase. Birch comes into the yard in 3.2 m lengths with a small end diameter of 14 cm.



Figure 5: *The European bison sanctuary in Krekenava Regional Park was established in 1969 when bison calves from western Russia were introduced.*



Figure 6: Debarked birch logs are prepared for veneer production at the plywood plant in Ukmergė.

The production process begins with the birch logs being steam heated for 12 hours at 60-70 °C and then allowed to cool to 40 °C ahead of the next stage. This process is designed to increase the moisture content which facilitates easier cutting during production. The manufacturing process begins with a grading line and metal scanner; rejected logs are scanned again and if of bad quality they are used for firewood. After scanning the logs are debarked and scanned again before being cut to length. The cut-to-length specification is 2.4-3.4 m. The debarked logs are attached to a high speed lathe where a cutting knife peels the log to produce the thin sheets of veneer. The knives are changed every 20 m³ and have to be sharpened by hand. The veneer is scanned, graded for quality and cut-to-length. It is then ready for packing and exporting. This factory employs 40 people and operates three shifts. Between four and six truck loads of veneer leave the factory every day and it reaches the plywood factory within 24 hours. The factory is profitable but, as mentioned earlier, its sole purpose is to source raw material and supply high quality veneer to its sister company.

Overnight: Hotel Nykščio namai, Anykščiai

Conor Dowling

We spent Saturday, our final day, sightseeing in the medieval city of Vilnius (Figure 7) before a final dinner and another late-night flight home to Dublin.



Figure 7: Looking east towards the “old town” in Vilnius, the capital city of Lithuania.

Tour participants (36): Marie Aherne, Pacelli Breathnach, Colm Brophy, Neil Browne, Kevin Bourke, Philip Comer, Daniel Connaire, John Connelly, Bob Dagg, Conor Dowling, P.J. Fitzpatrick, Jerry Fleming, Gerhardt Gallagher, Tony Gallinagh, Eugene Griffin, Mark Hogan, Gordon Knaggs, Joss Lowry, Tony Mannion, John Mc Loughlin, Tom McDonald, John McGovern, Aiden McGuire, Jim McHugh, Declan Meehan, Kieran Moloney, Gerry Murphy, Liam Murphy, Frank Nugent, Benny O’Brien, Dermot O’Brien, P.J. O’Callaghan, Owen O’Neill, Tim O’Regan, Vincent Upton, Trevor Wilson.