

# **60th Annual Study Tour**

## **Romania**

### **6-13 September, 2003**

#### **Introduction**

Forty-three Society members assembled early on 6 September 2003 at Dublin Airport to begin the 60th study tour and the Society's first visit to Romania. The flight to Bucharest was via Budapest with Malev Hungarian Airlines.

Dr Ioan Abrudan, Senior Lecturer at the Department of Silviculture, Transylvania University at Brasov met the group at Bucharest Airport. Ioan was the perfect host and guide for the week; he worked tirelessly and efficiently to look after the needs of the group. The Society is deeply indebted to him. En route to our hotel in Bucharest Ioan gave a brief summary of Romania.

Romania is surrounded by five countries: to the north east by Moldova, to the north by the Ukraine, to the north west by Hungary, to the south west by Serbia-Montenegro and the Danube (which drains the entire country), which also forms the southern boundary with Bulgaria. To the east Romania has a coastline on the Black Sea. With an area of 237,500 km<sup>2</sup> the country is about three times larger than the island of Ireland. It has a population of 22 million.

Throughout its long history Romania has had wave after wave of invasion which has led to great diversity in both culture and architecture.

Romanian forests cover 6.3 million ha (close to the total area of the Republic of Ireland), or 27% of the land area of the country. The long-term objective is to increase the area to 35%. Currently 17,200 ha are regenerated annually, 8,200 ha (48%) by natural regeneration and 9,000 ha through planting.

Broadleaves comprise 69% of the forest area, beech (31%) and oak (19%) being the most common. Conifers comprise the remaining 31%, mainly Norway spruce (23%), with a smaller amount of silver fir (5%) and other species. About 65% of the forests are located in the Carpathian Mountains. (It was at Brasov in the centre of these forests that the tour was located for the week.)

Romania has the highest percentage of natural forests, including some of the last and largest tracts of old growth forests, remaining in Europe. On the lower slopes of the Carpathians oak (sessile and pedunculate) grows. Higher up beech dominates, giving way to conifers at the higher elevations.

In 1948, prior to communism, only 28% of Romania's forests were state owned. Towns, communities, religious and educational institutions owned half of the forests, while 23% were privately owned. After 1948 almost all forests were taken into state ownership. After the fall of communism (in 1989) the process of forestland restitution began in 1991. Initially 350,000 ha were given back to the former owners. According to the restitution legislation one hectare is given to private individuals, regardless of the initial forest area. Under the current act over 3 million ha are being handed over. When the process is completed it is expected that 50% of the forest will be in private hands.

Forestry, because of its importance, has traditionally played a significant role in Romania's social and economic development. It has provided a major source of employment and income from logging with wood processing and income from non-wood products sustaining the mostly rural economy. However, forestry's contribution to the



*The tour host, Dr Ioan Abrudan (to left) pictured with Aeneas Higgins, President of the Society.*

economy could be greatly increased through competitive wood marketing and the introduction of improved harvesting, processing, and manufacturing technology. Nevertheless, the forestry sector remains a significant contributor to the Romanian economy.

Romsilva, a financially autonomous organisation under the authority of the Minister of Agriculture, Food, and Forests, manages the state forests.

It is estimated that there are 30,000 people employed in administration and management, including 26,000 foresters. The sawmilling sector has 67,000 employees, 21,000 are employed in the pulp and paper sector, with a further 104,000 in furniture manufacturing. Exports of wood and wood products amount to over €1,000 million, or 11% of the Romanian total. The sector's contribution to overall GDP is about 4.5%

After the fall of communism in 1989 economic recovery was slow but in the last three years there has been a lot of inward investment and a dramatic increase in economic activity. Romania expects to enter the EU in 2007.

*John Mc Loughlin Convener*

## Day reports

### *Sunday 7 September*

Tour participants availed of the free time in the morning to walk to the city centre and nearby parks. An early morning stroll close to the Gara de Nord where the Ibis Hotel is located revealed the contrasting life styles of the city. Little over 300 metres from the hotel, dozens of people were gathering their meagre belongings together after a night of sleeping rough. While Romania is striving valiantly to prepare for EU membership in 2007, it is difficult to disguise the fact that this is a country with deep-rooted social and economic problems, where 44% of the population live below the poverty line. The first impression of Bucharest is a city of extremes in both living standards and architecture. It is a hotchpotch of fine architecture, garish new buildings and slums, often within metres of each other.

In the afternoon, the group visited the main landmarks including the Piata Revolutiei, the site of the old Royal Palace, where the television cameras recorded Ceausescu's downfall when he was famously interrupted in his speech from the balcony of the Central Committee Building on December 21, 1989. Bullet marks can still be seen on some of the surrounding buildings, a tangible sign of the two days of street fighting that occurred during that turbulent time. Many of the buildings have since been replaced by modern office blocks.

After our tour of the Piata Revolutiei, we visited the Centru Civic. Ceausescu initiated the Centru Civic project as a massive state administrative centre. His plan was to rebuild the city as "the first socialist capital for the new socialist man". Over five square kilometres were cleared, including the historic city centre. Some 40,000 inhabitants were relocated to

the suburbs. Towering over all this is Ceausescu's monument, the building now known as the Palace of Parliament. This is reputed to be the second (to the Pentagon) largest building in the world. By all accounts, it was still not finished. Our guide quoted some impressive data about the building: it measures 270 x 240 m in area and is 86 m tall, 20,000 workers were employed per shift in its construction, 4,500 chandeliers were completed out of the 11,000 planned, together with lavish decoration of gold leaf and marble. For years after Ceausescu's death the authorities did not quite know what to do with the building, known as Casa Nebunului – Madman's House – by ordinary Romanians. Eventually they decided that it should house the Senate and Parliament and that it would be a venue for international conferences and a tourist attraction.

Next stop was the Village Museum which was established in 1936. It contains over 300 houses and other rural buildings from all regions of Romania. It is a fascinating selection of vernacular architecture with echoes of our own Bunratty Folk Village. Unfortunately access to most of the buildings was prohibited.

In the evening the group dined at the Burebista restaurant and overnighted in the Hotel Ibis.

### *Monday 8 September*

The group made its way north from Bucharest along the E60, through the rich agricultural land of the southern plain until we came to our first forest stop south of Ploiesti, in Prahova County. The area is well developed industrially with significant American, French and German investment. Towns and villages have good infrastructure; for example 99% of homes have electricity. The county comprises the southern Carpathians (37%), foothills (26%) and plains (37%).

The first stand visited had an area of 332 ha and comprised mainly ash (40%) aged 110 years, along with 130-year-old pedunculate oak (*Quercus robur*), with a selection of other native species including poplar (*Populus*). The ash stand was part of the 800 ha of seed stands in the region. It was also one of the many protected stands managed by the Prahova Forest Directorate in Prahova County.

Romanian forests are divided equally between those with production and protection functions; no clearfelling is allowed in the latter and timber removal is kept to a minimum, mainly for sanitary and conservation purposes. Stands are opened out gradually so that canopy is never fully closed and natural generation is encouraged.

Aeneas Higgins, President of the Society opened the proceedings, with the Chief of the Forest Directorate Costache Avrel responding by welcoming the group and providing an interesting overview of the forests in his area. Further information was provided by the Chief of the Forest District, Cristea Mitraie.

Prahova Forest Directorate has 125,000 ha of forests stretching from the plain to the Carpathian Mountains and alpine meadows. The forests are predominantly in the hills and mountains but there are excellent (mainly broadleaf) woods, such as the seed stand visited, located in the plains.

Funding for the Directorate comes mainly from wood and non-wood products. Over 40% of income from timber comes from exports. A diverse range of forest product industries has grown up around the forest in the region, including sawmilling, veneer production, furniture, crafts such as boxes, cases and souvenir items, and charcoal manufacturing from beech. Non-wood products are an important aspect of forest management and include hunting, fishing, camping, trout farming, wild fruits and medicinal plants.

Mr Costache also discussed the State Restitution Laws beginning with the first law in 1990 which returned a maximum of one hectare of forestland to pre 1948 owners. Many of the owners however, have sold the trees to get some cash benefit. The second restitution law in 2000 provided up to 10 ha for individuals, with a maximum of 20 ha for community forests and 30 ha for church forests. In Prahova, 30% of the forest is non-state. This is the maximum that will be privatised in the county.

We learned that the Forest Directorate is responsible for management of state forest and the regulation of all forests in its region. There are eight districts in the Directorate, varying in size from 9,000 to 30,000 ha. These are further divided into sub-districts managed by forest rangers. All forests – state and private – must have a 10-year forest management plan by compartment (lowest forest unit), which must be approved by the Ministry of Agriculture, Food and Forests.

There was a brief discussion on regeneration and harvesting in Romania. There are three silvicultural systems applied throughout Romania, and all are variations of regeneration under shelterwood in high forest. Currently, 17,000 ha of state forests are regenerated annually, of these 8,000 ha are regenerated naturally. The aim is to reach 60% natural regeneration/40% artificial regeneration. Regeneration is mainly by native species. In Prahova 250 ha out of 450 ha has been regenerated naturally. Transplants for planting are supplied from their own nursery, with the seed sourced from the 800 ha of seed stands.

The average growth rate is 6.3 m<sup>3</sup>/ha/annum. The annual allowable cut in the region is 320,000 m<sup>3</sup> out of an increment of 410,000m<sup>3</sup>. Close to 80% of logging is carried out by private companies, with the balance by Directorate staff.

Our next stop was Beizadele Nursery, south east of Ploiesti. This is a 62 ha nursery with 54 ha in production. The nursery produces mainly ash (*Fraxinus excelsior*), pedunculate and sessile oak (*Quercus petraea*), willows (*Salix* spp) for wickerwork, Austrian pine (*Pinus nigra*), cherry (*Prunus* spp), silver fir (*Abies alba*) and Norway spruce (*Picea abies*). Drought was a problem during the summer but the nursery manager was confident that they would solve this with their new irrigation system, which had a reservoir with a capacity of 500,000 litres. However, the overall husbandry and layout of the nursery was poor by Irish standards. There was a reliance on manual labour rather than technology or chemicals in areas such as weed control.

The final stop was close to Sinai, located in the uplands at an altitude of 1150 m. We visited a forest which featured a mixture containing 70% silver fir, 20% Norway spruce with almost 10% beech (*Fagus sylvatica*) and a small percentage of European larch (*Larix decidua*). This is a typical mixture of those Romanian forests located between the plains and the mountains. Beech was the understorey to silver fir. The average age of the plantation was 160 years; the silver fir had an average height of 32 m, with an average diameter of 54 cm. The standing volume was very high at 608 m<sup>3</sup>/ha. The forest was extremely well managed and the stem form was excellent.

We overnighted at the Hotel Aro in Brasov.

Donal Magner

### Tuesday 9 September

We left the Hotel Aro at 8 a.m. for the first of three wood processing stops.

First was the MTI Company where the General Manager of the garden furniture factory, Mr Korner was our host. The factory was built in 1996, as a joint venture between French and Romanian companies. It occupied an area of 7.5 ha, with 14,000 m<sup>2</sup> under cover.

Three hundred people were employed, working on three 8 hour shifts. The average wage for industrial workers was €150/month, based on a piece-rate system.

Raw material is sourced as sawnwood from Romanian sawmills and is converted to garden and leisure products: seats, tables, fencing panels, trellis, etc. The main markets are in western Europe, particularly French chain stores. Annual production is 8,000 m<sup>3</sup> with over 1000 items in the product portfolio. Products are pressure treated with Tanalith E, one of the replacements for CCA treatment for domestic-use wood products.

The main species used are acacia, oak and Norway spruce. All sawnwood is graded upon arrival; the lower grades are used for pallet manufacture with the better quality going to added value uses. One and half month's raw material is held in stock to allow the wood to air dry.

It is the first factory in Romania to have FSC chain of custody certification. The sawnwood is bought from a sawmill supplied with certified wood from Romania's national parks. Mr Kroner stated that he paid between 10 and 15% more for certified wood but as his factory was the only market for it, a true market price did not exist. Kiln drying is used for final drying to specific moisture contents, depending on species. The kilns were fuelled with sawdust and off-cuts.

Our second stop was at a traditional hardwood sawmill, Forex. Mr Enache, the Sales Director was our guide. The mill was privatised in 1990 and is now fully Romanian owned. Roundwood intake was 25,000 m<sup>3</sup>/year, 75% beech, as well as oak, maple and cherry. The average mill-gate price for logs was €79/m<sup>3</sup> (including approx. €11/m<sup>3</sup> for haulage). A maximum of 12,000 m<sup>3</sup> was held in stock due to the seasonal nature of hardwood harvesting. Half the timber was harvested by the sawmill and half bought at roadside.

The markets for the produce were primarily foreign, with Germany taking 60%, followed by Spain, Portugal, and then the Far East, including Japan and Hong Kong. The ultimate end-product markets were flooring, kitchen panels and furniture. All products are sawn, chemically steamed (for insect and fungal protection), air-dried to 35% moisture content and then kiln dried to 12%. The sawn timber is then graded, baled and exported in containers at an average ex-mill price of €300 to €320/m<sup>3</sup>. Sawn timber recovery ran at approx 50%, with the sawdust going to fire the kilns and the slabs going to a local MDF factory at 20/tonne (ex-mill). Average wages for industrial workers were €120/month.

Our final visit was to a slicing veneer company – Losán – where the Technical Director, a Mr Frunza was our host. The factory site was another green-field development, established within the last five years. It has 52 employees and is a wholly-owned subsidiary of the Spanish wood processing company Wemhoner. It produces aesthetic grade veneer for kitchen, domestic and office furniture.

Roundwood intake is 24,000 m<sup>3</sup>/year. Beech (60%), oak, cherry, sycamore and Spanish chestnut (of a diameter greater than 45 cm) are the main species used. The company is the largest producer of white beech veneer in Europe. As well as sourcing raw material in Romania it also purchases in Georgia and the Ukraine, and Mr Frunza was even buying 100 m<sup>3</sup>/month of Spanish chestnut from England.

As with the hardwood sawmill at the previous stop, large stocks of roundwood are carried, as no felling takes place during the summer months. Logs are stored under a sprinkler system within the log yard, but beech will nevertheless degrade due to fungal infection, because of high temperatures and moisture. Mr Frunza stated that the average mill-gate price for logs was between €300-€400/m<sup>3</sup>, and that the average ex-mill price for finished veneer was about €800/m<sup>3</sup>. The markets for the veneer are northern Europe, Holland and Spain. It is sold through a network of agents.

The factory had four veneer slicing lines operating on a 24-hour basis, making it one of the five largest veneer mills in Europe. The veneer production process was as follows:

1. the log is cut to length,
2. debarked,
3. sawn into a square cant,
4. placed in water at a temperature of 40 °C to facilitate slicing,
5. sliced (on one of four lines),
6. the veneer is dried,
7. pressed,
8. graded and
9. cut to length.

The recovery rate from roundwood to finished veneer was 40%, the balance being bark, slabs and the centre cant (left over after the slicing process, which is sold on to the pallet and packaging sector).

The day was most informative, showing investment in the latest technology, with western European countries providing capital where there was a large timber resource.

So next time you go for a teabag from the cupboard, the door you're holding could well have come from Brasov, a rapidly developing part of eastern Europe!

*Richard Lowe*

### *Wednesday 10 September*

#### Brasov – walking tour of the Old Town

Brasov is a medieval city located at the foot of Mount Tampa, on the old trade routes across the Carpathian Mountains to the Turkish Empire and the Orient.

A defensive wall surrounds the old town, it was originally 12 m high and 3 km in length. Seven defensive bastions were located at exposed points on the wall. Each bastion was defended by a particular guild, such as the weavers or the blacksmiths. The Weavers' Bastion (south east of the old square) is the best preserved of the seven. It is now a museum and houses a scale model of the town as it was in 1896.

Piata Statului, the old market square, located in the German section of the town, has many fine, well-preserved buildings dating from the 13<sup>th</sup>, 14<sup>th</sup> and 15<sup>th</sup> centuries. The most impressive of these is the Black Church – one of the largest Gothic churches in Europe – built between 1383 and 1477. The church organ, built by Bucholz of Berlin has 4,000 pipes. During the summer Piata Statului is a popular venue for concerts and has hosted famous singers such as Johnny Logan and Ray Charles.

#### Faculty of Silviculture and Engineering – University of Brasov

During our visit the Dean of the Faculty, Professor Gheorghita Ionascu, outlined the courses available at the university, which moved here in 1958 from Bucharest.

The faculty currently has 850 students and is the largest forestry faculty in Europe. More than 100 students graduate each year but most of them must emigrate to find employment. The faculty provides degree courses in silviculture and forest management and in wood engineering; it also offers a 3-year forest engineering diploma course, masters courses and a PhD programme, with fifteen specialities. Practical training for the students is provided on a 32,000 ha forest managed by the faculty. It also manages a pheasant farm



and several hunting lodges.

The campus at Brasov also houses the Faculties of Sports Medicine and Arts. About 15,000 students attend the university, where many of the courses are also available in English, French and German.

#### The Mohos Nature Reserve

This protected area of the Ciomati Massif is famous for its twin volcanic craters of Mohos and Saint Ana. Although it was originally volcanic, the Mohos is now a peat bog, which is a very rare ecotype in Romania. The main trees growing here are Scots pine (which accounts for less than 1% of Romanian forests) and Norway spruce. Interestingly the reserve is managed by a NGO.

#### Furniture factory of Mobexpert Ltd in Seculesc

This former state owned factory was bought by Mr Oliver Tamas in 1999. He paid €0.5 m for the buildings on 8 ha and invested a further €0.4 m in re-equipping it. This was a brave move for the then 30-year-old cabinetmaker, at a time when bank interest rates were 24% and annual inflation was running at 63%.

When he bought the premises there were 25 employees making just one product – kitchen chairs. He now has 120 employees, producing 105 products. His main markets are Holland, Germany, Hungary, Israel and other furniture factories in Romania.

Furniture manufacturing is an important component of the Romanian economy, it accounted for 5.6% of exports in 2000. However, the Romanian furniture industry is very fragmented – in 1999 there were approximately 2000 separate factories and workshops producing furniture, usually in small quantities.

The greatest difficulties Mr Tamas encountered in the transition from state factory to private enterprise were raising skills levels and improving product design. His first action on acquiring the premises was to fit it out with good quality, second hand German machinery. He then trained the staff to operate them and finally he began to repair and renovate the buildings which had been badly neglected while in state ownership. Staff training was the biggest hurdle. While you might expect to find a pool of skilled labour coming from the state factory, this was not the case, as it made one product only and there was little emphasis on quality and none whatsoever on design.

His current throughput is 500 m<sup>3</sup>/month of roundwood (200 m<sup>3</sup> of sawnwood). The species mix is 50% pine, 30% oak and 20% beech. He plans to double his throughput by the end of 2006. At the moment, his priority objectives are to improve product design by working in co-operation with his customers and to increase the size of order runs – currently his average run size is only five pieces.

*Pat O'Sullivan*

#### *Thursday 11 September*

We departed Brasov in the direction of Zarnesti and ascended to an elevated forest property. The area is used by the forestry faculty of the University of Brasov, as a diversity of vegetation is found in an undisturbed state on its slopes.

As the bus climbed to the summit a broad, clear view could be seen of the city of Brasov. Some old buildings are still visible on the hillside which were used as lookout posts in the past when the danger of a Turkish invasion was ever present.

There were four elevational vegetation types, each with its constituent tree species, a

reflection of climatic and soil conditions. At low elevation pedunculate oak was the most common species. As the elevation increased the oak merged into beech, which eventually became dominant, changing to beech/Norway spruce mixtures, which in turn gave way to pure conifers near the summit.

As we descended we were informed that hunting plays an important role in the Romanian economy and is significant source of forest income: twenty five percent of forest revenue is from non-wood sources. Bear hunting, which is strictly controlled and monitored, is very lucrative as animals of the size and age sought by German hunters occur in the extensive broadleaved forests.

On leaving the distinctive silvicultural zones Scots pine was planted on slopes, it looked healthy and vigorous. We next stopped at a 40-year-old beech stand. Like most broadleaved stands in Romania it was established by natural regeneration. Harvesting had caused some damage to the emerging natural regeneration; this was a problem of recent origin and was causing some concern. Forests in the past were managed according to an inflexible plan but this practice is now changing, as the market place is dictating the pace of change.

Climatic and site conditions are very favourable to natural regeneration, almost all over the country. Shelterwood is the most common silvicultural system used in production forests. In most beech stands following a mast year, in excess of 300,000 seedlings/ha can survive through to the next year. In the first 10-20 years there are high densities of seedlings and intense natural competition; these conditions are characteristic of beech forests in Romania.

Cleaning starts at 17-22 years-of-age when the trees have a height of 8-10 m. Natural pruning also begins at this stage. Cleaning involves removing undesirable species and stems with defects. It reduces the canopy closure index to 0.75-0.8. Two cleanings are normally carried out, after the second operation stocking is reduced to about 2500-3000 stems/ha and basal area to 18-20 m<sup>2</sup>/ha.

We departed the beech stand in the Zarnesti Forest District and travelled to the Piatra Craiului National Park. The park is well known nationally and internationally because of its spectacularly long and high calcareous ridge and the unique flora and fauna that occur. It is an enclosure area for the study of wolves and bears. The scenery is spectacular as the extensive area of low hills is covered with broadleaves which look their best from September when the leaves change colour.

Land tenure in the area is unsettled, landowners who have recovered their lands in recent years are selling to wealthy outsiders who are building extensive summer residences without planning permission and as a result are coming into conflict with local and national planning regulations.

We were met by Zotta Mihai, chief ranger and tourism/education officer. He explained that in 1938 an area of four hundred ha was declared a special reserve and has been protected since 1970, the park being finally established in 1999. It is now one of 17 national parks in addition to the Danube Delta (which has its own administration and terms of reference). There is on-going discussion with citizens who are opting to take back land which their ancestors lost in the late 1940s. They are being encouraged to retain the forest, as their farming skills and husbandry may not be as keen as those who have had uninterrupted involvement with farming over the decades.

Zotta Mihai spends quite a lot of his time in consultation with non-governmental organisations (NGOs) in connection with his work and his future plans for the national park. Some difficulties can arise, as there is no history of consultation in the country, it is a



new feature of environmental management. He has noticed that there is a new awareness in the public mind about amenity and environmental aspects of the landscape. He frequently visits schools as he finds them to be an effective place to consult and inform the public on existing and planned developments in the surrounding district. He also communicates with five NGOs and has adopted a policy of transparency, which is much favoured by the NGOs, and it has prevented disagreement in the past.

*Frank Nugent*

### *Friday 12 September*

As we left the Hotel Aro in Brasov the drizzling rain reminded us of home. The road to our first stop at Peles Castle ran through forest-clad hills of naturally regenerated beech and Norway spruce in mixture. The beech was just starting to show off its autumn colours.

We arrived at Sinaia at 10.45 and walked the 'Royal Mile' from the bus park to Peles Castle. Prior to 1948 this was the residence from May to October of the Romanian Royal Family. The architecture and decoration of the castle show European and Turkish influences. It is surrounded by a forest of beech and Norway spruce, with individual exotic specimens in the grounds around the castle.

Our second stop was at the headquarters of the Bucegi Natural Park in the Dambovita Forest Region where Daniel Dumitru the Regional Director, Viorel Voicu the District Manager and George Puscariu the Park Manager met us.

Dambovita Forest Region occupies 95,000 ha and includes all forest types, from flood plains to alpine meadows. The annual cut of 249,000 m<sup>3</sup> is sold to private mills and as firewood. Other forest products include fruits, mushrooms, charcoal and trout. Wolves, bear, chamois, roe deer, red deer and wild boar form the wildlife of the region. An attempt is being made to re-introduce bison.

The Forest District is 9,000 ha in area and covers an altitude range from 400-2500 m. Annual increment for the district is 45,000 m<sup>3</sup>, with an allowable cut of 40,000 m<sup>3</sup>. Norway spruce (55%) and beech (39%) are the main species. The entire district is a protection forest, which places special restrictions on felling. Turnover is about 900,000/year. Roundwood is either sold standing or at roadside, with some conversion being done at the district's own mill. Hunting is an important source of revenue for the district, with hunters paying as much as 10,000 for a red deer trophy.

The area of the Natural Park is 32,000 ha, with 60% forest cover. The objectives of the park are to protect wilderness areas, improve trails, conserve biodiversity, provide areas for scientific research and education, and manage tourism in an ecologically sympathetic way. There are 14 nature reserves in the park (totalling 12,000 ha) in which harvesting is forbidden. It is the location of many caves and spectacular gorges due to the limestone bedrock.

Our third stop was at a business unit of the Dambovita Forest Region. It consisted of a small sawmill and trout farm. The sawmill produces various items of furniture, parquet flooring, doors, windows and chalet huts. The trout farm was built in 1979/1980 and caters for the full cycle of production from egg to sale of rainbow trout, which takes about 1.5 years, at which stage they are 1.5 kg.

At Doicesti we entered the Romanian plain and proceeded on to Targoviste where we ate lunch. This town was the capital of Romania during the rule of the notorious Vlad the Impaler. It was here at the local military base that the communist dictator Nicolai Ceausescu and his wife were executed.

Our fourth stop was at Gaetsi Central Nursery, another unit of the Dambovită Forest Region. It was established in 1962 and grows oak, poplar, sycamore and ash for planting in the forests where natural regeneration is inadequate and for planting on degraded farmland. In an attempt to increase revenue the nursery has commenced the production of ornamental species including acacia, cherry, box, privet, *Picea pungens*, juniper and hibiscus. Some species are started off as cuttings in plastic tunnels in a bed of 50% peat and 50% sand. The production cycle is 3 years.

The last stop of the day was a visit to Bolovani pedunculate oak forest. This is a remnant of the forest of the Romanian plain, where oak and ash are the typical forest species. The oak at Bolovani was 120 to 140 years old. The stand had been heavily thinned to encourage natural regeneration. There is already regeneration of ash and oak and the forester will favour the oak in future tending and spacing operations. There are roe and fallow deer in this area and a wild boar enclosure for research purposes.

After an interesting day we proceeded to our overnight stop at the Hotel Ibis in Bucharest.

*Bob Dagg*

### *Saturday 13 September*

The morning was free and many participants took the opportunity to visit a furniture exhibition in Bucharest. In the afternoon the group headed for the airport, en route to the airport, the President, Aeneas Higgins paid tribute once again to Dr Ioan Abrudan for his assistance in providing such a wonderful and varied tour, taking in all aspects of forestry in Romania as well as areas of cultural interest.



*Study tour participants on the steps of the Centru Civic (Ceaulescu's place) in Bucharest.*

*John Mc Loughlin*

### **Participants**

Marie Aherne, Peter Alley, PJ Bruton, Michael Bulfin, Michael Carey, Tadhg Collins, John Conneff, Jim Crowley, Bob Dagg, Frank Drea, Ken Ellis, Paul Finnegan, Jerry Fleming, Matt Fogarty, Gerhardt Gallagher, Tony Gallinagh, Sean Galvin, Tomas Gerety, Christy Hanley, Aeneas Higgins (President), George Hipwell, Larry Kelly, Richard Lowe, Michael Lynn, PJ Lyons, Donal Magner, Tony Mannion, Pat McCloskey, Kevin McDonald, Tom McDonald, John McLoughlin, (Convenor) PJ Morrissey, Liam Murphy, Jim Neilan, Frank Nugent, Michael O'Brien, Pat O'Callaghan, Liam O'Flanagan, Derry O'Hegarty, Tim O'Regan, Denis O'Sullivan, Pat O'Sullivan and Joe Treacy.